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# THE JOURNAL

OF THE

# American Medical Association,

A MEDICAL JOURNAL CONTAINING THE

OFFICIAL RECORD OF THE PROCEEDINGS OF THE ASSOCIATION, AND THE PAPERS READ AT THE ANNUAL MEETING, IN THE SEVERAL SECTIONS, TOGETHER WITH THE

MEDICAL LITERATURE OF THE PERIOD.

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EDITED FOR THE ASSOCIATION UNDER THE DIRECTION OF THE BOARD OF TRUSTEES,

BY

JOHN B. HAMILTON, M.D., LL.D.

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VOLUME XXIV.

JANUARY — JUNE,

1895.

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CHICAGO:

AMERICAN MEDICAL ASSOCIATION PRESS.

1895.

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# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, JANUARY 5, 1895.

No. 1.

## ORIGINAL ARTICLES.

### TYPHOID FEVER IN INFANTS.

BY I. N. LOVE, M.D.

ST. LOUIS, MO.

Time out of mind the general sentiment in the profession has been in favor of the thought that typhoid fever is not a disease incident to early childhood; but when we remember that the Eberth bacillus is the definite cause of the disease and that it is usually carried through polluted drinking water, the query may well be presented, Why should children who drink water escape typhoid fever any more than those of larger growth?

Age materially affects the liability to the disease, it being especially a disease of youthful vigorous individuals of 15 to 30 years. It is true that above that age it is much less frequent, although cases have been observed as late as 60 or even 70 years of age. Formerly it was often said that young children were never attacked, but Strumpell truthfully remarks: "This was because the disease was not recognized, for in reality it is only children under 1 year who seem to be seldom infected." When we recall that children under 1 year rarely drink water, their food being so largely fluid and being almost uniformly sterilized, we can readily understand why they should escape, and yet we may well question whether there is any special immunity against the danger of the Eberth bacillus in children under 1 year, the same as against most other infectious germs. Osler says upon this point: "It is not very infrequent in childhood but infants are rarely attacked." Murchison has seen a case at the sixth month. Cases have been observed which were congenital in which the mother had the disease late in pregnancy.

It has been my good or ill fortune to see during the past ten years in consultation, a number of children under the age of 2 years which presented mild intestinal disturbance, no marked tenderness over the bowels, a very high temperature, and where the apparent cerebral complications, delirium and stupor being prominent symptoms, were the apparent cause of death. In these cases in the death certificate the cause of death was usually given as congestive fever or meningitis. Two of these cases occurring within the past year, in both of which *post-mortem* examination revealed a pronounced error of diagnosis, has emphasized in my mind the thought that typhoid fever exists more frequently in early child life and in a serious form, than is generally suspected. It has generally been supposed that typhoid fever is milder when found among children than among the adolescent. Certainly, it has been noticed that intestinal complications and the characteristic ulcers are much less frequent, and as Strumpell says, this explains why "intestinal hemorrhage and peritonitis

are much rarer in children," but he truly observes, "severe cerebral symptoms are on the other hand very frequent."

As we know, the laity have long been disposed to apply the term "nervous fever" to this disease, and the term is truly justifiable, because we know how frequent and severe the nervous derangements are which occur in typhoid fever. Indeed, in the adult one often finds apparently mild cases where the temperature ranges low and yet where the nervous phenomena are very pronounced. Considering the undeveloped, sensitive nervous organization of the child, we have good reason to look for even more pronounced and serious nervous manifestations than in those older.

I present the following case:

A little girl of 18 months, child of a very prominent physician, was taken sick early in May with marked intestinal disturbance. The evacuations from the bowels were frequent and copious, accompanied by mucus and blood. The temperature ranged from 102 to 104 and on one occasion reached 105 degrees. There seemed to be a history of acute indigestion. The usual treatment was applied in this direction and the temperature was controlled by cooling baths. Flushing of the colon with medicated warm water was applied, followed by starch-water injections containing a few drops of laudanum for the purpose of calming the bowel and reducing the frequency of the operations which interfered with rest. During the early part of the attack, the child though having frequent operations, was noticed to be calm and gave no evidence of pain. Not until the fourth or fifth day, however, was marked mental obtundity observed, and the staring appearance of the eyes, together with the indifference to surroundings, impressed me with the fact that there was a cerebral complication. The course of treatment was continued and the supposed cerebral complication became more pronounced. Inability to distinguish light or sound and later a crossing of the eyes, apparently justifying a diagnosis of meningitis. The child died about the tenth day. *Post-mortem* examination developed the absence of meningeal inflammation and the presence of ulcerations of the glands of Peyer, showing us, the physicians in attendance, how little we knew of the cause of death.

The indications for treatment were the same. A recognition of the disease in advance would have probably made no difference, for the holding of the temperature down within safe range, the giving of a bland diet, the securing of rest, the administration of antiseptic remedies to relieve intestinal irritation would have been the indications no matter what the diagnosis. The one case was almost a duplicate of the other, and both have emphasized in my mind, together with other experiences, the thought that we must admit the possibilities of typhoid fever during infantile life even more frequently than we have been in the habit of doing, and that we must be on the alert in this direction in order that we may make a correct diagnosis.

When we recall the fact that the serious disturbance of the nervous centers, producing coma and eventually paralysis in infectious diseases, (whether due to the Klebs bacillus, the bacillus of Eberth, the pneumococcus or Fehleisen's bacillus of erysipelas)

are due to the toxin secreted by the bacilli (and the nervous phenomena in all these diseases are often very pronounced) we can readily appreciate that the child who is so prone to the hybrid and indefinite expression of disease, should often be listed for meningitis instead of typhoid fever.

Infectious cerebro-spinal meningitis is often accompanied by a rash similar to that of typhoid fever, and we can readily see how easy it is to make an error in diagnosis in this direction.

This short paper may be condensed into the following conclusions:

1. Typhoid fever occurs more frequently in children than is generally supposed.

2. The fact that ulceration and hemorrhage is much less frequent would explain the absence of pronounced abdominal symptoms.

3. The erratic, undeveloped and hyper-sensitive nerve centers in early child life explain why the toxic secretions of the Eberth bacillus should make cerebral symptoms very pronounced.

4. Given a child of any age with or without intestinal disturbance, with a continued elevated temperature, with or without marked evidence of cerebral disturbance, the possibility of the presence of the Eberth bacillus of typhoid fever should be constantly kept in mind.

#### FURTHER REPORTS ON THE ABORTION OF TYPHOID FEVER.

Read before the Mississippi Valley Medical Association at Hot Springs, Ark., Nov. 21, 1894.

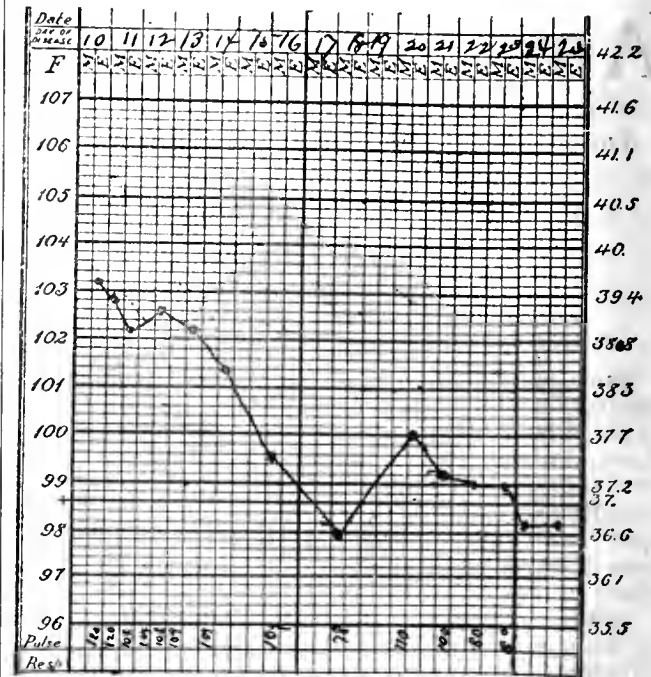
BY JOHN ELIOT WOODBRIDGE, M.D.  
YOUNGSTOWN, OHIO.

When I accepted an invitation to present a paper at your last meeting, selected for my subject the question, Can typhoid fever be aborted, and answered it in the affirmative, antagonizing the teachings of the most learned professors in every medical college in the civilized world, I knew that I should be severely criticized, no matter how conclusive the evidence might be that my views were correct, and I fully realized, to use the words of a distinguished *litterateur*, that I might expect to stand but sit and sleep on pin points for some years.

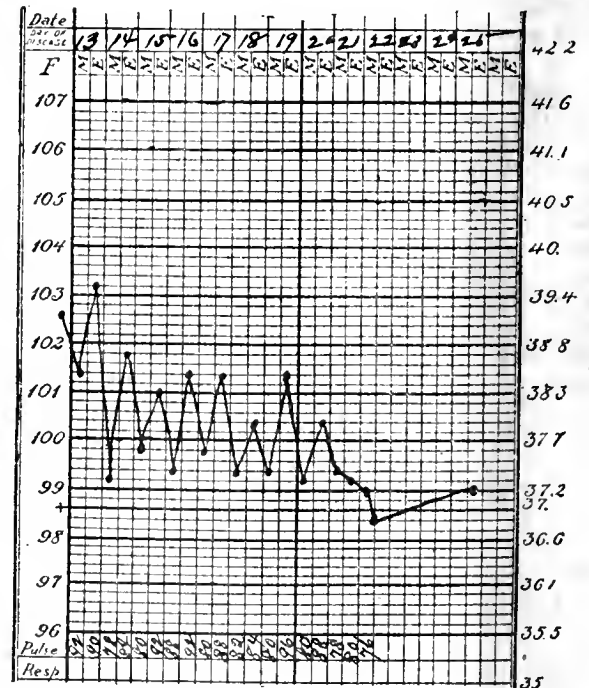
Nothing, save the feeling of responsibility for every life sacrificed to typhoid fever, and the positive knowledge of its correctness could have forced from me that affirmative answer; looking back over twelve years experience without a death from typhoid, malarial, or any continued fever, to a preceding series of sixteen years with a death rate of 17 per cent. from typhoid fever alone; and from a time when my brother practitioners were having no better results than I formerly had. On July 17, 1893, I gave in my local society the names and residences of twenty-one cases of typhoid fever out of the large number I had treated. June 25, 1893, I instituted a series of clinical charts and began numbering with 20, presenting at your last meeting twenty charts, to show the modification of the temperature curve by treatment.

I deem it my duty as a conscientious physician, desiring only the welfare of mankind and the advancement of my profession, to continue the reports of cases falling under my observation. The many grateful letters and kindly words of encouragement I have received from brother physicians, and in some cases from the patients themselves, more than offset

the intolerant words and unkindly criticism I have met with from others.



Case 78.—Typhoid fever; name, J. J., age 6 years; residence, Darrow Street; date of admission, July 26, 1894. Result, temperature touched normal on the ninth day.

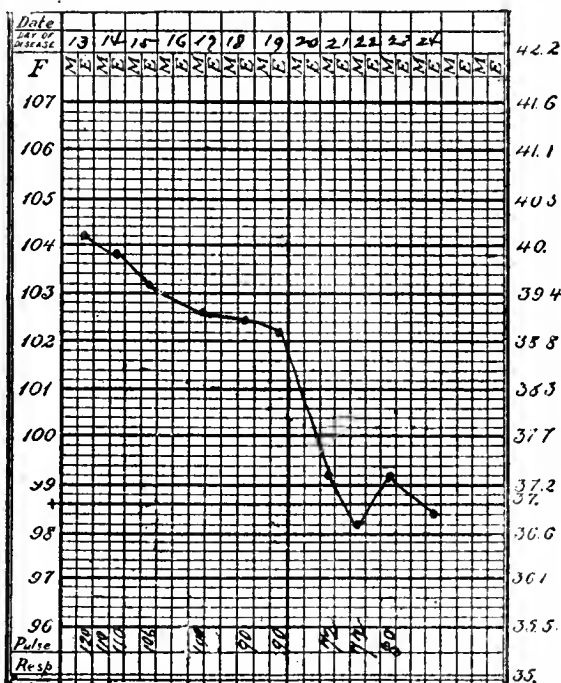


Case 82.—Typhoid fever; name, Ezra Main; age 26; nativity, American; occupation, farmer; residence, Trumbull County; date of admission, August 31, 1894. Commenced treatment August 30, one day before removing to the hospital. This patient was diagnosed as typhoid fever and treated a few days by Dr. T. H. Stewart of Church Hill. The symptoms becoming grave he feared to continue without a trained nurse, an expense which the family could not afford; hence he was turned over to me on the twelfth day of his sickness and moved nine miles in an ambulance to the Youngstown City Hospital, August 31. Bowels very tympanitic; tenderness in right iliac region; rose spots abundant; tongue coated, margin red.

I have no feeling of unkindness for those persons, because I know that truth being eternal will prevail, and that my critics of to-day, should we all live, will

themselves practice the antiseptic abortive treatment in time, and thus vindicate the position which I have been obliged to assume as a logical sequence of the facts I have observed.

I hope, however, that by going annually before some great medical body, reporting the cases in which the fever was aborted during the intervening periods and exhibiting the clinical charts, and premising that I see the cases at a reasonably early stage of the disease with no death to mar the record, that I may ultimately prove beyond the possibility of a doubt that I am not teaching the world to expect or demand more of my profession than it ought. Few can realize the anxiety with which one stands before a representative body like this to say that the greatest thinkers, that all of the great teachers in this most learned of the professions, the highest aim of which is to mitigate human suffering and to save human life, have promulgated an error which in the one disease under consideration costs more than 50,000



Case 85.—Typhoid fever; name, C. Smith; age 10 years; residence, Fosterville, Ohio; date of admission, Sept. 13, 1894. This boy lived in a neighborhood where there were several cases of typhoid fever. Was not confined to bed all of any day, but although presenting well marked symptoms of the disease rode several times on his pony to my office to see me. Temperature touched normal on the tenth day of treatment. September 13. Headache severe for several days past; epistaxis; bowels tender and tympanitic. September 17. Rode his pony to my office.

lives annually and unnumbered years of miserable sickness.

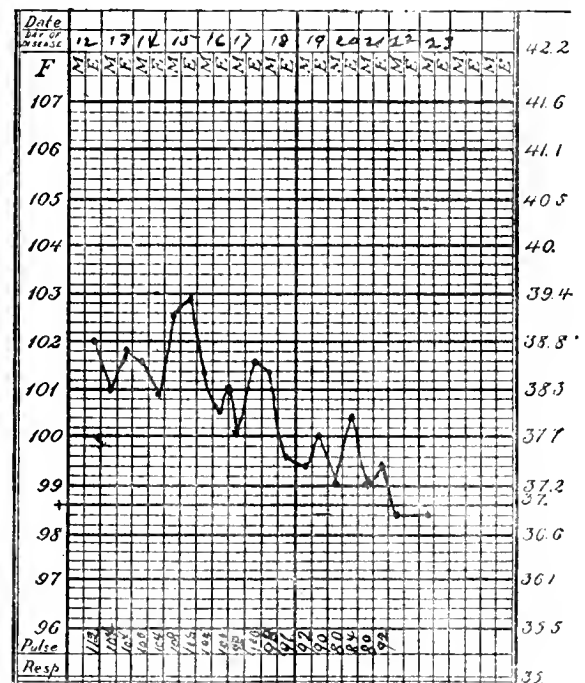
Since our last meeting, I have treated alone or in consultation, fifty-four cases of typhoid fever, without a death and with an average duration of treatment of about twelve days. I had, also, a case of pneumo-typhus and two or three cases sent by other physicians at late stages of the disease, one as late as the sixteenth day. I was called during the year to see one case on the thirty-fourth day of sickness when no treatment was needed and another at a somewhat earlier period but when the patient was dying of exhaustion and no treatment was possible. In the Section of General Medicine at the San Francisco meeting of the AMERICAN MEDICAL ASSOCIATION I reported my cases up to and including No. 75.

Case 76.—Pneumo-typhus; was in a desperate condition when I was called. She had been sick ten days; was coughing incessantly, raving wildly and having a profuse hemorrhage of the lungs; her pulse was 160; temperature 106.4. She was treated as a case of typhoid fever, with necessary additions in the later stages to meet the lung complication and made a good, though as you will see, not a rapid recovery. She lost all her hair.

Case 78.—John Joyce; was treated until the tenth day of sickness, by the family physician under a first diagnosis of malarial fever. Dr. Cunningham, who had seen some practice in Chicago accompanied me on my first visit having expressed a desire to see some of my work. I asked him to examine the patient and make a diagnosis. He did so, remarking that he should consider it a typical case of typhoid fever. Fearing that his words might frighten the boy's mother who was a stranger to me, I said: "Madame, you need not be alarmed; there is no danger from typhoid fever if it is properly treated." His temperature touched normal as you will see, on the eighth day of treatment.

Case 82.—Was sent to the hospital from the adjoining county of Trumbull, by Dr. T. H. Stewart. He was in the hospital ten days.

One of the best practitioners in Ohio made a diagnosis



Case 86.—Name, N. H.; age, 17 years; residence, Pine Street; date of admission, Sept. 20, 1894. This patient was under the care of another physician who had prescribed corrosive sublimate and one of the coal tar derivatives; enjoined perfect rest, milk diet; made a prognosis of several weeks severe sickness. I was called on the twelfth day of sickness. Found a typical case of typhoid fever and gave a prognosis of no danger and ten or twelve days sickness. She sat up, having a normal temperature on the tenth day, but a few days later she developed a phlebitis from which she has hardly recovered. September 20. Rose spots abundant, other symptoms characteristic.

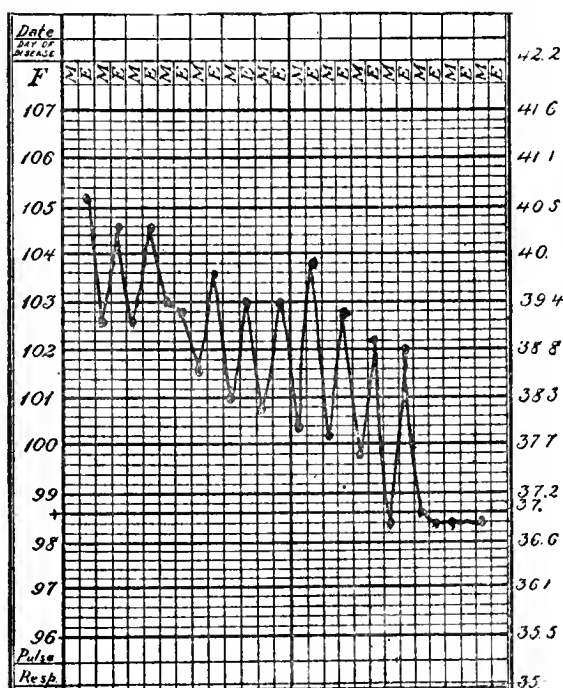
of typhoid fever and called me in consultation to Case 83 which made a good recovery.

Case 86.—Was taken sick at the home of her parents, but her physician, recognizing the gravity of her condition had her removed to her sister's in a better and healthier locality, and had her put to bed down stairs, saying that she would be very sick for several weeks. He treated her until the twelfth day of sickness. I was subsequently called to attend this case and being unaware of the Doctor's prognosis, I told the family she would probably be much better in four or five days, and sitting up in ten days, which she did, but had an attack of phlebitis, which greatly prolonged the sickness.

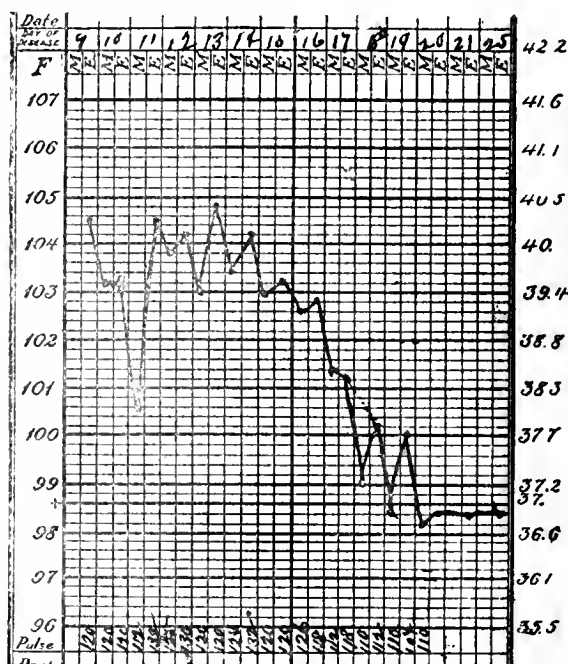
The physician who called me in consultation to Case 83 was himself called in consultation to see Case 86, and after consulting, the two physicians went together to the family (in which there had already been three other cases and one death from intestinal hemorrhage) and told them that Mr. M.'s

symptoms were all so very bad that they advised that Dr. Woodbridge be sent for in consultation. Upon consulting with the doctors, I said: "There is no dan-

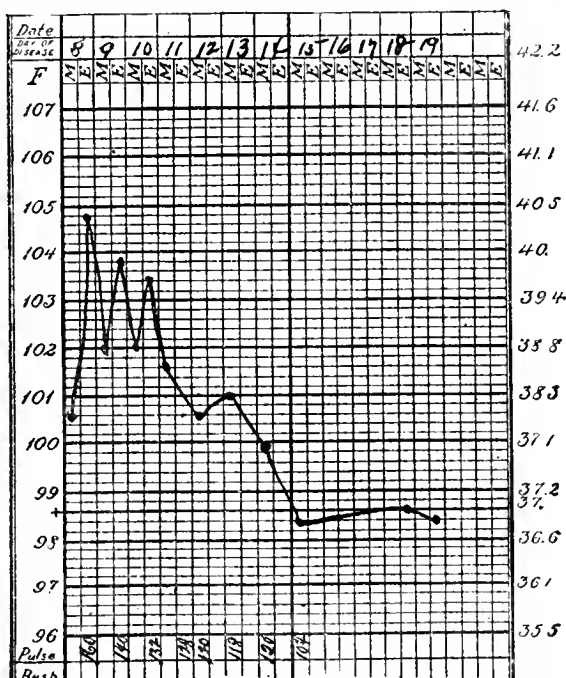
never is any danger of death from typhoid fever when taken at the stage at which we take this case." Yet his pulse was 100, and his temperature was 105.2;



Case 87.—Typhoid fever; name, O. M.; residence, ———; date of admission, September 22, 1894. This patient was the fourth case of typhoid fever in the family, one having died after an intestinal hemorrhage. His nervous symptoms being very severe, his attending physician asked for counsel. After consultation with his other physician, he asked to have me called, expressing to the family the opinion that the man would die under any known treatment of typhoid fever. Temperature touched normal on the tenth day of treatment.

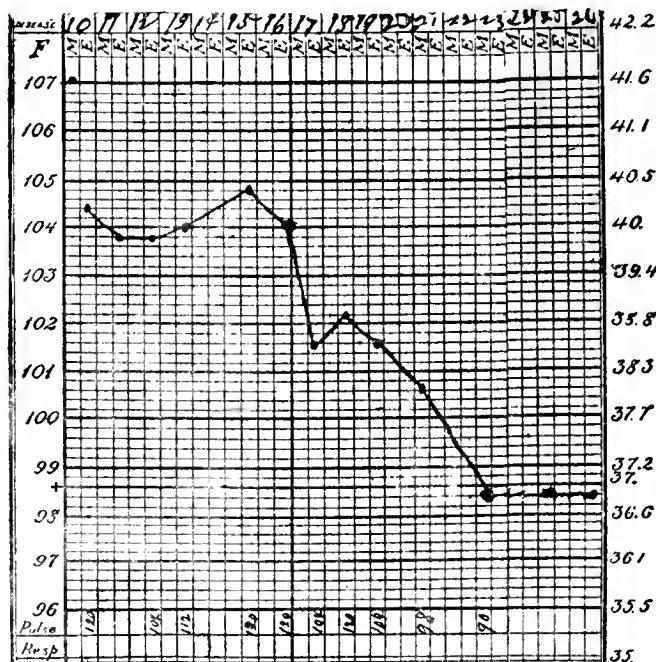


Case 92.—Typhoid fever; Mrs. Yost; age, 24 years; residence, Hazelton, Ohio; date of admission, Oct. 27, 1894. Diagnosis by Drs. Bennett and Yost. Temperature touched normal on the tenth day of treatment. October 27. Bowels very tender and tympanitic; headache severe; nervous symptoms grave; sleepless; rose spots abundant. October 31. Pulse dicrotic. November 1. Pulse dicrotic.



Case 89.—Pneumo-typhus; name, P. G.; age 4½ years; residence McGuffey Street; date of admission, Oct. 16, 1894. Temperature touched normal on the eighth day of treatment. On the beginning of treatment nose bleed; headache severe; bowels very tympanitic; slightly delirious. On the twelfth day of treatment rose spots abundant. On the eighteenth day of treatment playing out of doors but very irritable and cross.

ger of a fatal termination. He will have a normal temperature in ten or twelve days;" but added, "there is not only no danger of death in this case, but there



Case 93.—Typhoid fever; name, Mrs. ———; residence, Thorn Hill, Ohio; date of admission, Oct. 27, 1894. Sanitary surroundings terrible! No fire in house (kitchen separate). No change of bed or body linen. No attention to the ordinary demands of cleanliness. Husband taken from her bedside to jail. Temperature touched normal thirteenth day of treatment. When first seen, intense headache; no sleep for three or four nights; very nervous; abdomen tender and very tympanitic. October 15. Three hemorrhages of bowels.

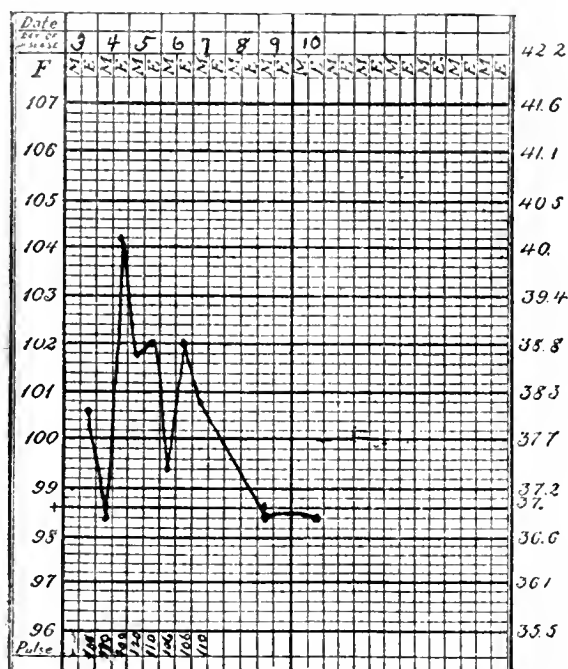
his other symptoms were extremely grave, I was not expected to see him again. Prognosis verified by the result.



*Case 91.*—Mrs. G., was seen in consultation with her attending physician. Her urine showed large quantities of albumen, and an abundance of both granular and hyaline casts. Her temperature never went above 101. She had considerable intestinal hemorrhage but made a good recovery.

*Case 93.*—When called in Case 93, I was told that she had been sick about ten days, but later information led me to believe that she had been sick twelve or thirteen days. Her condition, circumstances and surroundings were horrible; neither any part of her bedding nor her underwear were changed, nor were her face or hands or any part of her body washed during her sickness. There was a cooking stove in a back kitchen somewhere, and no fire anywhere else; it was cold weather with snow much of the time. The room adjoining hers, separated from it only by a loose board partition, was scrubbed once and when I went in the water was standing in puddles. On one of my visits I found the unemptied bed-pan on the bed, and on inquiring found her bowels had moved on the morning of the preceding day. Her husband was taken from her bedside to jail. She had three intestinal hemorrhages in one day. She made, as you see, a rapid recovery, her temperature becoming normal on the twelfth or thirteenth day. She lived so far in the country that I could not visit her every day.

*Case 94, 92 and 96.*—Dr. J. O. Yost, his wife and sister are in-



*Case 96.*—Typhoid fever; name, Kittle Yost; Hazelton, Ohio; date of admission, Nov. 5, 1894. Allowed solid food after the fifth day of treatment. Diagnosis made by Drs. Bennett and Yost. Nov. 5. Headache severe; cough incessant; abdomen tympanitic and tender, pressure produces gurgling.

interesting indeed. Mrs. Yost was under the care of Dr. B., a gentleman of unquestioned ability, who about a year ago passed through a very severe ordeal with typhoid fever, confined to bed six weeks, unable to attend to business an additional three months and even yet not over the effects of the attack. Seeing his patient growing worse, Dr. B. called on me about the tenth day and asked me to see her. I found as he said, a typical case of typhoid fever; the temperature  $104\frac{1}{2}$ ; the pulse varying between 110 and 134, which later became dicrotic. The bowels were very tender and tympanitic; marked dullness over the spleen; the margins of the tongue red, the center coated; much gurgling on pressure; a few rose spots which afterward became abundant; nervous and sleepless; very severe headache. A man boarding in a near by house dying, necropsy revealed extensive typhoid lesions and a perforation. The doctors asked if I considered Mrs. Yost in very great danger. I answered, giving my usual prognosis: "Typhoid fever is never dangerous if properly treated early." Two days later Dr. B. called my attention to Dr. Y., saying that he himself had typhoid fever. Examining him, I found his symptoms nearly as well marked as were those of Mrs.

Yost, save that his temperature and pulse were not so high or frequent and he had no rose spots.

He said if he were going to be confined to bed he should go home. I said: "Stay and attend to your practice. I assure you that you will be able to at least see patients in your office every day of your sickness," and he was.

Eight days later, Miss Yost was attacked with typhoid fever, not having said anything about being sick as long as she was able to sit up. Her temperature the day before I saw her was  $104\frac{1}{2}$ ; her pulse 100, and all her symptoms characteristic. I told the doctor that she would have to stay in bed three or four days perhaps, but would be well in ten days, and could eat solid food all the time.

This closes the record since our last meeting. Some of the cases diagnosed and numbered as typhoid may possibly have been some other fever, but whatever they were, they all recovered under the treatment of typhoid fever; and this treatment is the least harmful they could possibly have had, there being nothing in it that could possibly be injurious except the little bit of calomel, and of that the dose is exceedingly small, less than one one-hundredth of the dose usually given.

No sane man would dare to go into houses with three or four members of a family sick with typhoid fever, the temperature of some of the patients above 105 degrees and give my invariable prognosis, unless he knew that there was power in medicine to ward off the threatened danger. No man would dare to make the promises I have made for so many years, unless he knew he could fulfill them. Remember, I have invited the closest scrutiny of my cases, and should I have a death from typhoid fever, or fail to abort a case when seen early, it would be emblazoned all over this broad land. But had I twenty years instead of twenty minutes, and could take you back and show you all the evidences that proved to me that typhoid fever can be aborted; could I show you all the typical cases that have yielded to this intestinal antiseptic; show the awful complications that threatened the life; show the white-haired old lady, with the positive proof of a preëxisting Bright's disease, with her repeated intestinal hemorrhages; show you the old man of 73 years, whose young son had succumbed to an intestinal hemorrhage; show the young lady with a year-old ovarian trouble presenting a rounded fluctuating mass through the abdominal walls; show you the wife of Angus McPhee with the blood welling up from her lung, and show you, too, that all of these patients recovered, many of them under the most adverse circumstances, totally disregarding all of the things usually insisted upon as essential to recovery. Many of them with only such nursing as a young child could give. Some giving no attention to restrictions as to diet, and all allowed to use their own pleasure as to exercise and bathing, and yet with no death to mar the record. You would commend my course in making so great a sacrifice and even endangering my professional career in the interest of humanity.

In the abortive treatment of typhoid fever, an early diagnosis is of the first importance. Every case of typhoid fever should be put upon proper treatment the first time seen. There should be absolutely no exception to this rule. If you await the development of pathognomonic symptoms of typhoid fever before beginning treatment, you will not always succeed in aborting the disease. Therefore a diagnosis from any other disease to typhoid fever is wholly unjustifiable, but the reverse is always proper, because the best possible treatment for typhoid fever is also

a safe initial treatment for any disease for which it could be mistaken.

If you always begin proper treatment when you first see your patient, he will be well often before a positive diagnosis is possible, and you will be deprived of what might otherwise have been a valuable record, but your patient will be the gainer. And after all we are physicians first and investigators afterwards. Hence, when consulted by a patient who could possibly become a victim of typhoid fever, diphtheria, la grippe, pneumonia or any pathologic condition which would be benefited by an intestinal or systemic antiseptic or eliminant, begin at once the treatment for typhoid fever.

It must not be supposed that because I have begun treatment at almost every stage of typhoid fever and have treated so large a number of cases and have had no death from typhoid fever or any disease that could be mistaken for it for more than twelve years, that such results are always possible. These cases make the proof positive that typhoid fever can be aborted, but it does not follow that it can always be aborted, or even that every life can be saved when it has not been properly treated in its earliest stages.

Next in importance to an early diagnosis, if indeed it should not stand *first*, is, that your prescriptions be properly compounded of pure and active ingredients. Messrs. Parke & Davis have for years supplied most of the materials entering into my prescriptions, and latterly they have put up for me, tablets of formulas Nos. 1 and 2, and soft capsules of formula No. 3 in a most satisfactory manner.

Begin the treatment with a tablet of formula No. 1:

R. Podophyllin . . . . .	gr. 1-960.
Hydrarg. chlor. m . . . . .	gr. 1-16
Guaiacal carb. . . . .	gr. 1-16.
Menthol . . . . .	gr. 1-16
Eucalyptol . . . . .	q.s.

Sig.: Every fifteen minutes.

No laxative effect should be produced during the first twenty-four hours, the object being to secure the antiseptic before the eliminative effect of the remedy. During the second period of twenty-four hours, not less than five or six free evacuations of the bowels should be secured. Then formula No. 2:

R. Podophyllin . . . . .	gr. 1-960
Hydrarg. chlor. m . . . . .	gr. 1-16
Guaiacal carb. . . . .	gr. 1-4
Menthol . . . . .	gr. 1-16
Thymol . . . . .	gr. 1-16
Eucalyptol . . . . .	q.s.
R. Guaiacal carb. . . . .	gr. iii
Thymol . . . . .	gr. i
Menthol . . . . .	gr. ss
Eucalyptol . . . . .	m j

One or more tablets every hour or two should be given with No. 1 as frequently and in as large doses as possible without producing too much laxative effect, and as long as necessary if no symptoms of ptyalin (a wholly unnecessary complication), appear, in which event they must be discontinued promptly for a day or two, and if necessary chlorate of soda or potash given, returning as soon as possible to formulas Nos 1 and 2. The object is to give these remedies as freely as possible at first, and then so gradually reduce the size and frequency of the doses as to allow the movements of the bowels to become less and less frequent, until, as the temperature approaches normal, the

movements shall be reduced to one or two each day. About the fourth or fifth day of treatment begin No. 3 every three hours.

Every dose of medicine should be washed down with large draughts of distilled or sterilized water, or according to indications with some good laxative or diuretic mineral water.

This treatment begun early and intelligently carried out will, if the remedies are pure, active and properly prepared, abort typhoid fever and a death from the disease will be unknown.

## ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Continued from page 948.)

### CHAPTER III.

#### CHANGES OF THE TEMPERATURE, PULSE AND RESPIRATION IN YELLOW FEVER.

Owing perhaps chiefly to the sudden origin, rapid progress, and singularly fatal nature of yellow fever, as well as the infrequency of the use of the thermometer in the investigation of the disease, but few facts of value relating to the definite degrees of temperature in the different stages of the disease can be found in the writings of various observers. Almost all observers, however, as Benjamin Rush,<sup>15</sup> J. Deveze,<sup>16</sup> Wm. Currie,<sup>17</sup> C. Caldwell,<sup>18</sup> Samuel Jackson,<sup>19</sup> P. Chas. A. Louis,<sup>20</sup> W. Arnold,<sup>21</sup> R. Jackson,<sup>22</sup> Lionel Chalmers,<sup>23</sup> John Lining,<sup>24</sup> A. M. F. Savarésy,<sup>25</sup> William T. Wragg, Daniel Blair,<sup>26</sup> John Davy,<sup>27</sup> Schmittlein,<sup>28</sup> and many others, concur in the statement that in the early stage of reaction or febrile excitement the temperature is elevated to a greater or less degree, in different cases, above the standard of health; and still further, that this elevation of temperature is not permanent, but at the end of from two to five days, in most cases, is succeeded by a decided fall; and although the symptoms may be of the gravest character and the patient *in extremis*, neither the elevation of the temperature nor the frequency of the pulse give any true indication of the danger.

Dr. John Lining, of Charlestown, S. C., appears to have been the first physician who recorded definite observations on the variations of the temperature in yellow fever. In his description of the American yellow fever, contained in a letter addressed to Dr. Robert Whyte, Professor of Medicine in the University of

<sup>15</sup> Medical Inquiries and Observations (4 vols. octavo), Philadelphia, 1809.

<sup>16</sup> Recherches et Observations sur la Maladie Epidémique qui à régné à Philadelphia, en 1793; Dissertation sur le Fievre Jaune, *Traité de la Fievre Jaune*, etc.

<sup>17</sup> Treatise on the Synchus Icterodes, etc., 1794.

<sup>18</sup> Facts and Observations relative to Yellow Fever.

<sup>19</sup> An Account of the Yellow or Malignant Fever which appeared in the city of Philadelphia in the Summer and Autumn of 1820.

<sup>20</sup> Anatomic, Pathologic, and Therapeutic Researches in Yellow Fever of Gibraltar, 1828; translation, Boston, 1839.

<sup>21</sup> A Practical Treatise on the Billious Remittent Fever (Yellow Fever) etc., London, 1840.

<sup>22</sup> Treatise on the Fevers of Jamaica. London, 1791.

<sup>23</sup> Accounts of the Weather and Diseases of South Carolina. London, 1768.

<sup>24</sup> A Description of the American Yellow Fever, in a letter to Dr. Whyte.

<sup>25</sup> De la Fievre Jaune, etc. Naples, 1809.

<sup>26</sup> Some Account of the last Yellow Fever Epidemic of British Guiana. Third edition, London, 1852.

<sup>27</sup> Notes to Blair's Account of the last Yellow Fever Epidemic of British Guiana.

<sup>28</sup> On the Temperature in Diseases, by Dr. C. A. Wunderlich. (Sydenham Society, page 405.)

Edinburgh, dated Charlestown, Dec. 14, 1753, and published March 7, 1754, the following general observations relate to the changes of the pulse, respiration and temperature in this disease: "After a chilliness and horror with which the disease generally begins, a fever succeeded, in which the pulse was very frequent till near the termination of the fever, and was generally full, hard, and consequently strong; in some, it was small and hard, in others, soft and small; but in all these cases, it frequently varied in its fullness and hardness. Toward the termination of the fever, the pulse became smaller, harder and less frequent. In some, there was a remarkable throbbing in the hypochondria; in the latter of which it was sometimes so great that it caused a constant tremulous motion of the abdomen.

"The heat generally did not exceed 102 degrees Fah.; in some it was less; it varied frequently, and was commonly nearly equal in all parts, the heat about the precordia being seldom more intense than in the extremities, when they were kept covered. In the first day of the disease, some had frequent returns of a sense of chilliness, though there was not any abatement of their heat. In a few, there happened so great a remission of the heat for some hours, when at the same time the pulse was soft and less frequent, and the skin moist, that one from these circumstances might reasonably have hoped that the fever would only prove a remittent or intermittent. About the end of the second day, the heat began to abate.

"The respiration was by no means frequent or difficult, but was soon accelerated by motion, or the fatigue of drinking a cup of any liquid.

"A nausea, vomiting or frequent retching to vomit, especially after the exhibition of either medicines or food, came on generally the third day, as the fever began to lessen; or rather as the fullness of the pulse, heat and disposition to sweat began to abate. Some, indeed, but very few, on the first day had a vomiting either bilious or phlegmatic.

"The strength was greatly prostrated from the first attack. The pain in the head, loins, etc., of which they had complained before the attack, was greatly increased, and in some the pain in the forehead was very acute and darting; but these pains went off generally the second day. The face was flushed, and the eyes were hot, inflamed, and unable to bear much light.

"The fever accompanied with these symptoms terminated on the third day, or generally in less than seventy-two hours from the first attack, not by any assimilation, or concoction and excretion of the morbid matter; for if by the latter, there would have been some critical discharge by sweat, urine, stool or otherwise, none of which happened; and if, by the former, nothing then would have remained but great debility. No; this fever did not terminate in either of these salutary ways, excepting in some, who were happy enough to have the disease conquered in the beginning by proper evacuations, and by keeping up a plentiful sweat, till the total solution of the fever by proper mild diaphoretics and diluents. But those who have not that good fortune, however tranquil things might appear at this period, (as great debility and a little yellowness in the whites of the eyes seemed to be the chief complaints, excepting when the vomiting continued), yet the face of affairs was soon changed; for this period was soon succeeded by the

second *stadium*,—a state, though without any fever, much more terrible than the first; the symptoms in which were the following:

"The pulse immediately after the recess of the fever, was very little more frequent than in health, but hard and small. However, though it continued small, it becomes soon afterward slower and very soft; and this softness of the pulse remained as long as the pulse could be felt. In many, in this stage of the disease, the pulse gradually subsided, until it became scarce perceptible; and this notwithstanding, all the means used to support and fill it; and when this was the case, the icteritions—like suffusion, the vomiting, delirium, restlessness, etc., increased to a great degree. In some, the pulse often being exceedingly small and scarce perceptible, recovered considerably its fullness; but that favorable appearance was generally of but short continuance.

"The heat did not exceed the natural animal heat; and when the pulse subsided, the skin became cold and the face, breast and extremities acquired somewhat of a livid color. . . . The respiration was natural or rather slow. . . . The vomiting or retching to vomit increased, and in some was so constant that neither medicines nor ailments of any kind were retained. Some vomited blood; others only what was last exhibited, mixed with phlegm; and others again have what is called the black vomit. The retching to vomit continued a longer or shorter time according to the state of the pulse; for as that became fuller, and the heat greater, the retching to vomit abated, and *é contra*.

"The debility was so great that if the patient was raised erect in the bed, or in some, if the head was only raised from the pillow, while a cup of drink was given, the pulse sank immediately and became sometimes so small that it could scarcely be felt; at this time they become cold, as in a horripilation, but without the anemic-like skin; their skin became clammy, the delirium increased, their lips and skin especially about the neck, face and extremities, together with their nails, acquired a livid color.

"There were many small spots, not raised above the skin, which appeared very thick on the breast and neck; but less so on the extremities, and were of a scarlet, purple or livid color. In women the menstrua flowed, and sometimes excessively, though not at their regular periods.

"There was such a putrid dissolution of the blood in this *stadium* of the disease, that, besides the vomiting of blood formerly mentioned, and the bloody urine soon to be taken notice of, there were hemorrhages from the nose, mouth, ears, eyes, and from the parts blistered with catharides. Nay, in the year 1739, or 1745, there were one or two instances of a hemorrhage from the skin, without any apparent puncture or loss of any part of the scarf-skin.

When this *stadium* of the disease terminated in health, it was by a recess or abatement of the vomitings, hemorrhages, delirium, inquietude, jactations, and icteritious-like suffusion of the skin, and white of the eyes; while at the same time, the pulse became fuller and the patient gained strength, which after this disease was very slowly. But when it terminated in death, these symptoms not only continued, but sooner or later increased in violence, and were succeeded with the following, which may be termed the third *stadium* of the disease, which quickly ended in death.

"The pulse though soft became exceedingly small and unequal; the extremities grew cold, clammy, and livid; the face and lips in some were flushed; in others, they were of a livid color; the livid specks increased so fast that in some the whole breast and neck appeared livid; the heart palpitated strongly; the heat about the precordia increased most; the respiration became difficult, with frequent sighing; the patient now became anxious and extremely restless; the sweat flowed from the face, neck and breast; blood flowed from the mouth or nose or ears, and in some, from all these parts at once; the deglutition became difficult; the hiccoughs and subsultus of the tendons came on and were frequent; the patients trifled with their fingers, and picked the nap of the bedclothes; they grew comatose, or were constantly delirious. In this terrible state, some continued eight, ten or twelve hours before they died, even after they had been so long speechless, and without any perceptible pulsation of the arteries in the wrists; whereas, in all other acute diseases, after the pulse in the wrist ceases, death follows immediately. When the disease was very acute, violent convulsions seized the unhappy patient, and quickly brought this *stadium* to its fatal end. After death, the livid blotches increased fast, especially about the face, breast and neck, and the putrefaction began early, or rather increased very quickly.

"This was the progress of this terrible disease through its several *stadia*. But in hot weather, and when the symptoms in the first stage were very violent, it passed through these stages, as Dr. Warren has likewise observed, with such precipitation that there was but little opportunity of distinguishing its different *stadia*; the whole tragedy having been finished in less than forty-eight hours."

Dr. Lining also records observations on the changes of the tongue, skin and urine which have been omitted from the preceding quotation, in order to present in a connected manner his accurate accounts of the changes of the pulse, capillary circulation, blood, respiration and temperature.

In his prognostics, Dr. Lining held that a sediment in the urine in the first and second day of the disease is bad, and the more copious the sediment is, the greater is the danger; bloody urine and all hemorrhages, excepting slight ones from the nose are bad; and the more copious they are, the greater is the danger; a suppression of urine, especially in those who in the course of the disease have had large discharges that way, is a certain sign of the quick approach of death.

Dr. Lining held that the yellow fever of America was a pestilential, specific contagious fever, imported from the West Indies, "which continues two or three days and terminates without any critical discharge by sweat, urine, stool, etc., leaving the patient excessively weak, with a small pulse, easily depressible by very little motion, or by the erect posture; and which is soon succeeded with an icteritious color in the white of the eyes and the skin, vomiting, hemorrhages, etc., and these without being accompanied with any degree of a febrile pulse and heat."

Subsequent observations have tended to confirm the accuracy of Dr. John Lining's comprehensive description; and the voluminous writings of Dr. Benjamin Rush, of Philadelphia, Drs. Samuel Latham Mitchell, and Edward Miller, of New York, and others a century later added literally nothing to the

fullness of his description; but on the contrary these writers, and especially Benjamin Rush, caused much subsequent confusion by confounding the endemic malarial, paroxysmal fevers of the paludal regions of North America with the specific yellow fever of the West Indies.

Savarésy<sup>29</sup> who observed yellow fever in Martinique in 1803 and 1804, affirmed that the heat rises often as high as 38 or 40 degrees of Reaumur—equal to 117.00 or 102.2 Fahrenheit.

Dr. John Davy<sup>30</sup> published in 1814 the first of his remarkable papers containing the results of his experiments in animal heat; and in 1816 he began his observations upon the temperature of man in various climates, in various diseases and under various states of rest and exercise, fasting and repletion in various races;<sup>31</sup> and in 1828 he established the singular fact that the human body may manifest a high degree of heat after death.

The following are the cases as reported by Dr. John Davy:

*Case 1.*—Aged 23 years; was admitted into hospital on July 30, 1828, laboring under symptoms (as it was supposed) of acute rheumatism, having some pain first in one shoulder, then in the other, followed by pain in the hips, attended with much pyrexia, and a very rapid pulse. He died on August 6, a few minutes after 7 A.M. As the weather at the time was very hot (Military Hospital in Valetta, Island of Malta), and dead animal matter putrefied rapidly, it was necessary to inspect the body as soon as possible. Accordingly, it was examined three hours and a half after death; when the temperature of the air of the room was 86 degrees. The appearances most remarkable, discovered on dissection, were extensive collections of matter in the right shoulder, among the muscles on each side of the spine of the scapula, with sinuses extending to the axilla, and around the capsule of the shoulder joint; and a lesion of the same kind, and as extensive, in the left hip close to the head of the femur, spreading through the glutei muscles; and marks of incipient inflammation (as ecchymosis) on the right hip. The viscera were apparently sound. The right cavities of the heart and the great vessels were distended with liquid blood. The body was slender but not emaciated. Its surface was warm; the deeply seated parts felt very hot, imparting a disagreeable sensation, almost like that of burning, to the hand in contact with them. The thorax was first opened and afterwards the abdomen. After partial exposure of the surface of the contents of these cavities to the air for about ten minutes, a thermometer was procured. Placed under the left ventricle of the heart it rose to 113 degrees, and under the liver, in contact with the lobulus spigelii, to 112 degrees.

*Case 2.*—Aged 27 years, a stout, robust man, died suddenly in barracks, on August 6, at about 1:30 A.M. The body was examined at 5 P.M. There was a good deal of reddish fluid in the ventricles, and at the base of the brain. The lungs were distended with black liquid blood, some of which had passed into the bronchii. There was very little blood in the cavities of the heart. The temperature of the air of the room was 86 degrees. As soon as the cavities of the thorax and abdomen were opened, the bulb of a thermometer was in succession placed under the left ventricle of the heart, and under the lobulus spigelii of the liver; in the former situation it rose to 108 degrees; in the latter to 107 degrees. Almost a quarter of an hour afterwards, introduced into the substance of the right lung, gorged with extravasated blood, it was 105 degrees.

The question will naturally be asked, Was the extraordinary temperature, in one case of 113 degrees, and in the other of 108 degrees, generated during life or after death? Dr. Varez had little hesitation in coming to the conclusion that it was generated before death, and generated probably in the same

<sup>29</sup> De la Fievre Jaune en générale, et particulièrement de celle qui a régné à la Martinique en l'an XI et XII 1803, 1804, 8vo. Naples, 1809.

<sup>30</sup> Philosophical Transactions of the Royal Society of London 1814, p. 590. Researches, Physiological and Anatomical, by John Davy, M.D. and R.S. Assistant Inspector of Army Hospitals, 1839, vi, pp. 141 248.

<sup>31</sup> Third Ed. Philadelphia, 1826, Res., Phys. and Anat., vi., p. 161.



way as the ordinary degree of animal heat experienced in health, or the extraordinary degree witnessed in febrile diseases. *A priori*, the effort of the heat-generating process, whatever it may be, can hardly be limited. In many birds, it raises the temperature of the body to 109 degrees, when in perfect health, and in man to 101 degrees, at least in the tropics, without deranging health; and it is easy to conceive that by increased activity or energy, it may exalt the temperature to the common febrile height, or to a height greatly exceeding that. But, destitute of life, in the opinion of Dr. Varez, there does not appear to be in the body any source of heat, any power of generating it, that is known. Putrefaction had not taken place in these bodies; even if it had, and had made progress, and were it even at its greatest height of activity, it is doubtful if it would be equal to the production of the effect in question.

It is a matter of regret that the temperature of the preceding cases was not ascertained by Dr. Davy before as well as after death; it is only known that the skin of the first case the day before he died was pungently hot.

These observations by Dr. Davy were of great value, in that they should have put medical inquirers on their guard as to the extreme limits of the degree of animal temperature, and especially of the blood in deep-seated parts. If the temperature of the body be 113 degrees, three hours after death, and if generated during life, before death it must have been still higher. Similar investigations were instituted by Dr. Bennet Dowler fifteen years later, in 1843, 1844, 1858, on the *post-mortem* heat of yellow fever and other diseases, the results of which will be fully examined in a subsequent part of the present discussion.

Subsequently, Dr. John Davy<sup>32</sup> made observations on the pulse and temperature in yellow fever, during his service in the West Indies. Thus in his notes to the work of Dr. Daniel Blair, on the yellow fever which prevailed in British Guiana from 1837 to 1842, Dr. Davy states that, "unusual slowness of pulse was very often observed in the yellow fever of Barbadoes, and commonly accompanied with undue coolness of skin, especially in the extremities; it was a very remarkable feature of the disease after its first invasion—the time varying in different cases. . . .

From the few observations which were made with the thermometer, on the temperature of men laboring under yellow fever in Barbadoes during the last epidemic, it did not appear to be high—when highest not exceeding 104 degrees Fah. in the axilla. In two instances trial was made of the temperature after death (four hours); on one (Fitzpatrick), that of the brain was found to be 98 degrees, of the lungs 100 degrees, of the heart 101 degrees (left ventricle), 100 degrees (right ventricle); in the other (Reynolds), that of the brain was 98 degrees, that of the lungs 102 degrees, of the heart 104 degrees (left ventricle); 103 degrees (right); of the liver 103 degrees. For the latter observations Dr. Davy was indebted to his friend, Staff-Surgeon Dr. Spence, who in the capacity of principal medical officer of the garrison of St. Ann, had ample opportunities to study the disease, of which, until attacked by it, he zealously availed himself.

Dr. Arnold,<sup>33</sup> in his "Practical Treatise on the Bil-

ious Remittent Fever" (yellow fever), devotes an entire section of his work (occupying 66 pages out of 320), to the illustration by tables and cases of the temperature of the system in the febrile diseases of Jamaica, and states in his preface that he considers the temperature of the system in febrile diseases to be one of the most formidable symptoms; and expressed the belief that the system when laboring under bilious remittent fever (yellow fever), "must inevitably give way to the cause which produces even a few degrees of thermal exaltation beyond 105 degrees of Fahrenheit's scale, and that all our remedies will have little effect if we find it 110 degrees during the first or second stages."

The observations of Dr. Arnold were begun in 1819, and continued for twenty-five years, and he prefaces his observations on the changes of temperature in yellow fever, remittent fever, intermittent fever and typhoid fever, by the results of his investigations on the normal temperature of 107 subjects of all denominations, ages and sexes, including Creoles, black laborers, domestics, carpenters, mulattoes, white natives and Europeans; and the mean of that whole series was 98.19 degrees F., which Dr. Arnold considered a correct estimate of the temperature of the system in health in a climate like that of Jamaica. Dr. Arnold says: "*I believe there is no study more calculated to improve the healing art, or to throw more light on the nature of febrile diseases, than a minute attention to the state of the temperature of the system.*" . . .

I shall next point out the deviations which occur in consequence of febrile or preternatural heat, by a series of cases and observations, for the purposes contemplated in the inquiry, and I think it will be seen that the system is not capable of having any great augmentation of heat from morbid causes, without incurring serious, and sometimes irreparable mischief. In fever, particularly of the remittent form, the whole power of the animal economy is deranged—all its healthy functions are suspended; digestion is only imperfectly performed; the mental energy is much weakened by the agent which causes the fever, the ardent heat and rapid circulation; the heart is laboring and appealing for relief; the whole system is screwed up, as it were, to its highest pitch of excitement. *The heat, at this time, is at its utmost limit, and if continued for many hours, the extinction of life would in all probability result, in consequence of various changes or decompositions taking place in the blood. The exact degree of heat which is necessary to achieve this end has hitherto not been very accurately ascertained; it will require much diligent investigation to settle the point. The ingenious Dr. Hales believed "the heat of the blood in high fever to be 136 degrees."* This is irreconcilable to anything I have witnessed during twenty-five years' practice. Boerhaave also made various experiments, and he seems to think that "*terribly mischievous work might be effected by a degree of heat above 106 degrees, for, as he asserts, the serum of the blood would be coagulated.*" And he further asserts that *the natural heat of the blood of a human creature approaches very nearly the degree of coagulation.* Hippocrates, 4 de Morb., 23, observes: "Such a degree of heat, if neglected or wrongly managed, may indeed dissipate the more thin and watery parts, and so gradually thicken the

<sup>32</sup> Some Account of the last Yellow Fever Epidemic of British Guiana. By Daniel Blair, M.D., Surgeon-General of British Guiana. Edited by John Davy, M.D., F.R.S., etc. London, 1852, pp. 77, 78.

<sup>33</sup> A Practical Treatise on the Bilious Remittent Fever; its Causes and Effects. With illustrative Tables and Cases on the Temperature of the System in the Febrile Diseases of Jamaica, etc. By W. Arnold, M.D., etc. London, 1840.

whole mass of blood; have had enough effects that way, if it do not bring on a putredinous thinness." This was evidently but supposition; the serum of the blood or the white of an egg, requires a degree of heat to coagulate, which no living animal can bear, notwithstanding the puzzling tricks of fire-eaters and such mountebank impostors, who thrust themselves into ovens heated sufficient to bake a leg of mutton. Water at 108 degrees is too hot for the hands for any length of time; yet there are some persons, from custom, who can handle very hot pieces of iron; but such instances are only sufficient to form an exception to the rule and require no further comment."

Dr. Arnold records several fatal cases in which the temperature ranged from 108 to 110 degrees in the axilla. In three cases of yellow fever recorded by this physician, the temperature reached 110 degrees, and a similar degree of heat was observed in several cases during life by Dr. Bennet Dowler in 1843, 1844 and subsequently. In 1843 he began a remarkable series of investigations on the temperature of the heart and axilla during the various stages of yellow fever, and of the different organs after death. His original paper was first transmitted to, but not published in full in the *Western Journal of Medicine and Surgery* during the winter of 1843-44. Dr. Dowler continued his observations on the temperature in yellow fever and other diseases during a period of sixteen years,<sup>34</sup> and he established the fact that the temperature of the internal organs may attain after death a degree of heat equal to that witnessed by Dr. John Davy in the Island of Malta in 1828, viz., 113 degrees. Dr. Dowler confirmed the accuracy of the statement of Dr. Arnold, of Jamaica, that the temperature of the axilla in yellow fever may reach 110 degrees F.; and he also demonstrated that patients may recover from yellow fever whose temperature in the axilla has reached 109 degrees.

Dr. Dowler also demonstrated that, as a general rule, the temperature in the early stages of yellow fever is higher in fatal cases than in those which recover. Thus, in one series of cases of yellow fever, taken without selection, the following results were obtained: Fifteen patients who recovered, whose temperatures were taken at a period which averaged fifteen and one-third hours after the invasion, and afforded a mean temperature for the hand of 101.8 degrees, and for the arm-pit 104.84 degrees; nine persons who died, gave an average of, twenty-two and one-third hours after the invasion, for the hand, 103.62; for the arm-pit, 105.44 degrees.

The maximum of these classes coincided, but not the minimum. In those who died the average was higher; in the hand, the maximum reached by both was 107 degrees; the minimum in the hand among those who recovered was 95 degrees, and of those who died 99 degrees; the maximum of the former, in the axilla, 107 degrees; of the latter, 109 degrees; the minimum of the former, in the same region, 102 degrees, and of the latter 100 degrees, the latter being in *articulo mortis*.

Full justice will be done to the labors of Dr. Bennet Dowler in that portion of this chapter which relates to *post-mortem* heat in yellow fever.

Dr. Daniel Blair,<sup>35</sup> in his last published report on

the "First Eighteen Months of the Fourth Yellow Fever Epidemic of British Guiana," says: "High temperature of the body seems to have persisted longer through the stages of the disease in this epidemic than in the past. There is great irregularity in the temperature of the surface; sometimes the forehead is the hottest part of the body, and occasionally the chest. The uncovered portions of the body in the latter stages are easily reduced in temperature; and thus while the exposed chest and extremities may feel cool to the touch, the axilla may raise the thermometer to 102 or 103 degrees. The highest temperature I have observed during the course of the disease was 107 degrees Fah."

According to Dr. Wragg,<sup>36</sup> in some cases of yellow fever, the thermometer indicated a temperature of 108 degrees in the arm-pit, and 105 degrees on the chest.

Dr. Robert N. Lyons,<sup>37</sup> has recorded valuable observations on the relations of the pulse and temperature in the yellow fever which prevailed in Lisbon, Portugal, in 1857. Dr. Lyons arranges the cases under five groups, viz.: 1, the algid form; 2, the sthenic form; 3, the hemorrhagic form; 4, the purpuric form; 5, the typhus form.

(To be continued.)

## NOTES ON THE MAIN CHANNEL OF THE SANITARY DISTRICT OF CHICAGO.

Read before the Civic Federation of Chicago.

BY J. W. BEARDSLEY, C. E. (CORNELL UNIVERSITY.)

It is impossible within the few minutes at my disposal to more than cursorily touch upon the following general points relative to the main channel of the Sanitary District of Chicago:

1. A general description of the present progress of the work.

2. Some of the benefits accruing to the residents of Chicago upon the completion of the channel.

3. Points of interest in a tour of the line.

Of the well-known facts regarding the origin of the project, the labor involved in its legal birth and the imperative demands of sanitation for immediate relief, I will say nothing. The existing result is a channel under process of construction and about thirty miles long. The eastern terminus is at the intersection of Robey Street with the west branch of the south fork of the river, the grade of the bottom being about twenty-four and one-half feet below the Chicago datum plane, or the low water of Lake Michigan; thence it extends westerly, through the ancient water course of the Great Lakes to the Gulf, to the lower terminus at Lockport, where the bottom has an elevation of thirty feet below the Chicago datum plane.

The line is separated naturally into four divisions by the cross sections, and by the nature of the material to be excavated.

From the eastern terminus at Robey Street to the lower part of Section F, a distance of about nine miles, the material is of a nature to be readily excavated without interference to navigation or discharge whenever, in the future, sanitation demands a larger channel. Therefore, the area of the cross-section is a

<sup>34</sup> Experimental Researches into Animal Heat in the Living and in the Dead Body, by Bennet Dowler, M.D., of New Orleans. New Orleans Medical and Surgical Journal, Vol. xii, 1856, pp. 54, 205, 289, 433, 603, 759, 433, 470; Vol. xvii, 1860, pp. 199, 356.

<sup>35</sup> British and Foreign Medico-Chirurgical Review, April, 1856, Appendix, p. 6.

<sup>36</sup> Charleston Medical Journal and Review, 1855, Vol. x, p. 73.

<sup>37</sup> A treatise on fever or selections from a course of lectures on fever, being part of a course of theory and practice of medicine, delivered by Robert V. Lyons, K.C.C., etc. Am. Ed., 1861.

minimum being held to a bottom width of 110 feet. This section is designed to carry 300,000 cubic feet of water per minute. The average cutting is thirty-seven feet deep.

Near the lower end of Section F, the material becomes more difficult to excavate and is designed for the maximum discharge of 600,000 cubic feet per minute, a quantity sufficiently large to so dilute the sewage of 3,000,000 inhabitants that the effluent will be harmless for manufacturing purposes. Here the cross-section is expanded to 202 feet on the bottom with side slopes of 2 feet horizontal to 1 foot vertical. The maximum velocity is about twenty-one inches per second. The average cut is nearly thirty-six feet for the next five and one-half miles.

The third natural division beginning near Willow Springs, marks the appearance of rock, the glacial drift forming about two-thirds of the material to be excavated. The cut averages about thirty-seven feet. Here the cross-section is decreased to 160 feet at the bottom and 163 feet at the top of the channel giving, practically, vertical sides. Retaining walls, extending from the rock up to five feet above the datum plane, form the sides of the channel. This bottom width of 160 feet controls the remainder of the line. Here, also, the union between the bottom widths of 160 feet and 202 feet is made. The retaining walls extend out as wing walls, to the required form of the preceding section.

The grade has an increment corresponding to the decrease in area of the cross-section and still provides for the maximum discharge of 600,000 cubic feet per minute. This requires the velocity to be increased to thirty inches per second, or two miles per hour.

Near the eastern end of Section 7, begins the fourth natural division; the glacial drift practically disappears, forming only about 3 per cent. of the total excavation for the remaining nine miles. The average cutting through *solid rock* is about thirty-three feet. This unparalleled rock excavation has necessitated the use of channeling machines for cutting vertical sides, drills to prepare the rock for blasting, and various conveyors for removing the shattered rock after it has been loaded by hand into skiffs or buckets. The end of this division and the western terminus of the main channel—Section 15—is partly built up and partly excavated and marks the location of locks, when the channel is finally open to navigation; but for the present it will be the site of the controlling works, by which the discharge of the new channel into the Desplaines River may be regulated. These works must provide for the surface fluctuations in Lake Michigan, which would result in an extreme oscillation of about thirteen feet at the controlling works. The surface of the water at the controlling works is some ten feet above the surface of the Desplaines River, which makes a rapid descent for about four miles to Lake Joliet. It will require extreme care to safely dispose of this immense volume of water over such a declivity, and it also suggests the enormous energy which could there be developed, estimated by Mr. Cooley to be 55,000 horse power between Lockport and Joliet, and 45,000 between Joliet and La Salle. Such a power and such a water-way have caused in similarly located places, phenomenal growth, and may form a source of income to the sanitary district of no mean moment.

The expenditure of \$3,000,000 (actually \$2,606,-

227.92) for a right of way has received its share of criticism. It would be a paradox to find a charitable object or institution, a financial success. But measure, if you can, the development of the city along such an avenue of commerce, the value of adjoining lands, which the trustees with keen foresight have added to the assets of the sanitary district, wharf privileges and warehouse rentals, and show that within the lifetime of some of us this same right of way may not prove a magnificent investment for meeting bonded indebtedness, or, for the expenses of maintenance and development.

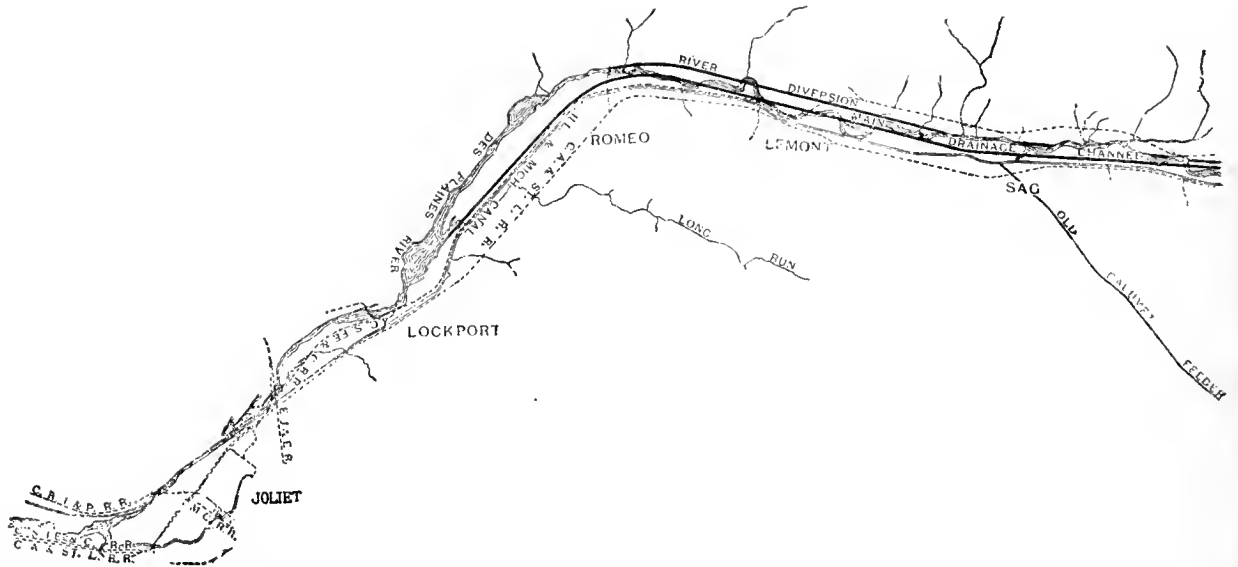
The estimated rock excavation on Sections 7 to 14, inclusive, gives a total of 8,189,152 cubic yards of rock in place. This will expand into 14,333,333 cubic yards of broken stone on the sanitary right of way, at the very edge of an extensive water course. This is an amount sufficient to build 3,257 miles of street, having a road bed 30 feet wide and using an average depth of 9 inches of broken stone. It would build 12,217 miles of country road 12 feet wide and with an average depth of 6 inches, thirty-one and one-half times the length of the State of Illinois, from Chicago to her antipodes; or, furnish the foundations, and it would give a path 2 feet wide and 2 inches deep from Chicago to her lunar neighbor.

Financially, it is more economic policy for the taxpayers of the sanitary district to place untainted and above suspicion, their magnificent source of potable water by one large outlay, than to keep themselves perpetually subject to expense in extending water supply tunnels and in the hopeless pumping of the Chicago River sewage into the Illinois and Michigan Canal, which stands a menace to health throughout its entire course, and of which it has been aptly said: "It is frequently worse but never better."

Sanitation is a measure of civilization. Advancement requires time. Public opinion is called safe because it is conservative; but it is dangerously conservative in lines of advanced sanitation.

It is not possible to give a money value to sorrow, to losses entailed by useless sickness and death, and to the increase of crime and pauperism always accompanying filth and squalor, or, to place a value upon increased longevity and good health—the working capital of both unskilled labor and of the leaders in thought and action. But let us attempt to find a money value for a disease typical of polluted water and inferior sewage disposal. From typhoid fever in the years 1890, 1891 and 1892, the State Board of Health reports an average of 1.18 deaths per 1000, and this dread disease has been almost an epidemic here during the past decade.

Of typhoid fever, twenty-eight English cities give an average decrease, brought about by sanitary measures, of 39 per cent. Likewise, Boston, Brooklyn and New York obtained a decrease of 41.5 per cent., and I believe that the workings of the main channel of the sanitary district will bring to Chicago the beneficial decrease of 50 per cent., but to be more conservative, place the decrease at  $33\frac{1}{3}$  per cent. Assume a population of 1,500,000 and a reduction of the death rates of 1890 to 1892 by  $33\frac{1}{3}$  per cent. and we have a saving of life from typhoid fever alone of 585 persons per year. Assume only one-fifth of these to be bread-winners, supporting the average family of five. The city would save on this basis the support of 117 such families or 468 such persons, costing not less than \$150 a year for five years. This



moderate hypothesis results in an annual saving to the tax payers of \$355,000. To this add a saving of \$25 for each funeral involved, and the moderate fee of \$10 for medical attendance for each of these 585 useless deaths; this gives the sum of \$20,475. Assume ten cases of serious illness for each death, at an expense for medical attendance and enforced idleness of only \$15. This adds to the sum \$87,750. Thus the grand total saved per year by the reduction in typhoid fever alone is \$463,225. This sum capitalized at 4 per cent. per annum gives \$11,500,000, nearly one-half of the total expenditure of the sanitary district of Chicago.

The city of Chicago is located upon the bed of a comparatively recent swamp, and is specially subject to zymotic and enteric diseases, but her death rate *should be below* the normal on account of the continuous increment to her population of men, young, robust and ambitious.

The increased resistive powers of the system, the increase in capacity for thought and work, in morality and independence, resulting from the causes that decrease a death rate, can not be measured by sordid money values. But considered from the above standpoints, we can but feel and admire the wise and intense philanthropy which characterized so thoroughly the early promoters of the sanitary scheme. Aside from sanitation, the national importance for warlike maneuvers, and the international commercial importance of such a watercourse to Chicago can not be passed by. I quote from a brief by Mr. Cooley:

"Sitting at the pass of two continental valleys, a great waterway to the Atlantic, a great waterway to the Gulf, the center of a territory as resourceful as the world can show—her latent interest is awakening; she would restore the ancient outlet of the lakes; her thinking men are realizing that this old portage may become the Bosphorus of America, like the Constantinople of old, to possess which was to rule the world."

To the tourist the massive machinery, almost intelligent in its power, the proportions of the canal already excavated and the corresponding spoil banks attract, generally, the most attention, and are certainly worthy of more than a casual visit.

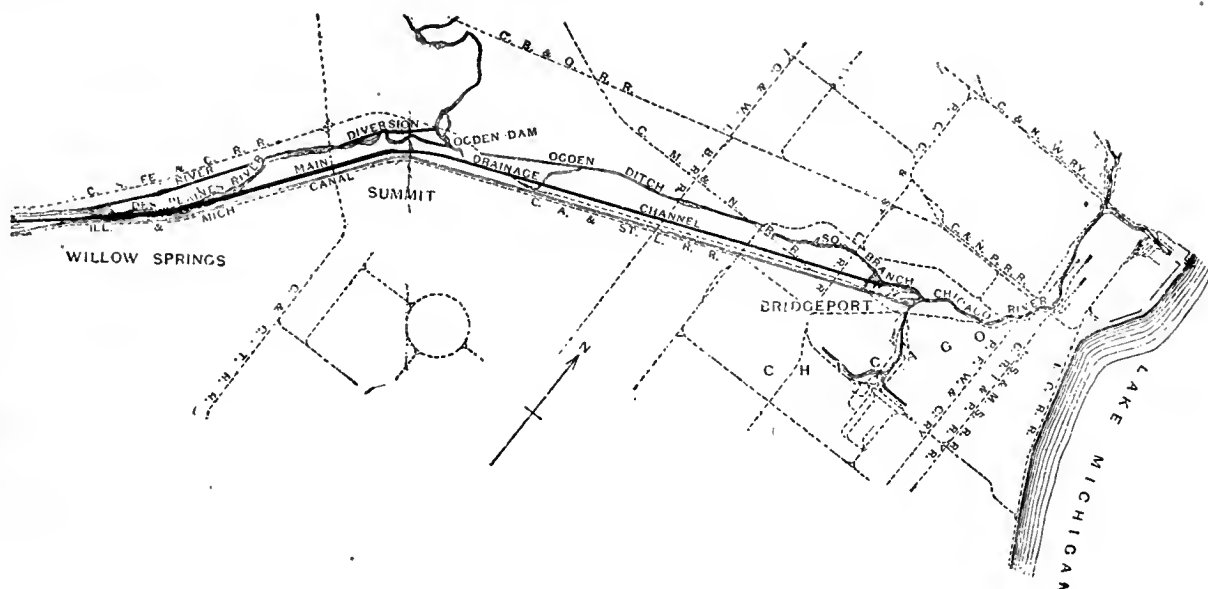
The huge dipper dredges on the two sections nearest the city, rapidly eat their own channel for floatation. West of these are the inclines, the bridges spanning the spoil banks, the belt conveyors and the cantilever conveyors operated in connection with steam shovels. All are movable parallel to the axis of the main channel, and are effective, ingenious and ponderous machines. Next are found the hydraulic dredges on Sections A and B, east of Willow Springs. Here the soft, low-lying ground is agitated beneath the water surface and, by means of powerful pumps, it is discharged from pipes at the desired distance from the channel. These sections will soon be unwatered, so that the hard underlying material may be excavated by steam shovels and other suitable machinery.

It is doubtful whether the men now engaged on the western portion will ever again see a rock cutting of such magnitude. Here are the cableways of 700 feet span, and the cantilevers which reach out 140 feet over the channel and 180 feet over the spoil bank.

The not uncommon occurrence of a rock blast shattering and hurling perhaps four thousand tons of rock, and consuming nearly a half ton of dynamite, is an impressive spectacle. To the geologist the present state of excavation affords an intensely interesting field. He has an unparalleled opportunity to study the varied constituents and complete sections of glacial drift as it was left in the remote times, cutting its striae and furrows in the underlying rock, and he will perhaps find the cutting boulder still in its abruptly ended furrow. In the alluvial deposits, large antlers, Indian relics, buffalo and mastodon bones have been discovered.

The vertical cuttings through solid rock present vivid object lessons in stratification faults and fissures, and the fossil hunter will be amply rewarded by finding nearly all the fossils characteristic of the Niagara limestone.

When the channel is complete from the standpoint of the sanitary district, Chicago can successfully combat scourges and epidemics. The Chicago River will become an outlet and will gradually purify itself and become a part of the network of lagoons joining the lake and the main channel through the north and south forks.



Chicago is rapidly becoming the first city of the Occident. In present achievements she has surpassed the wildest predictions of her founders. But useless will be her command of commercial centers, of railways and water courses unless she listens to the too apparent warnings of her streets and rivers, provides for her millions those most lavish gifts of Nature—pure air and pure water—and the higher gifts of civilization, pure social, moral and civic conditions.

It behooves every patriotic citizen to be relentless and persistent in the instruction of the masses for the accomplishment of such ends; then will the city of Chicago stand majestically, the Queen of the Western World!

### A SKIASCOPIC EYE.

BY JAMES THORINGTON, M.D.  
PHILADELPHIA, PA.

The rapidly growing popularity of the shadow test as an accurate method of obtaining the exact refraction of an eye under the influence of a mydriatic, prompts the writer to present an inexpensive eye for the use of the student or oculist who may desire to learn skiascopy at his leisure.

The eye as here shown, reduced one-third in size, is made of two cylinders of cardboard, one slightly smaller than its fellow, to permit slipping evenly into the other. Both cylinders are well blackened inside. The smaller cylinder is closed at one end, and on its inner surface is placed a colored lithograph of the normal eye ground. The larger cylinder is also closed at one end, except for a central round opening, ten millimeters in diameter, which is occupied by a +20 diopter lens; and on its outer surface is a colored lithograph of the normal eye with its appendages, the pupil being dilated, and corresponds to the central opening just referred to. In addition to this picture of the eye, there is also lithographed on the upper half of the periphery, the degree marks similar to those on a trial frame. To the lower half of the periphery are secured four pieces of cardboard, making two interspaces for trial lenses, and being square at the base, gives the eye an even resting surface.

On the side of the small cylinder is an index which records emmetropia, and the amount of myopia and hypermetropia according as it is pushed into or drawn out of the large cylinder. To use this eye, it is only necessary to bear in mind the two rules of skiascopy, governing the use of the plane mirror at the working distance of one meter, namely, that the light reflex seen in the center of the pupil moves,



1, with the movement of the light on the face in emmetropia, hypermetropia and in myopia, if the latter is less than one diopter; and 2, against (or opposite to) the movement of the light on the face in myopia of more than one diopter. If it is desired to study the band of light,<sup>1</sup> as seen in myopic or hypermetropic astigmatism, place the necessary cylinder from the trial set, in the back interspace, the degree marks assisting in finding the axis, and especially so if the axonometer is used.

This eye answers admirably for the beginner in ophthalmology, though not originally so intended, and as here illustrated and described, is made by Messrs. Queen & Co., of this city.

<sup>1</sup> Vide, *Annals of Ophthalmology* for January, 1895. "Thorington on Skiascopy."



## THE SYSTEMIC FACTOR IN THE TREATMENT OF DENTAL CARIES.

Read in the Section on Dental and Oral Surgery at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY G. S. DEAN, M.D.

SAN FRANCISCO, CAL.

It is not only because of its novelty that I have chosen my subject. I have chosen it, also, because it seems eminently a proper subject for presentation on an occasion like the present—an occasion whereon the practitioner of general medicine and the practitioner of dental medicine sit down together, to consider what they may do, jointly, for the welfare of mankind. The time was, in the not-distant past, when these two practitioners were sadly ignorant of one another's territory. But now the two have come together. They have familiarized themselves with one another's country. And now that they meet as allies in the cause of humanity, now that they are inquiring what they can do jointly for that cause to which their lives are devoted, it seems eminently proper to bring forward for discussion a subject which lies within the territory of both. It seems fitting on this occasion, to bring forward for attention the systemic side of the treatment of the commonest of dental diseases—the commonest in fact, of all the physical ills with which mankind is afflicted. That there is frequently (not always) a systemic factor in the etiology of dental caries, and that systemic treatment is often needed for the cure of this local affection, I shall endeavor to show. This being shown, it will appear that the disease has an interest, a practical interest, for the general as well as for the special practitioner. Hence it has seemed to me that, apart from other reasons, the subject which I have chosen has a peculiar appropriateness to the present occasion.

Let me introduce the subject by presenting a case. Let me do this, not merely because it is the proper way to introduce a new subject, not only because at the outset a single clear concrete presentation is worth a world of misty generalities; but let me do it also as a protest against the opposite course too often adopted and even defended by the presenters of new subjects, who, thoughtlessly, not having taken due note of the need of the human mind for concrete centers of knowledge, burden us with vague abstract or general statements without driving the initial nails on which these statements should be hung. Case reports are usually considered little more than cumberers of the ground; to be avoided or eliminated, or employed only as idle gossip to fill waste space or kill waste time. But this estimation can be due only to non-appreciation of the nature and the necessary conditions of human knowledge. A report of a case may, certainly, be uninformative; for it necessarily contains only what the reporter has seen, and he has perhaps not seen the items which are relevant. But for the presentation of new truth vividly, convincingly, for the purpose of rendering truth graspable or assimilable, there is nothing which can take the place of contact with the facts. With the assurance, then, that this method of presentation is right, and that the contrary method is wrong, I proceed to my narrative:

A gentleman sought dental examination, occasionally, during some years, his teeth being always found free from caries. At length, on the proximal faces of two of his teeth, cavities appeared.

Examination of the saliva revealed nothing worthy of note; no known form of salivary abnormality was present. We are not yet able to make satisfactory clinical salivary analyses. Inquiry developed the fact that, while the patient was "well," there was perhaps a trifling gastric and quite certainly a slight intestinal indigestion. Search for the cause of the disordered function, oral and intestinal, proved futile. Fillings were inserted; and there was given such hygienic attention, general and local, as seemed possible in the absence of etiologic insight.

About a year later, the filled teeth were found in good condition, but three other inter-dental spaces, in different parts of the mouth, were bordered by decay. At this time the general gastro-intestinal error, though not great, was sufficiently pronounced to be noticeable; and it was accompanied by rather frequent attacks of diarrhea, serous in character, sometimes supervening on exertion, at other times appearing without perceptible exciting cause. The patient, I thought, looked more pale and dull than before. He said that, though "well," he "felt somewhat run down."

Let me pause to set forth explicitly the salient general features of the case as they then appeared to me—there being no cognizable local abnormalities. Though there may have been periods of mucous inflammation, yet on the whole it may be said that whatever evil existed was beyond the reach of the dissecting knife; in other words, there was no apparent structural error; the troubles were purely functional. The failure of function was twofold, general and local; there was systemic atony or asthenia, and there was disorder of the intestinal tract; the digestive disorder being, I may add for explicitness, extended as distinguished from localized, and simple or apeptic as distinguished from complex or parapeptic. The relation between the local and the systemic derangement was beyond my view. I desired on this point (as I had done the year before) an expression of opinion from gentlemen more capable than myself of forming a judgment, but, failing to obtain it, remained in darkness. I probably accepted tacitly the hypothesis usual in such cases, namely, that the general asthenia was due to the digestive error.

The etiology of the predisposition to dental caries was, then, beyond my view. The dental disease seemed incapable of actual remedy, capable only of retardation by persistent or repeated local attention. The progress of the destruction of the teeth was again checked by filling the cavities, and the patient was brought to an active resolve to care locally for his own teeth (in the sense of keeping them clean) the moving cause being a realization by him of the fact that the predisponent of the dental caries was undiscoverable and therefore irremediable, and that therefore, to prevent destruction of the teeth, the effects of the predisposition must be met by local measures.

In a few weeks he re-appeared, complaining of oral and pharyngeal inflammation. Examination showed his disease to be amygdalitis purulenta—"quinsy." It terminated in suppuration, its character being thus conclusively established. Believing that suppurative amygdalitis is usually due to aërial poisoning, I determined to investigate more minutely than I had previously done the man's aërial surroundings, with some hope that I might thus reach the cause of his dental caries. But my investigation showed nothing. It was brief and eminently unsatisfactory. I ascertained that he had been living in and frequenting the same buildings during somewhat more than the period of his dental decay; but I found that his quinsy had supervened on an absence from home of a month's duration, and had appeared three or four days after his return. Apparently, then, since he had inhabited the same localities so long without quinsy, this disease had been contracted during his absence.

The synchronism of his habitation of his present abode and the caries of his teeth seemed suspicious, but inquiry, made on his presentation of dental caries and now repeated, showed that the house was apparently healthful; that it had in fact, every apparent advantage, and seemed above suspicion. The synchronism was therefore set down as a chance coincidence, and the problem of the dental caries was no nearer solution than before.

A few months elapsed, and the patient appeared again, suffering a second time with quinsy. The tonsillar abscess being evacuated, his case came up for consideration.

I hold, as I have said, that purulent amygdalitis is caused by aërial poisoning. I published some years ago, and justified by evidence fulfilling every logical requirement, the following theses: 1, suppurative amygdalitis is not in any way related to or dependent on mucous or catarrhal inflammation; it is a disease *sui generis*; 2, the predisponent of purulent amygdalitis is neither "plethora," "debility," nor "a previous attack;" it is the functional activity of the tonsil glands; 3, the excitant of purulent amygdalitis is never "cold;" it is always poison contained in the air inhaled (possibly, to include the suppurative amygdalitis which sometimes complicates scarlatina, I should add "or exhaled").

Holding this belief, and holding it not as an unproved hypothesis but as a theory established beyond reasonable doubt, I inquired concerning the patient's exposure to poison-bearing air. Where had he been? What had he been doing? Not the smallest light could be obtained from his answers. He had indeed, again visited the country. But he had avoided the house in which he had stopped during his previous absence from town; had not even been in the same region. And the visit to the country, in itself, could not be accepted as the cause of the amygdalitis; especially as he had frequently gone to the country in former years, and had never had the disease.

At length there was found a single similarity in the antecedents of his two attacks of tonsillar inflammation. Each had been preceded by an absence from his domicile for some weeks, and a return home. This one thing, the return home, was clearly shown by further inquiry to be that sole common antecedent which must be regarded as the cause. The quinsy poison was then in the house which the man had inhabited for years. Yet during these years he had had no quinsy. How was this? It was explainable by the fact that, while he was at home, his rooms were always well ventilated; whereas during his absence they were tightly closed, and he had on both occasions returned at night, and had slept on the infected pillows in the confined air of a month. (Have we not here, by the way, an explanation of the fact that purulent amygdalitis is more prevalent in winter, when houses are shut, than in summer, when they are open?)

The first etiologic insight being obtained, the view expanded rapidly. The patient was now, in spite of his quinsy, bright or vivacious. Though unable to talk before the evacuation of the pus, he said in writing that he "felt well," was "hungry," and that, while it hurt him to swallow, he got down "lots of milk and oysters." Sharply in contrast with this was his condition during his first attack. Then he had been "sick," dull, drooping; he had had no appetite, swallowing a little soup or gruel occasionally with reluctance; he had been, in a word, prostrated mentally and physically. Equally marked was the contrast in recovery. Now, when the pus escaped, he was "well;" that is, without any great amount of felt indisposition; before, for days after evacuation he had been "sick," and had remained "indisposed" for weeks; not, certainly, confined to bed, but markedly prostrated.

What was the cause of the difference in the accompaniments of the two attacks? In both there was approximately the same amygdalitis and pus formation. The inflammation produced, in both cases, systemic disturbance. But, since the inflammation was approximately the same in both cases, there was quite certainly something else which intensified the systemic symptoms of the first attack. Eliminating, then, the similarities of circumstance of the two attacks, I sought the difference of circumstance. The only marked difference found lay in the place where the disease was incubated and endured. The first or prostrating attack came on after the patient had been at home three or four days, and was endured at home. The second or non-prostrating attack came on and was endured away from home (the patient having

gone home after a month's absence, remained one day, and departed again). The prostration of the first attack was then quite certainly due, like the quinsy itself, to the house in which the patient lived.

The problem was solved. The etiology of the dental caries was at once transparent. The man had slept in a quinsy house; hence his quinsy. The atmosphere of the house (more strictly, of the rooms which he occupied) produced not only quinsy, but also general prostration; hence, in my judgment, the excessive "sickness" which accompanied the first attack. Did the cause which produced prostration when the man was ill also produce it, less conspicuously but no less really, when he was "well?" In other words, was the foul air of his domicile the cause of his atonic condition, and did this in turn produce his long continued digestive indisposition? I answered, with confidence, yes.

The step to the causation of his dental caries was easy. All dentists, probably, hold that the etiology of dental caries extends beyond the field of the microscope. All, necessarily, regard the saliva as a factor in the problem of dental decay. The evidence of an "epidemic constitution of the atmosphere" is as nothing in comparison with the evidence of an epidemic constitution of the saliva. How the saliva acts is an unsettled question. It is not even settled whether the saliva is, as to the teeth, a destructive or a protective fluid. Some dentists, not having seen any clinical evidence to the contrary, hold that acid saliva favors solution of the calcium salts of the teeth, and that alkaline saliva protects the teeth by neutralizing decay-producing acid. Others hold, with Dr. Black, the more elaborate hypothesis that normal saliva is protective, and that it acts germicidally; or, perhaps more properly, that this saliva modifies microbic life, diminishing the microbic secretion or so changing its character as to render it harmless. Others, with Dr. Palmer, regard the saliva as decay-producing, by reason of its being an electropoison fluid of greater or less power. Others, perhaps, without denying that there may be other features of salivary preservative or erosive action, believe that, the saliva being essentially protective to the teeth, one of its main prophylactic functions as regards dental caries is to dissolve and wash away such matter as tends to undergo acid fermentation—in a word, to cleanse the teeth. But whatever the hypothesis as to the mode of action, the fact, if not of salivary preservation of the teeth from caries, at least of the dependence of dental caries on the state or character of the saliva, must be universally admitted—if not explicitly declared, then implicitly held. It follows plainly that any state of the system in which the oral digestion or salivary function is impaired, is a state predisposing to dental caries. And, since the prostration of our patient impaired the gastrointestinal digestion, I considered it reasonably certain that it impaired also the oral digestion—that it gave rise to saliva deficient in caries-preventing power.

Feeling satisfied now that I understood the case, if not in all its details, at least sufficiently for practical purposes, I felt myself in a position to endeavor to effect the radical cure which was the patient's great desire. My remedial measure will be evident without statement. It was, as the patient was only a lodger, an immediate change of domicile.

The sequel showed that my advice was probably

correct. The man left the haunted house and remained under my eye for fully three years. His improvement in tone, in the feeling of "general health," was noted by himself, and the improvement in his appearance, though not very marked, was perceptible. The general digestive difficulty, I think, disappeared; it certainly diminished, for it ceased to be noticeable. But what was of special interest to me and is of special interest in the present connection, was the improvement in the oral digestion; the fact that though the patient became comparatively lax in the local hygienic care of his teeth, he ceased to suffer from dental caries. It is true that two (I think three) cavities of decay were found in his teeth shortly after his change of residence; but these cavities were residual to the period of decay, and they were not followed by others appearing year after year. In a word, after removal from the poisoned house, the man became, as he had been before his sojourn in it, "proof against dental microbes."

Such are the facts of the case as far as I saw them. I sought to extend or supplement them by a more minute inquiry into the aerial conditions which produced the atony—the incipient cachexia. But my supplemental facts proved meager. The unhealthy house was a comparatively modern structure, with large rooms, plenty of sunlight and good ventilation; it was, in fact, as I have already stated, prepossessing. The rooms occupied by the patient were a handsome suite in the second story. The only elegance lacking in them was that which, if it had been present, might have been blamed as the source of "sewer gas"—the stationary washstand. There was, indeed, no apparent connection with any sewer; nor was there, at first glance, any apparent source of quinsy-poison. The source of this poison was not, however, very difficult to find. Not only did green or rot-inviting lumber appear to have been used in the construction of the building, but the apartments of our patient were directly over a room and cellar in which usually provisions and sometimes articles not free from decomposition were kept, and the apartments communicated sufficiently with the lower rooms to allow air to pass. The patient's apartments were always "close," and "smelled badly" after being shut up for a time. The quinsy, then, was readily accounted for; a month's concentration gave a large stock of putrefactive germs. But the prostration, and its consequence, the oral indigestion? Was it due to the same poison, acting in small quantity for a long time? Or was it due to some gaseous accompaniment of the poison which produced the purulent amygdalitis—some chemic accompaniment of the physical poison? I hold the latter hypothesis because of familiarity with the effects of chemic poisons on tissues and consequently on organisms, plant and animal; but confess that I do not know. It may possibly have been due to something which had no connection with the amygdalitis, *e.g.*, to a leak of illuminating gas, whose depressing effect on the human organism may be seen by inspecting the workmen in almost any gas factory; but this supposition, infracting Occam's caution, "*Entia non sunt multiplicanda praeter necessitatem*," is rendered highly improbable by the fact that the systemic prostration accompanying purulent amygdalitis is usually very great, usually exceeds what one would expect the abscess (which constitutes the disease) to produce.

I have now laid a foundation for a statement of generalities. I have reported a case wherein, if my interpretation is correct, dental caries was caused by systemic error and was cured by systemic treatment. But before proceeding to state generalities, and to make, finally, the plea which I propose to make for a more intimate working together of the general and the dental practitioner, it will be well to clinch one nail which I have driven. It will be well, especially since the presentation of the nature and the clinical origin of purulent amygdalitis is so recent that it has probably not yet received general consideration, to justify by the facts of this case itself, as far as these facts go, my immediate certainty, on finding purulent amygdalitis, that the patient had been breathing foul air.

The facts are these: Before lodging in the house herein referred to, he had returned to San Francisco several times and had never had quinsy; while lodging in this house he returned twice (and only twice), and had the disease both times. Confirmation is furnished by the supplemental fact that, after abandoning this house, he returned to San Francisco three times at least (probably more), and did not have quinsy at any time. Clearly, then, the cause of the quinsy was not San Francisco; it was the house; in other words, it was not cold; it was poison in the air.

While I am speaking parenthetically, it may not be amiss to make another digressive remark; to call attention to the difference in the period of incubation of the two attacks of amygdalitis in the case reported. The first attack appeared probably three days and certainly not more than four days after exposure; the second attack did not present its initial symptoms till at least the fifth and perhaps the sixth day. The reason of this difference in time of incubation, though it seems fairly plain, as it has no relation to my present subject, I can not here discuss; I merely note the fact in passing, because it is seldom that we have an opportunity of observing two different periods of incubation of the same disease in the same individual at the same time of life.

Returning now to our subject we are ready for generalities. First, I may state that dental caries is not usually idiopathic. In this disease the general is not dependent on the local; it is the local which is dependent on the general. We speak of "frail teeth" as "prone to decay," or, more flatly, say that teeth decay because of their frailty. But when we speak thus we do not, or at least should not, mean literally what we say. If the salivary function (which is directly dependent on the general or systemic condition) is normal, the teeth, however frail, are safe from caries. And, contrariwise, the strongest teeth, though more resistant than frail teeth, will, under adverse systemic conditions, succumb to decay.

Next let me, as well as I can in a brief space, discriminate between idiopathic and systemic or symptomatic dental caries. Generally, I may say that cavities of decay on the morsal aspect of a denture are not to be considered as of systemic origin. To this rule, however, the exceptions are exceedingly numerous; they are based on this consideration: Rapid decay on any aspect of a denture, is to be regarded as due to systemic disturbance. Generally, again, it may be said (the exceptions are few) that decay on the proximal or buccal aspects of the teeth is symptomatic or of systemic origin, and calls for



something more than local treatment. It is true that we sometimes find cases in which we can feel reasonably certain that there is a direct salivary defect; cases of idiopathic salivary deficiency. But such cases are so rare as to throw the presumption on the other side. We may safely say, then, that proximal decay is to be generally regarded as a result of distant disorder or systemic depression.

Let me repeat here, to avoid possible misinterpretation and, incidentally, to be more explicit:

1. Dental caries is commonly due to fermentation of food, and occurs only where food lodges or remains for a sufficient length of time to undergo fermentation; it occurs, that is, only where there are lodging-places for food, *i. e.*, on the proximal faces of teeth which stand close together, on the buccal faces where the gum forms a pocket for the retention of food, and on any face where deep sulci, pits or fissures hold food till it undergoes fermentation. Those exposed or smooth surfaces of teeth where food can not lodge are always free from decay.

2. Normal saliva prevents dental caries, either by preventing decay-producing fermentation, or by overcoming the effects of this fermentation. It is in fact preventive of this fermentation or its results to a greater extent than one would, *a priori*, think possible. The saliva has scanty access to interdental spaces more or less filled with food; yet, in spite of uncleanly habits, normal saliva prevents proximal decay. The saliva can scarcely reach the filth-covered cervico-buccal portion of the teeth of the uncleanly; yet the dirtiest teeth are often free from buccal caries. Again, fissures and pits penetrating the enamel would be expected invariably to become seats of decay; but where the saliva is normal such fissures and pits are usually innocuous; they do not, in health, become centers of caries.

3. Anatomic (*i. e.*, macroscopic) faults of the teeth, such as pits and fissures, and errors of location, such as over-lapping, are sometimes so great as to lead to decay in spite of normal saliva. Decay due wholly to this cause is, however, rare except in teeth which, besides having the gross defects mentioned, are microscopically (histologically) defective; so-called "frail" or "soft" teeth—teeth wherein the mineral matter is lacking in solidity of structure, either as a whole or in spots, or, as may be the case, both as a whole and in spots; and even in teeth which are decidedly frail, pits and fissures of moderate size and depth, and irregularities of moderate extent, are, with normal saliva, innocuous.

4. "Frailty" or histologic defect of the dental tissues, even to the extent of what might not improperly be called idiocy of dental structure, rarely if ever produces idiopathic dental caries.

5. Decay-producing error of saliva is undoubtedly sometimes idiopathic. We find differences in the saliva of different persons, both in quantity and in quality, under circumstances which render us reasonably confident that they are not due to what we may for brevity, call systemic disturbing causes.

6. Idiopathic dental caries is relatively rare. The presumption is therefore always that the disease is secondary or symptomatic. The least attentive observer will see that it is symptomatic when, after many years of complete dental soundness, suddenly every fissure becomes a seat of caries, while the disease at the same time attacks the proximal faces of the teeth in many places. From cases like this we

may descend step by step to those wherein the most observant can not assert with confidence the nature of the disease. The pathognomonic signs of symptomatic dental caries may be stated as follows: *a*, its residue is "moist" or "leathery" in character; *b*, it is rapid in its progress; *c*, cavities are found to have originated simultaneously in different parts of the mouth. The severity of the systemic disturbing causes may be determined by noting which faces of the teeth are attacked. If the systemic cause is mild the decay will be confined to the fissured morsal surfaces, or will at most attack the buccal pits of the molars. If the systemic cause is pronounced, the proximal faces of the teeth will be attacked, perhaps also the buccal faces close to the gum margin.

7. Beyond symptomatic dental caries, using the term in its strictest sense, there is usually, after removal of the ultimate cause, some further decay of the teeth—what may not improperly be called residual decay. This is a phenomenon which we might perhaps have anticipated, *a priori*, for (apart from the probability that incipient dental caries is sometimes overlooked, to be discovered in an examination at a later date) a return of deranged salivary function to complete normality might be assumed to take time, even after full removal of the cause of the derangement; but as a fact I never thought of it till I observed it in practice, when it occurred to me, first, that I had seen it in other cases without noticing it, and then that it was a natural thing to expect.

I do not know that this residual decay has been noticed or commented on by others and therefore speak of it only from my own experience. It has appeared to me, in cases wherein I have felt able to fix the date of removal of the fundamental cause, that there was a period of some months, possibly a year or more, wherein dental caries continued to appear, though with diminished severity. The disease seemed to subside, as a rule, gradually, not instantaneously. I think it well to make a note of this both for confirmation or disproof by others, and also because residual decay if one did not expect it might prove misleading.

Having discriminated between idiopathic and symptomatic dental caries, it remains to ask on what other diseases or on what fundamental causes the symptomatic dental disease depends. Primarily, symptomatic dental caries is plainly due to disorder of the oral digestion, fault of the fluids of the mouth. Unfortunately, having said this, we have almost reached the limit of present knowledge. The sources of oral aepsia are incapable at present of being pointed out with even an approach to definiteness. We naturally first look to the other portions of the digestive tube as theoretically likely to be the over-shadowing source, by extension of derangement, of oral mal-function. But, clinically, we find in many cases that gastric or intestinal disorder is not accompanied by decay of the teeth. The oral function does not seem to sympathize universally with that of the lower portion of the digestive tract. Gastric or gastro-intestinal error (atonic dyspepsia particularly) does indeed frequently accompany the oral error, but it is probably only a joint result of a common cause. In a word, we do not find any one great or especially probable source of salivary derangement. We find merely that dental caries seems to spring from the most diverse causes with equal readiness, in fact, from almost anything which ap-

pears likely to diminish the vigor of the ultimate cells or to drain or to enfeeble any portion of the organism.

This general statement, vague as it is, presents nearly all our present knowledge on the subject of the fundamental etiology of the disease. A little definiteness may be given to the statement of causation, but only a little. We can say, cautiously, that with our present limited clinical knowledge, in male subjects not suffering from any evident organic defect, lack of good air and exercise seems the first subject of suspicion, the most probable cause. We can say that, secondarily, in these subjects, our limited experience would lead us to look to the nitrogenous diet as a fairly probable cause. For the avoidance of possible misinterpretation, I must explain that while it is the carbohydrates which, by fermentation in the mouth, directly yield the (acid) agent, which, corroding the teeth, produces dental caries, and while therefore a strictly nitrogenous diet could probably not cause dental decay because it would be devoid of acid forming material; on the other hand, the proteids, when ingested in large quantity by persons of sedentary habits, seem to give rise, probably through their effects on the greater glands, to decay-producing error of the salivary secretion; in other words an ill-advised largely-nitrogenous diet may and apparently does produce an oral or salivary condition favorable to that fermentation of carbohydrates which causes caries of the teeth.

In young men our observation would lead us to say that, even where it does not produce perceptible gastro-intestinal error, irregularity of life (sexual excess particularly) should be first suspected, it being a common, if not the most probable, cause of dental caries. In the female subject, the "organism round the uterus," the center of the organism appears to be the most suspicious point. Experience has shown that, not only pregnancy but also almost everything amiss in the female generative system, is accompanied or followed by dental decay. Caries of the teeth comes on so frequently between puberty and the menopause, ceasing when the cervical canal is rendered patulous or some other change for the better is wrought at the center of the organism, that we are amply warranted in first suspecting, in females, that the cause of our dental disease is a generative trouble.

But having said all this, we who are practicing dentistry must confess ignorance—ignorance on the one hand and inability to act satisfactorily (by reason of the burdens imposed on us by the necessary local treatment) on the other. We find that we can not yet say with certainty that any given general cause will always produce, or that any given pathologic condition will be always accompanied by caries of the teeth. We find (to take an actual case) the same person suffering at three different periods with gastric or intestinal dyspepsia or both; the first and the third attack were accompanied by dental caries (which ceased with the disappearance of the gastro-intestinal difficulty); the second attack, though it continued for two or three years at least, was not at any time accompanied by caries of the teeth. We find ourselves, in a word, when we come to the fundamental etiology and therefore to the radical treatment of dental caries, unable to answer any but the simplest questions; to solve any but the simplest problems; to cure any but the simplest cases. We

are able, certainly, sometimes, to see through a case of dental caries almost at a glance, and are able occasionally to point with ease the way to positive cure. But the cases wherein the cause of dental caries is obscure outnumber those wherein it is easily discernible. The one which I have reported for the sake of illustration may be taken as a sample of those which we daily encounter; and in cases like this, in the diagnosis of the fundamental difficulty, we who are practicing dentistry usually need assistance. Again, when the cause of the dental disease is readily perceptible, we usually need the aid of the general practitioner in its removal.

It is idle to say that he who undertakes to treat a disease should go to the bottom. As a practical fact, the dental practitioner, however thorough his understanding of the nature and the treatment of disease in general and of those extra-dental pathologic conditions with which dental diseases are connected in particular, finds that the burden of attention to local manifestations is usually all that he can bear; he must practically, as a rule, refer his patient for the radical cure of a dental difficulty dependent on a general cause, to some one else; perhaps to the special practitioner in some distant field, but usually to the general practitioner. Hitherto, owing to inattention on the part of the general practitioner to the matter which forms the subject of this paper, the reference has been made by the dentist with comparative infrequency; and when made has not always received attention. In the future it is to be hoped that it will be made more frequently, and that it will meet with a more general and a more thorough response. We who are practicing dentistry are not content to merely temporize. And if we were content to do no more than, locally, to "meet indications," our patients would not always contentedly acquiesce; for they are, some of the more intelligent at least, awaking to the fact that dental caries has more than a local meaning; and, in the interest of their general as well as of their local welfare, they are beginning to desire not merely treatment of symptoms, but cure. This, the actual cure of dental caries, we are as a rule unable to effect alone. We need the aid of those who are practicing in the general field. My aim, in this paper, has been to show that this aid can be frequently effective. And I close with an appeal for the assistance which will accomplish the end; an appeal like that of the man in the vision to the apostle: "Come over into Macedonia and help us!"

#### DISCUSSION.

DR. DUNBAR—The etiology of caries of the teeth is difficult to discuss, and I am quite ready to accept the views of the essay as to systemic influences as a general cause of decay. Original defective development of the tooth, Dr. Dean touched upon as one of the principal predisposing causes of decay. There is no question that it is an acid in some form mysteriously supplied which causes the first breach, and people moving into malarial districts are liable to many conditions which develop into loss of teeth. I heard many years ago a prominent dentist, who lived in a miasmatic district, declare that he could not save pulps when they were once diseased. So, also, the references to quinsy poisoning are certainly verified in this malarial environment. There is no question that we are on the right track for the discovery of the mysterious acid which makes the first breach in sound teeth, and opens the way for decay. We are on the verge of an important discovery to add to and supplement those of Miller, of Berlin.

DR. DEAN—I present here two teeth for inspection, and I would like an opinion as to whether the trouble with them is decay or erosion. The history is this: The teeth are

baby teeth. The child during its second summer was very much troubled with digestive difficulties—it is not fashionable to think there is any connection between such difficulties at this time and teething. The four central incisors above and below were present, but no other teeth. The upper ones presented on the points when erupted, what I thought was caries. Now I want to know what it is. The cavities approached to pulp so close that I could not attempt to fill. The four cuspids presented some appearance of erupting. I lanced over the two which were nearest to eruption, but it did not check the diarrhea. Then I cut for the others, and within twenty-four hours the digestive difficulty improved, and within a week the child had entirely recovered.

DR. L. A. TEAGUE, San Francisco—I would ask Dr. Dean why lancing was resorted to?

DR. DEAN—My belief was that the digestive difficulties were due to nervous reflex by pressure of the gum on the advancing tooth, that pressure being reflected on the papilla underneath. I lanced for the purpose of relieving the tension.

DR. TALBOT—I have had it in mind to write the same sort of a paper as this of Dr. Dean's for five or six years. We are indebted to Miller for the establishment of the relation of bacteria to the causes of caries, but we have to go outside of dental practice to find the causes of decay. I don't think the writer of the paper meant to say that the poisonous air in the home of the patient acted directly, but that it produced a neurosis which caused the lesions with which he was troubled. Neuroses, eruptive fevers, cause mal-development of the teeth and bones. It is a fact that these troubles are due to lack of tonic in the nervous system, as is nicely demonstrated in the case of the pregnant female, whose loss of teeth is due not to a lack of lime-salts in her food, but to the lack of tonic in her nervous system which prevents their proper assimilation. It is to this cause we have to look for many of the troubles which we as dentists are called on to combat.

DR. DUNBAR—It has often been said that we as a race are going to lose our teeth; that we as Americans are most prone to diseases of the teeth. Those who make these assertions cite old country districts and say they don't have these things there. It has been said that the cause of the difference is our American environment, our climate, the mixture of races, etc. They forget, in enumerating the causes of the state of affairs they describe, the circumstances under which our forefathers took up their residence here. Almost universally they had plenty of hard work to do and they raised large families, for which the mothers did all the work. Isn't it possible that a broken-down mother may transmit to the tenth or the twelfth child, especially if it is a female, her own exhausted nervous system and that that is in some cases, at least, the secret of the "poor American teeth?" Then our American haste, our constant rush for money, make us nervous and we can't transmit, under such circumstances, an unimpaired nervous system to our children. On the other side, they are more contented with their lot; here we are dissatisfied with our income and always trying to increase it. We are a neurotic people and we are begetting neurotic children. More of the difficulties against which we have to contend are due to this cause than is generally understood.

DR. A. C. HART, San Francisco—My father had good teeth; my mother poor ones. I have my father's denture. He had but one lateral incisor; I have none, but my other teeth are like his in form and quality. My brother has teeth like our mother, of poor structure, and decay progresses among them in the same way as in hers. My preceptor taught me if I found decay on one side of the mouth, to look for it in the same teeth on the other side, but while this is a good rule, it does not hold in all cases. I confess I am puzzled to account for many things, and I have to refer them to a principle which I call life-force. For instance, why is it that there are only boys born in one family and why all girls in another? I have reached the conclusion that when the man is stronger the child is apt to be a boy; when the woman is stronger, the child is generally a girl. Whichever of the parents is stronger makes the impression on the embryo which determines its sex. There are many things in which if we change the environments we change the results.

DR. TALBOT—Two points have been referred to by Dr. Dunbar and Dr. Hart upon which I want to say a word. Dr. Dunbar said there was more decay and more deformity of the teeth here than in Europe. If you take the class of people in Europe who can be fairly compared with the people here, their teeth do decay as much as here, and deformi-

ties are more prevalent and more marked there, especially among the aristocracy. I have just read a paper before the Neurological Section of the Association on this subject. The Spanish people have the most difficulty from the neuroses which produce deformities among the aristocracy of Europe. Dr. Hart brought up the point of heredity, but it is not quite fair to give a conclusion on one case only. The tenth child may be the best of all. Heredity works both ways.

DR. LUNDBERG, San Francisco—I differ from Dr. Talbot as to the condition of the teeth of the aristocracy of Europe, especially as to the part where I came from, Sweden, as I am sure they have good teeth.

DR. TALBOT—Do they not have a great deal of decay and many deformities?

DR. LUNDBERG—Not more so than here. There is no other nation of Europe where the teeth are in a more excellent condition, both in the aristocracy and the mediocracy. This is attributable to their mode of living. Their food is not so generous as here. The caries and defective teeth of Europe may be traced to gestation. You may find good teeth among people who live luxuriously, if the mothers take exercise and live on nourishing food. I don't think you can fairly say that the people of Europe have as bad teeth as the people have here.

DR. DEAN—I have asked a question as to abscess unconnected with the gingival margin. I understood Dr. Younger to say that there is always some opening or connection with the margin. I would like to ask if any one has seen a calculus unconnected with the gingival margin? (Receiving no reply, Dr. Dean said that he had specimens which seemed to be of that nature.)

## THE DISEASE OF INEBRIETY.

ITS STUDY FROM THE STANDPOINT OF THE EXPERIENCE  
OF AMERICAN PHYSICIANS OF EMINENCE WHO HAVE  
WORKED IN THIS FIELD OF RESEARCH.

BY EDWARD C. MANN, M.D.

NEW YORK CITY.

(Continued from page 853.)

SPREEING AND TIPPLING.

A not uncommon form of the tendency to inebriety is manifested, especially in young men, in whom the propensity is not fully developed. This consists in the practice of occasional "spreeing," as it is sometimes termed. This forms one of the earliest stages of the habit or attack, and may be properly termed the formative stage. It makes its appearance on occasions of rejoicing, at festivals and celebrations, on Fourth of July and during the holidays. At other times the propensity is dormant, and the individual is in no way affected by it. There is a feature in this malady, which may be properly noted in this place, and that is that in the advanced stages of the disease nothing satisfies but complete intoxication. So completely is the system under the influence of the morbid propensity, that the desire to get drunk is irresistible. No lesser degree of exhilaration or excitement answers—nothing but total obliviousness satisfies the craving propensity.

Inebriety makes its appearance as other diseases make theirs, sometimes by the fault of the individual attacked and at other times from causes over which he has no control. The propensity is quite often hereditary, and transmitted from one generation to another, in accordance with the same law by which any constitutional taint, like scrofula or tubercular disease is handed down. The law of development which, from the germ, fashions and matures an individual, and by which it is made to resemble its prototype or parents, will also in due time bring forth the defects which may have existed in a previous generation. The fact is a familiar one, that children resemble

their parents to a certain extent in mental characteristics, disposition, peculiarity of constitution, temperament and form. They are, however, not born with all these characteristics present, but as the child is developed into the man they, one after the other, make their appearance. With the development of consumption under this law we are all familiar. The child is born with a tuberculous taint. During the years of its childhood it may be well and sprightly, keep pace in growth with the most robust; but in the course of its development it reaches a point where its prototype fell into decay and died. This individual will do the same. A tendency to drunkenness will be developed under the same general law. The child will give the fairest promise, its youth will be one of innocence uncontaminated by evil influences, and the first years of manhood will be free from spot or blemish; but the critical period arrives and suddenly like a fatal cancer there is developed this morbid propensity. The man becomes changed, his appetites are aroused, his whole nature undergoes a transformation, and the prospect of his early years is blasted by drunkenness. No condition in life is exempt from such instances. We meet them everywhere, in the pulpit, on the bench, at the bar, in the church and among "all sorts and conditions of men." The period in life at which the propensity to drink is developed varies in different individuals. In some it appears in early youth, in others in the first years of manhood. The great number of young men addicted to the intemperate use of ardent spirits, who are to be found in our large cities and principal towns are examples of this class. Cases also occur where late in life the propensity first makes its appearance. Other forms of drunkenness are apparently brought on by disturbances or by great excitation of the emotional nature, or by the depressing passions, especially by grief, disappointment, mortification, shame, or loss of property, etc. In many cases the exultation following the accomplishment of some successful undertaking excites a paroxysm of inebriety. I have been led to believe that this form of emotional excitement is more frequently the immediate cause of an attack than those disturbances attended by depression of mind. The rapid accession to fortune, political distinction, success in any enterprise are very often the precursors and excitants to a course of inebriety.

The practice of tippling has heretofore been regarded not only as the ordinary but the sole cause of the development of inebriety. In fact, every case formerly was attributed to this practice. Under this view the individual was looked upon as voluntarily entering upon a habit which was sure to bring upon him a drunkard's fate. This practice has consequently been denounced as criminal, and the drinker been subjected to the severest reprobation. The courts have held that the delirium of intoxication was no excuse for violence or crime of any kind, for the condition was brought on by the voluntary act of the individual himself. It must be evident, however, that this practice is but the first manifestation of the morbid propensity, and is as much a part of methomania as is the subsequent continuous or inveterate stage. The inclination to tipple, whenever occurring, should consequently be regarded with alarm, as indicating the approach of a most serious and grave disease. Measures to arrest its advance should at once be employed, as any sanitary precautions are

taken to prevent the approach of yellow fever or cholera. It is in this stage that recovery is most likely to take place, for the disease is then only in process of formation and it is more easily thrown off. The will then has not become weakened or overpowered and the recuperative energies of the system have not been impaired.

In that form of inebriety which has been attributed to the influence of emotional disturbances, it may likewise be doubted whether these influences are the direct cause of the paroxysms; they only operate as exciting causes, and by their influence upon an organization already predisposed, weaken the power of resistance, and give favorable opportunity for the development of the disease. We have all seen individuals drawn into the vortex and swept away under disturbances of the emotions and passions, and this is no more strange than that the same causes should, in others, disorder the intellect, destroy its balance and overwhelm its faculties; occurrences which I believe are not uncommon. Do not both these conditions equally claim our sympathy and benevolent exertions? Is one *wicked* while the other is properly regarded as *unfortunate*? In all of these cases, both of methomania and insanity, we must recognize a previous predisposition to the attack. The fact that many undergo all these emotional disturbances and excitement without developing either drunkenness or derangement of mind, is conclusive that they alone are insufficient. There is a previous susceptibility to these attacks which must be regarded as unsound and morbid.

It may be remarked as to the effects of this disease upon the character of the individual, and its influence upon the moral and affective faculties, without reference to any consequent organic lesions or functional derangement, that the tendency of the practice of drinking is to obscure and destroy all the higher and nobler impulses of human nature and in prolonged cases, where the disease has wrought out its full effects, the subject of it may become completely debased and lost. Under every circumstance the effects of alcoholic indulgence are dire enough, as we all must admit, yet I believe that we have been accustomed to regard the drunkard as lost, too soon. He is not always, in fact, I believe that he will rarely be found to have become utterly abandoned. I do not believe that, even in the worst cases of inebriety, one's manhood is entirely obliterated. It is often completely overborne by the power of that terrible propensity to drink, so that no signs of its existence are put forth; but give it the opportunity, let an opening once be made in the prison house in which it is incarcerated, and the soul and the higher instincts of the man would spring forth once more, like a bird escaped from its cage, to enjoy again their freedom and a new life.

The whole subject is one of engrossing interest. Upon the medical profession will devolve the duty of treating the subject in the light of true science, in the hope and belief that, as variola has been or can be rendered harmless by vaccination, so the proper employment of remedial measures may exterminate or at least make powerless for evil, the fearful scourge of inebriety.

Elsewhere, Dr. Burr says: "It is this condition of the nervous system calling for alcoholic stimulants that is essentially the disease. This condition begins when the first inordinate desire is experienced. The



intensity of this desire, whether it be mild or virulent, does not change its character. The slightest departure from a normal appetite indicates the beginning of inebriety. The first unnatural longing for drink is essentially of the same nature as the most inveterate and uncontrollable desire. The difference is only in degree.

"The medical profession must study this subject as physiologists and pathologists, and not as moralists or reformers. The laws governing the organism, the dependence of a healthy mind upon a healthy physical condition, the transmission of normal sensations only through the media of sound nerve trunks and *vice versa*, are well determined facts, and they must be recognized and applied in the consideration of the subject of intemperance, and in explaining the unnatural phenomena of the inebriate."

The late Dr. D. G. Dodge, one of the trustees and formerly superintendent of the New York State Inebriate Asylum, at Binghamton, N. Y., some years ago expressed himself as follows, in a paper on "Inebriate Asylums and their Management": "Inebriety is a condition of the system exhibiting a class of symptoms resulting from a long-continued and excessive use of alcoholic stimulants which brings the subject to a condition he is too weak to overcome and for which he is not responsible. All stimulants containing alcohol must produce this disease; but those containing the most alcohol, when habitually taken, act more thoroughly and rapidly. It is alcohol and nothing else that is the exciting cause of the disease. Occupation has a powerful controlling influence in developing or warding off the disease. In-door life in all kinds of business is a predisposing cause, from the fact that nearly the whole force of the stimulant is concentrated and expended upon the brain and nervous system. A proper amount of out-door exercise, or labor, tends to throw off the stimulus more rapidly through the various functional operations of the system. Occupations of all kinds, mental or muscular, assist the nervous system to retard or resist the action of stimulants—other conditions being equal. Want of employment or voluntary idleness is the great nursery of this disease. The use of tobacco predisposes the system to alcoholism, as it has an effect upon the brain and nervous system similar to that of alcohol. The use of tobacco, if not prohibited, should be discouraged.

Statistics show that inebriety oftenest prevails between the ages of 30 and 45. The habit seldom culminates until 30, the subject, to this age, generally being a moderate drinker; later in life the system is unable to bear the strain of a continuous course of dissipation. Hereditary inebriety, like all transmissible diseases, gives the least hope of permanent cure and temporary relief is all that can generally be reasonably expected.

(To be continued.)

**Admirable Memorials.**—"Not storied urn or animated bust" can do that for the honoring *in perpetua* the names of departed friends, that can be done by the establishment of beds in hospitals bearing the names of the deceased. Mrs. C. M. Jeanes, of Philadelphia, has acted on this principle and has given \$10,000 to the German Hospital of that city to endow a free bed in the name of her father, Mr. John Kohler; also \$10,000 as a free bed fund to the Episcopal Hospital for her mother's remembrance, the bed to be known as the Catherine Sulgar Kohler bed.

## SOCIETY PROCEEDINGS.

### Proceedings of the First Meeting of the American Academy of Railway Surgeons.

Held at the Grand Pacific Hotel, Chicago, Ill., Nov. 9 and 10, 1894.

(Continued from page 989, Vol. XXIII.)

DR. C. K. COLE, Chief Surgeon, Montana Central Railroad, Helena, Mont., delivered the following address on

#### THE OBJECT AND AIMS OF THE AMERICAN ACADEMY OF RAILWAY SURGEONS.

The Chairman of the Committee on Permanent Organization has placed me on the program for an address on the objects and aims of the American Academy of Railway Surgeons. I confess, at the outset, that the subject has not received at my hands the consideration its importance demands. If my statements are too brief, or too lengthy, too enthusiastic or too scant in facts, the fault may justly be charged to my friend, Dr. Reed, whose large experience should have taught him more discernment than to have selected me for such a task.

We have met to consider the advisability of organizing a Society of Railway Surgeons, which shall be cosmopolitan in character, in the sense of including representative and active men from every section of the United States, and yet whose distinctive features shall include a strictly limited membership; the limitation not applying to any particular class or grade of railway surgeons, but to numbers only. A society which shall have for its prime object the promotion of the study of railway surgery as a special and important branch of the surgical art. We have not met to decry the efforts of others in this field, nor in any wise to antagonize any individual, or any set of men, in any department of medicine whatsoever. This statement seems warranted at this time, in view of the fact that it has been sought to show that our motives were not free from prejudice and bias. In this connection I may be pardoned for suggesting, that if any of us in this assembly are possessed of any other desire in connection with this first meeting than that of the development of a higher order of railway surgery, such person would best subserve the interests of the proposed organization by withdrawing before a permanent organization is effected.

However widely divergent our views may be as to methods, I assume that we are agreed that there is urgent need of steps looking to the placing of railway surgery on a higher plane than it has hitherto occupied. A facetious critic in a recent journal article, entitled, "The Evolution of the Railway Surgeon," undertook to show the folly and unwisdom of claiming any special skill or requirements in the practice of railway surgery, or the necessity for organization on the part of those engaged in this work; the experience of those present here to-day, indeed, the very fact of your presence here, is a sufficient refutation of this idea.

How best to effect an organization which shall successfully accomplish the objects in view, demands our earnest and most careful consideration at this time. During a number of years past, various plans of organization have been discussed by those more or less interested in this work. These plans have been so numerous and varied, that it is impossible in the time at my disposal to rehearse them fully and in detail. Among them, however, may be mentioned: 1, a large popular body, made up of all those engaged in the practice of railway surgery in the United States, the Canadas and Mexico; 2, a delegatory body whose members should be annually elected from State or district societies; 3, representation in a central National society by railway systems, by States or by districts, which should each include

six to twelve States. In addition it has been suggested that separate organizations be had for Local, Division and Chief Surgeons. These and other plans have each had their day and advocates, until comparatively recently, when the consensus of opinion seemed to indicate that a society with a limited membership and composed of experienced railway surgeons, of whatever grade, and who have demonstrated their qualifications for, as well as their abiding interest in railway surgery, should be formed. Generally speaking the railway managers and legal counsel, have heartily approved the plan as herein outlined, so that it remains for us to organize a society that will prove a permanently influential factor in the advancement and upbuilding of this important department of our great railway corporations.

This organization will prove useful and effective, exactly in proportion as its founders exercise care to eliminate, at the outset, such objectionable features as have been proven in experience to be dangerous. We must agree in advance that our first object is honest effort in the interest of science, so that those who look to us and depend upon us will, perforce, applaud and second our efforts, as improved methods and better results shall impress them with our sincerity of purpose. We must agree upon a plan or basis of organization which will most nearly meet, not only the conditions at present existing, but also such exigencies as are likely to arise in the future. We must agree to avoid strenuously those elements which experience has shown us to be disastrous. We must, in brief, agree that there exists a genuine necessity for such an organization as it is proposed to effect at this time. If we can not agree upon these various points, and in addition that we will each, to the best of his ability, devote time and energy now and hereafter, to the erection and maintenance of an harmonious structure for the purposes intended, it were better that we should at once separate and leave to others a task of such momentous importance.

The eyes of the railroad world will be upon us; our action will be scrutinized and perhaps our motives impugned by those who do not wish us well. We must be prepared to meet certain unjust criticisms and predictions of failure on the part of those who do not love us or our cause. We must assure ourselves of the propriety of our motives and the rectitude of our course, so that our honesty of purpose may appear to the public in such a manner as to serve as a bulwark of defense against those who seek our discomfiture by inveighing against us.

It has occurred to me to supplement these remarks by reading a draft of a Constitution and By-Laws which will be submitted for your consideration some time during the session, and with the permission of the President, and if no one objects, I will proceed to read.

[The proposed Constitution was then read, and will be published hereafter as adopted.—ED.]

DR. W. J. GALBRAITH, Chief Surgeon, Union Pacific Railroad, Omaha, Neb., delivered the following address on

#### REASONS FOR THE ORGANIZATION OF THE AMERICAN ACADEMY OF RAILWAY SURGEONS.

It is my aim to present to this honorable and distinguished body of railway surgeons, some of the practical necessities and reasons for the organization of the American Academy of Railway Surgeons—an organization, born, so to speak, of the advancement of a scientific period wherein, in my opinion, we are in duty bound to combine our knowledge of modern railway surgery, as well as our experience and mechanical ingenuity, in this our special field of the surgical art, and thus advance and promote the standard of railway surgery in this country, and at the same time offer better protection, in times of wrecks and serious accidents, to the employe, the passenger and the company we represent.

I shall not take up your time by going into and defining

the many detailed reasons for the organization of this Academy, but on the contrary will attempt to point out some of the evil influences we must at all times guard against to insure its success, and especially at our regular meetings. I feel confident that unless we observe the proper course of discipline and keep harmony in view, it will be but a short time—yes, a very short time, until the primary objects of this organization will have been lost sight of, and the Academy fall into disrepute.

The reasons for this organization are the proper demands of our companies for us at all times, regardless of political and personal motives, to consider and study the scientific principles of how best to render surgical aid to the special classes of cases that fall into our hands by virtue of the positions we occupy as railway surgeons. Moreover it would be a fruitless task to attempt to demonstrate to you the many ways that we can assist in elevating the science of railway surgery, as well as how best to consider the many perplexing medico-legal problems that are frequently referred to us by the great corporations we represent, as well as in times of legal strife and trials, when we are summoned to appear in court as surgical experts. The great difficulty of establishing facts in personal injury propositions are well known to every judge. Our experience should map out to us the loyal and proper course to pursue, in order to protect our companies from fraud and deception. It is useless for me to dwell upon the necessity of the proper discussion of this monstrous subject, but suffice it to say, that it is one of the principal reasons for the organization of this Academy.

This Academy fully appreciates the great importance of the many complications of railway surgery and the scientific requirements of a better knowledge of the same.

It affords me great pleasure to announce, not only to the managers of railroads but to the general public as well, that this Association fully appreciates the vast field that is open to it for investigation, and by our combined efforts and constant research we shall hope to elevate our calling. With so many scientific problems before us for investigation, why should we invoke the disgust of our managers, by making useless and foolhardy recommendations as to the proper automatic car couplers to be used, or indeed to attempt to promulgate legislation looking to the passage of laws compelling all railroads to equip their rolling stock with uniform safety appliances. Action of this kind might be proper and indeed humane, but I do not deem it within the province of this organization. Nor should this organization, at this time, consider such sanitary problems as the reconstruction of the modern Pullman car, by doing away with the present elaborate upholstery and draping; or recommending that cars be especially constructed for the transporting of consumptives and attached to all trans-continental trains in order that healthy passengers might not be exposed to the contagion or infection of tuberculosis and kindred diseases. Nor can we consistently recommend that hospital cars be maintained at all division terminals of our large railroad systems for use in times of emergency. The extreme impracticability of these and many other schemes that have been advocated by some of the younger and less experienced railway surgeons in the past, is fully appreciated by this body of surgeons. Pause, for one moment, and consider the enormous expense that would be entailed by equipping with hospital cars a single railroad like the Union Pacific.

We should not lose sight of the fact that our railroads are managed by the most able men, in their special avocations, the country affords; and that these managers have placed at the heads of the various departments of their roads, men of corresponding ability. It is the business of heads of mechanical departments to investigate the merits and de-

merits of whatever safety or other devices are offered, and make their recommendations to the general manager. It would be absurd then, I say, for this organization of scientific men, to mix itself up in mechanical problems that should be left alone to the mechanical and operating departments of our railroads.

One of our most prominent railroad managers, in conversation with me, a few days ago, commented most favorably upon the business-like appearance of our program for this meeting, and suggested that it would be wise to send a copy of it, as well as of all other matter pertaining to the Association, to every manager in the country, in order that they might see and know what we are doing, and especially familiarize themselves with the manner and methods employed by us in promoting this important adjunct to the modern operation of railroads. I can assure you it would give me great pleasure to have with us here to-day, all, or at least a majority of the prominent railroad managers of this country, that they might see and appreciate to a small extent, at least, the zeal that is manifested by this gathering of earnest intelligent surgeons, to promote by unified research, the important specialty of railway surgery. I am glad to state that Dr. Reed will be able to give you some very surprising information concerning the railroads in this country, as well as in the Dominion of Canada and Republic of Mexico, who have expressed themselves through their general managers as being highly in favor of an organization based upon such meritorious principles as are declared by this Academy. And also, that we are encouraged and supported by the most eminent contributors to the literature of railway surgery of our times. This is certainly a very strong incentive for us to use our best endeavors to make the very most of this organization from a scientific standpoint, and truly earn that exalted motto of the Academy, "The higher the order of railway surgery the greater the protection to the employe, the passenger and the company." For what does this encouragement mean? Does it mean that we have, by false pretenses and deception invoked the support of these leading railroad men? or, does it mean that these men recognize the necessity of an organization of this kind for scientific purposes and not for the purpose of affording hundreds of surgeons the opportunity of requesting transportation for themselves, families and friends to enable them to gratify their junketing and pleasure seeking proclivities.

The future of this Academy must be apparent to every one within hearing of my voice, when we consider that this gathering together of so many eminent surgeons, is but the fruition of a few weeks' work of our committee. Certainly, it is evident that the great sheet anchor of our success (the managers) have seen and appreciated the untold benefits that may be derived from the conscientious work of an organization like the American Academy of Railway Surgeons in the working out of scientific problems growing out of the operation of railroads.

The practical feature of this Academy in limiting its membership to only active workers and writers has received several very commendable comments from general managers; they agree with us that a smaller number of active workers will accomplish much more good than a large number of lookers on. That this Academy will advance the standing and science of railroad surgery is a certainty. It requires but a glance about this hall to behold many eminent surgeons, who, by their standing and support of the railroad they represent have this day founded one of the most respected and honorable surgical societies in this country. The character of our program proves very conclusively the distinction I have given you; its business-like expression having superseded notices of excursions and junketing trips,

which have been the great drawing cards heretofore.

In conclusion, I desire to impress upon your minds the great importance of a loyal spirit toward the company you represent, as well as its employes. Secure full and accurate statements of facts in all cases of accidents. Avoid useless recommendations to your managers; and more particularly should we have a care not to allow our political ambitions or desires for self-aggrandizement to dominate our better judgment, but constantly bear in mind that this Academy is organized for the sole and express purpose of promoting our special scientific work, first, last and all the time, and thereby demonstrate to our companies its practical usefulness.

#### A SYMPOSIUM ON PERMANENT ORGANIZATION.

was given by DR. HARVEY REED, Consulting Surgeon, B. & O. Railroad, Columbus, Ohio.

In the permanent organization of any society or association, every factor effected by such an organization should be carefully considered. Among some of these factors may be mentioned: 1, objects; 2, the methods of accomplishing the desired end; 3, those effected either directly or indirectly by such an organization.

In the address presented by Dr. Cole, you have learned that the objects of the American Academy of Railway Surgeons are: 1, the clinical and scientific study of railway surgery; 2, the careful consideration of the medico-legal questions arising out of the railway service; 3, the consideration of such sanitary and hygienic problems as may effect directly or indirectly the railway companies.

No one can deny the practical importance of the objects proposed by the Academy, and that the carrying out of the same will result in "the higher order of railway surgery," which guarantees a corresponding protection to the employe, passenger and company.

The railway service of modern times has gradually changed from an amorphous condition to that of crystallized precision, and depends for its success upon system and exactness in all the details of the service.

It has been found necessary to have a head to every department, and those employed in each department should be well qualified for the duties devolving upon them in carrying out the work assigned to them. The better they are qualified, the better service they can render the company, and the better service rendered the company the greater the earning capacity is increased on the one hand, and the less expenditures on the other.

#### I.—THE DESIRED END OF ORGANIZATION.

It has seemed strange, and we might almost say paradoxical, that the surgical service should be among the last departments to undergo crystallization. Yet it is an undeniable fact that the progressive railway companies of this country have discovered that the maintenance of a well-organized surgical service is a valuable department to the company. They have learned that while it does not represent earnings, it protects earnings after they are secured and, as the old adage goes, a dollar saved is equivalent to a dollar earned.

#### II.—THE METHOD OF ACCOMPLISHING THE DESIRED END.

It is not only necessary for the Academy to have grand practical objects in view, but it is equally important that the methods adopted for carrying out these objects should be carefully, conscientiously and impartially considered. In maturing plans for the permanent organization of the Academy, it has not only been advised by many of the leading surgeons who have had long experience in the service, but recommended by many of the managers, that the Academy be limited in numbers and the same be confined to surgeons of practical ability, either as experienced surgeons or eminent

observers and writers on railway surgery, forensic medicine or sanitary science.

It has long been demonstrated, that in order to accomplish the greatest amount of work in a certain direction, it is necessary to limit the number who undertake the work and make the responsibility on each one proportionately greater. For instance, the railway companies do the large bulk of their important business through their general managers, who not only have experience but are held responsible for grave trusts that involve millions of dollars, which if left to the stockholders to manipulate would result in financial disaster. For this reason the railway management argues, that in order for the proposed Academy to accomplish the greatest amount of benefit to the company they represent, it can be done best by an association, such as is proposed, of a limited number of energetic practical workers who will meet from year to year, to consider and discuss the many important problems that are daily manifesting themselves in the general surgical service of the companies they represent.

The question as to how the membership of the Academy should be selected and maintained was one of no small importance, and, I can assure you, one which was not easily solved. At first thought, a delegatory system would seem to strike the mind most favorably, but when we come to consider this system in its details, the question arose as to who should select the delegates. If this could be settled satisfactorily, then a still greater obstacle presented itself, and that was the continual change of membership of the Academy from year to year.

For example, if we were to base our membership upon one delegate for every ten railway surgeons in the United States, we would at once have an eligible membership of about five hundred. We could not expect the same delegate to return from year to year, and if the company, or chief surgeon, or local surgeons from which the delegates are selected, were to attempt to act impartially and give each of their staff an opportunity to attend an annual meeting, you will at once see that with each annual meeting a new set of delegates would appear and that, under this system a delegate would only be able to attend a meeting of this character once every ten years. This being a fact, you can readily see how it would interfere with the interest on the part of the delegates, saying nothing about their ability to accomplish the highest scientific work possible.

After discussing this question in all its phases, your committee thought best to select a nucleus for the Academy, consisting of surgeons who were believed to be worthy and well qualified in carrying out the arduous task proposed by the new organization, and that in doing so they should be made permanent members, not only in order that they would have a permanent interest, but that it might enable them to accumulate knowledge which, with each year, would increase their value, not only to the Academy but to the railways they represent and railway surgery at large. Firmly believing that this plan will render the best service, a skeleton constitution which we have already referred to has been prepared with this idea in view, and it is left to you, gentlemen, to say what the limit of membership shall be and to fix the standard of admission.

### III.—THOSE AFFECTED EITHER DIRECTLY OR INDIRECTLY BY SUCH AN ORGANIZATION.

In adopting the fundamental laws of the proposed Academy, we must not be unmindful of those who will be affected by the same. We must remember that not only those who may be selected as Fellows of the Academy will be benefited or injured by our fundamental laws, but our fellow-surgeons and co-laborers, as well as the management of the railroads, will be affected for good or evil by the constitution which

we may adopt. Our standard of admission should be high and the limit of our membership low. Every candidate who applies for admission should be carefully scrutinized before taken into fellowship. This would of necessity require us to take into consideration, not only what benefit the admission of such a candidate would exert on the Academy, but to what extent he would benefit the railroads which we are supposed to serve to the best of our ability in the capacity of railway surgeons.

Our fundamental laws should be of such a character as to exclude all actual drones and simple ornaments from our midst. It should encourage the admission of honest workers who will not only be willing but eager to meet with the Academy from year to year, and assume any duties that may be assigned them which they may be capable of carrying out. We must remember in the adoption of our constitution that we are on trial and that our success, our prosperity, yea, our right to exist, will depend on the character of our work and the fruits of our labors. While sociability should contribute its benefits to the members of our Academy, our highest aim, first, last and all the time, should be the constant advancement of railway surgery by a continued endeavor to simplify its technique and solve its mysteries and thereby contribute a liberal benefit to the companies we represent.

We trust that the few hints we have thrown out in this symposium will aid the members of the Academy in adopting a constitution which will not only be simple, but practical, and which will contain the greatest number of good with the least number of objectionable features possible, and that in the consideration and adoption of these laws each Fellow will keep in view the fact that "the higher the order of railway surgery, the greater the protection to the employe, the passenger and the company."

DR. W. H. ELLIOTT, Chief Surgeon, Georgia Central Railroad, Savannah, Ga., who was on the program to open the discussion on the three previous papers, being detained by a railroad wreck, the discussion of these papers was postponed until later in the session. On the arrival of Dr. Elliott, the matter was again referred to by the following remarks:

#### *Mr. President and Fellows of the Academy:*

The objects and aims of this Academy should be to advance the science of railway surgery. True devotion to the attainment of knowledge and its successful application in the practice of our art, are the only means by which we can obtain this end. Devotion to science must be paramount to the gratification of personal ambition. Honors in this Academy must come unsought.

Nothing must be said or done which will reflect upon or injure the National Association of Railway Surgeons, because we are still members of that body and fellow-members in the medical profession, and the injury of one is the injury of all. No discussion with the National Association or its members in regard to this Academy is necessary or desirable. Arguments might become heated, and while failing to convince, would most probably result in injury to the cause of railway surgery. A success of the Academy at the expense of the National Association would be temporary only, and would finally end in lowering the esteem in which the Academy and railway surgery is held.

Nothing must be done in the Academy which is not open to inspection or which is in any way calculated to make a false impression. Nothing can succeed in the long run but noble and high aims founded upon truth and justice. Our motto calls on us to be true to our profession, to our patients, and to the railway companies we serve.

"This above all; to thine own self be true;  
And it must follow, as the night the day,  
Thou canst not then be false to any man."



THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

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SATURDAY, JANUARY 5, 1895.

THE ALLEGED BACILLUS OF BILIOUS FEVER.

The medical world has heard but little of the bacillus of bilious fever. The *éclat* which attended the recognition of the spirillum of cholera and the bacillus of tuberculosis was not extended to the recent announcement of DR. DOMINGOS FRIERE, of a bacillus similar to that of TOMMASSI-CRUDELI in the bilious fevers of hot climates. Yet locally, in the place of its origin, this announcement created such a disturbance in the medical atmosphere as to agitate not only the professional but the daily press; and this because in addition to the intrinsic importance of the alleged discovery, the question was incidentally raised of the value of FREIRE's inoculations with attenuated cultures in immunizing against yellow fever. Many letters were published, copies of which are now before us, from which we outline in a suggestive way the manner in which the announcement was received in Rio de Janeiro. It appears from these that PROFESSOR FREIRE has found the plasmodium of LAFERAN in some cases of malarial disease, but regards this organism as a result in the blood of the action of the bacillus which he has just discovered.

Three medical men, two of them former pupils of PROFESSOR FREIRE, and all of them at one time his disciples and admirers, visited his institute to verify the existence of the bacillus. They were DRS. CHAPOT-PREVOST, OTTONI and FAJARDO, the first, Professor of Histology of the Faculty of Medicine of Rio de Janeiro, the second his assistant, and the third, physician to the yellow fever hospital. As a result of their visit, DR. CARL SEIDL, Director of the San Sebastian Fever Hospital, published an invitation to PROFESSOR FREIRE to submit his cultures and methods

to a commission of competent men to be named by the medical faculty, stating that men of this kind whose competency and impartiality were above suspicion were as easily to be found in Brazil as in Europe, and charging him as follows:

1. That he had no pure culture of the alleged bacillus in his laboratory.

2. That to mitigate the disappointment of his visitors he allowed them to examine a microscopic preparation (with a cracked cover-glass) from an impure culture.

3. That a kidney slice from an infected guinea pig, referred to in his publication as showing the bacillus, presented only purple stained nuclei of cells of connective tissue which had been christened bacilli.

4. That his assistants vaccinated with a culture which he, FREIRE, said *ought* to be pure.

5. That on examining this culture it was found that the defects of the cover-glass had been considered by him as qualities of a pure culture; and that below this was a mixture of sprouts and infusoria, which mixture served for his vaccinations.

PROFESSOR FREIRE in reply held his position to be established by his visitors' own acknowledgment that they had seen a culture; that on account of the technique he had employed (described by CORNIL) the purple objects in the kidney slice could be nothing but bacilli; he laughed to scorn the idea that flaws in the cover-glass had been photographed as bacilli; but made no reference to the invitation to submit his work to a commission. CHAPOT-PREVOST, who is a pupil of EHRLICH of Berlin, retorted that neither he nor his friends had seen a *pure* culture, and that the students in his histologic class will show to any one in the normal kidney of the guinea pig, purple stained nuclei obtained by the processes used by FREIRE in preparing his kidney section; and again and again is the Professor urged to demonstrate the existence of the bacillus before a selected committee, so that in the sixteenth letter of the series now before us he at last disposes of the invitation after this manner: "I am not his pupil to be at his caprice nor is he my superintendent. It would be against my dignity as a professor of a faculty to be giving explanations to whoever demands them, about an elementary manipulation of a bacteriologic process which every apprentice ought to know."

Naturally, in the course of this discussion, the participants digressed to the micrococcus xanthogenicus. FREIRE attributes all the opposition to his discoveries to a clique who, not content with spreading their detractions in Brazil, have endeavored to plant a center of opposition to him in Paris; and he refers to his statistics as establishing the value of the "vaccinations" for yellow fever. SEIDL replies that these vaccinations have been in progress since 1883 and yellow fever continues, becoming year by year

more formidable and destructive, instead of being gradually stamped out as was prophesied by FREIRE. Statistics will never convince the bacteriologists of the world, the medical fraternity of Brazil, nor the public, of the value of these vaccinations. "For where is the physician, where is the intelligent man in this town, who does not know cases and cases in which said vaccination was not only useless but perhaps harmful because it caused a false confidence?" In the laboratories of Paris, Vienna and Berlin are long series of pathogenic germs, some only recently announced, yet there is no culture of the xanthococcus which has been discovered for so many years and put to practical account in Rio. OTTONI challenges PROFESSOR FREIRE to name one laboratory, not his own, in which the xanthococcus has been verified as the cause of yellow fever; and the suggestion is made that since we have waited so long for the verification of this microbe we may have to wait a considerable time for a pure culture of the bacillus of bilious fever.

The last letter of the series, number twenty, by DR. SEIDL, closes with this reference to the invitation for an investigation by competent men: "And the committee of experts will wait for the Greek Calends?"

#### FLECHSIG'S TREATMENT OF EPILEPSY.

The treatment of epilepsy has always been surrounded with many difficulties. The disease itself is symptomatic, presenting a most varied pathology, from that of a functional neurosis to those graver conditions involving organic degeneration. Such being the case it is apparent that any method of treatment must have only a limited range of application. Undoubtedly, the greatest successes are reached in this disease along those lines which improve the general nutrition of the body and thus render more stable the nerve cells concerned in the production of the attacks. There is no disease which more certainly affirms that we should beware of the single remedy, or of one method. While the bromid treatment is perhaps more generally successful than any other, yet it can not be followed as a routine practice and it is not adapted to more than one-half of the cases that are actually met with in practice.

Recently, COLLINS (*Medical Record*, Sept. 22, 1894) has studied the method of FLECHSIG in the treatment of some forty cases with, he claims, excellent results. The method consists in the administration of opium beginning with a dose of 1 grain after each meal, and increasing until 10 to 12 grains are given during the course of the day. This treatment is persisted in for about six weeks and is not usually followed by any reduction in the number of the attacks. Some patients complain of the effects of the opium but this is overcome to a great extent if the patient takes

a good deal of physical exercise, and free catharsis is employed. At the end of six weeks the opium is abruptly discontinued and comparatively large doses of the bromids are given. This in a majority of instances is followed by a marked diminution in the number and severity of the attacks, and improvement in the general mental condition of the patient. The bromids are then rapidly diminished until a small dose is reached, or else they are discontinued altogether according to the condition of the patient.

Some of the cases reported by COLLINS were those of epileptics who had been under the bromid treatment with very unpleasant results, but after the use of the opium the bromids were well borne. The method seems to give the best results in those severe cases dependent upon organic changes in the brain and vessel walls, precisely those cases in which other methods have so signally failed. A number of cases of idiopathic epilepsy have done exceedingly well under this treatment, but not so much is to be looked for in this class of cases.

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#### REVIVAL OF A SIXTEENTH CENTURY SUPERSTITION.

The fasting girl and trance states furnish the greater number of medical newspaper sensations, but this was varied on December 26 by the appearance of an article in the *Chicago Evening Post*, under the following startling headline: "He resembles the image." The article which is a dispatch from Jamestown, N. Y., goes on to say that one, GEORGE W. DEPEW, has been arrested for the murder of MRS. WINSLOW SHEARMAN and her daughter MRS. CLINTON. He has been identified by his resemblance to an image of a man seen in MRS. SHEARMAN'S eye. The dispatch then goes on to state that the discussion over the possibility of identifying a murderer by the image left on the retina of the victim's eye has been revived with great intensity. Versimilitude is given the narrative by the statement that, "those who saw the image before it was blurred by removal of the eye from the socket, remember the image so distinctly that they could identify the general outlines of the man's figure from it and the half profile revealed in the image. Before the removal of the eye the image was sharply defined." If there is still a lingering doubt in any one's mind regarding this statement it would be swept away by the following: "Even the wrinkles in the clothing were plainly seen by the aid of the microscope."

All through the Middle Ages there was a belief that the eye of a murdered person contained an indelible impression of the last scene upon which he looked. In the jurisprudence of that time there are cases recorded of conviction upon such evidence. It, however, was never received with as great favor as was the touching of the dead body by the suspected

person, to learn if the wounds would bleed afresh, in which case guilt was held to be fully established. The theological element figured in this latter test, just as it did in that of the ordeal of battle.

It must be very comforting, in these *fin de siècle* days, to those who have an abiding faith in the good old times of the fathers, to have a story of this kind follow upon the heels of an outbreak of "hypnotism" in a Wisconsin town, allied in many respects to the famous witchcraft episode at Salem.

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#### THE PLEA OF HYPNOTISM IN CRIMINAL CASES.

Undesirable effects of a little dangerous information on medical subjects on the part of the public are frequent enough, and indeed too common to usually call for special remark. When, however, a wave of mental aberration seems to be going over the country, and on a subject that comes especially within the purview of a medical journal, it would be unpardonable to let it pass unnoticed, the more so when the evil is in part due to the encouragement given by an unscientific credulity on the part of members of our profession, regular and otherwise.

Within the past few weeks the plea of irresponsibility for capital offenses on account of hypnotic influence, has been raised in two prominent instances, and in at least one other case it has been successful. This is not a new mode of defense. It formed one of the most prominent features of the celebrated EYRAUD case, tried in France two or three years ago, but the homicide McDONALD, of Wichita, Kan., is apparently the first one who has successfully availed himself of it. The precedent has been set, and the possibilities for this plea in the future are indefinite.

While one may admit that a somnambulist *may* irresponsibly commit a homicide, and that the actual condition of hypnotism is a sort of induced somnambulism, the possibilities of miscarriages of justice in applying this to criminal jurisprudence are too great to be ignored. There is not merely the chance of a murderer escaping by this plea, but there is even a greater possible danger to innocent parties from false accusation. This is well illustrated in the PICKIN case in Wisconsin, now exciting so much popular interest. Whether or not there is any basis of fact in the charges, the range it opens to hysterical accusation is sufficiently obvious.

The responsibility of the regular medical profession in this matter is a very large one. It is not probable that any man can be convicted or acquitted on a plea of hypnotism without the testimony of physicians, and how many are there who have well founded and scientific opinions on these subjects? It is to be feared that the number is by no means so great as it should be, and that the credit of medical testimony will suffer in consequence. The views in

regard to hypnotism of some men who ought to know better, are wild enough; with some it has reached the evil eminence of being a fad, and there seems to be no limit to their credulity.

It is astonishing how little real advance there has been in our discussions of this subject, and how sensible were the views of many of the earlier alienists of this country and abroad in regard to it. One need only read a work published in the early forties by Dr. J. W. GALT, of Virginia, and which, with the exception of RUSH's work, was the earliest important contribution to psychiatry in this country, to be convinced of this fact. The later literature of hypnotism, with the exception of a few important contributions, is to a great extent a waste of human effort and largely a monument of human credulity.

The object of these remarks is to call attention to the medico-legal importance that may become attached to the subject, and to emphasize the need of a proper cautious scientific spirit on the part of our profession in dealing with it. It has other phases perhaps not less important in their way, such for example as the effect on public health of the practices now prevalent; but that, as MR. KIPLING says, is another story, and may be dealt with hereafter.

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#### SMALLPOX IN 1894.

After all the space given to the subject in the public press, concerning the "ravages of the loathsome pestilence," it appears that there were only about ten thousand cases of smallpox, with not to exceed three thousand deaths, in the United States during 1894. Compared with the constant mortality from consumption, pneumonia, diphtheria and other contagious or infectious diseases—more or less preventable—it is apparent that smallpox has lost its epidemiologic significance for this country almost as fully as has Asiatic cholera or yellow fever. There may from time to time occur an outbreak of either of these latter diseases; but there is reason to believe that the terrors which cholera caused during the middle third of the century, and yellow fever for more than a hundred years, will never again be repeated.

The prevalence of smallpox in 1894 has been pithily called "the lesson of neglected vaccination." But while this is, in a certain obvious meaning, an apt characterization, there is also an optimistic lesson in the figures which should not be overlooked. One hundred years ago (JOHN SIMON) there were 96 deaths from smallpox out of every 1,000 deaths from all causes. At our average annual death rate (J. S. BILLINGS) of 18 per 1,000 there were 1,170,000 deaths from all causes last year in a population of 65,000,000. One hundred years ago, therefore, we should have had 12,300 deaths from smallpox last year instead of less than three thousand.

That this latter number is wholly unnecessary is true; but the difference between what is and what might have been, but for JENNER, is another laurel for his centenary next year.

## CORRESPONDENCE.

### The Erysipelas Toxins—A Reply to the Editorial of Dec. 15, 1894.

NEW YORK, Dec. 20, 1894.

To the Editor:—My attention has been called to your recent editorial upon the "Failure of the Erysipelas Toxins." Coming so soon after a previous editorial upon the *success* of the toxins, I am somewhat surprised, not so much at the radical change of views, as at the change having been allowed to take place without a more careful inquiry as to the present status of the treatment and a more critical analysis of the evidence presented.

The statement is made in your editorial: "There is no longer much question of the entire failure of the toxin injections as a cure for sarcomata and malignant growths. During the past six months the alleged remedy has been faithfully tried by many surgeons, but so far not a single well authenticated case of recovery has been reported, so far as our reading has extended, and the personal experience of surgeons of our acquaintance with whom we have conversed, demonstrates that in all cases in which they have tried the erysipelas toxin the result was no improvement." It is further stated: "We should not accept as conclusive, reported cures by any investigator, no matter how prominent. We should demand that these cases be corroborated by other observers making investigations independently."

Fortunately, there is no issue between the editor and myself as to this latter statement; and only such evidence as will stand the rigid tests of scientific demonstration will be considered. This whole dispute, then, resolves itself into the simple question of fact, *Does or does not* such evidence exist? I presume the writer of the editorial used the term, "erysipelas toxins," in short for the toxins of erysipelas and bacillus prodigiosus. As I was the first to propose and to carry out this method of treatment for sarcoma, and as I am the only one who has used this method in any large series of cases, it would seem that my experience, stretching over a period of more than three years, ought to have as much weight in determining its value, as the "personal experience of surgeons of the editor's acquaintance," whose observations cover a period of less than six months.

In my paper on this subject presented before the American Surgical Association at Washington, May 31, 1894, I reported the results of twenty-five cases of inoperable sarcoma treated with the mixed toxins. Of these cases, six were successful up to that time. Since that time I have treated thirteen other cases of inoperable sarcoma, with the result of now having ten cases out of a total of less than forty in which there is good reason to hope for permanent cure. These results were reported in a recent paper before the New York Academy of Medicine, Nov. 15, 1894, and will soon be published in detail in the *New York Medical Record*. None of the six successful cases reported at Washington, six months ago, have shown any tendency to relapse. One of my cases has gone three and one-half years. This was a twice recurrent sarcoma of the neck and tonsil, with the patient in a most desperate condition, with no chance of living more than a few months. He had been operated upon by Professor Duranti, of Rome, and Dr. Bull, of New York. The microscopic examination was made by

Dr. Farquhar Ferguson, Pathologist to the New York Hospital, and he was frequently seen during the treatment by Dr. Wm. T. Bull, Professor of Surgery of Columbia College.

Two other very extensive inoperable cases have now gone nearly two years without recurrence. Both cases were treated at the New York Cancer Hospital, and the diagnosis confirmed not only by Dr. Bull and other surgeons but by careful microscopic examination by the leading pathologists of this city. Both of these cases were presented Nov. 15, 1894, at the Academy of Medicine, in perfect health. Another case that has now gone more than one year, a large inoperable sarcoma of the abdominal wall, was sent to me by Dr. Maurice H. Richardson, of Boston. I will quote Dr. Richardson's own words taken from the discussion and found in the *Transactions of the American Surgical Association*, 1894: "In this case there was no doubt, according to accepted methods of diagnosis, that the woman had a malignant and necessarily fatal disease. The mass filled the right lower quadrant of the abdomen. When I operated I first incised in the median line and came down on the tumor. I then made an incision in the lateral region with the same result. There was nothing to be done surgically. I took out a section and had it examined. It was pronounced sarcoma. The patient was sent to New York in October. In May there was not the slightest sign that could be detected. Unless the diagnosis was entirely wrong; unless the history, gross appearances and microscopic examination were entirely wrong, there was a case that would have died sooner or later." I will add that the microscopic examination was made by Dr. Whitney, Professor at the Harvard Medical School, whose reputation as a pathologist and microscopist ought to be sufficient guarantee of the accuracy of the diagnosis.

Space will not permit me to go further into detail, but in all of my cases the diagnosis was not only established by eminent surgeons, but confirmed by microscopic examinations of competent pathologists. Such evidence as this I claim to be *scientific*, in the strictest sense, and it can not be lightly dismissed as inconclusive because reported by a "single investigator."

In closing, I will say that the editor's demand that "these cures be corroborated by other observers" has already been completely met. The report of a very extensive sarcoma of the palate and pharynx, successfully treated by Dr. Walter B. Johnson, of Paterson, N. J., may be found in the *New York Medical Record* of Nov. 15, 1894, and four other successful cases in the hands of different surgeons throughout the country who used the mixed toxins, prepared and made under my direction (from cultures originally obtained from a fatal case) will shortly appear, with the publication of my paper.

In my previous paper (*loc. cit.*) I stated that cultures obtained from any but a very virulent case of erysipelas were of little value, and furthermore that all of my successful cases had been treated with toxins made from cultures obtained from a fatal case of erysipelas. Fully recognizing the importance of caution and conservatism in a matter of such grave import, I refrained from publishing my results, not only until I had a sufficient number of cases, the diagnosis of which was beyond question, but until sufficient time had elapsed to prove the permanency of the cure.

That a few physicians, in a very limited number of cases, with indifferent preparations of the toxins, have failed to obtain good results will not, I am sure, have great weight in the minds of the scientific portion of the profession, in determining the failure or success of this method of treatment of sarcoma.

Very truly yours,

WILLIAM B. COLEY, M.D.

## The Treatment vs. the Abortion of Typhoid Fever.

YOUNGSTOWN, OHIO, Dec. 24, 1894.

To the Editor:—During the past year you have published four papers on typhoid fever, which I had read before the Mississippi Valley Medical, the AMERICAN MEDICAL and the Mahoning County Medical Societies. Those papers were all written for one object,—to prove that typhoid fever can be aborted—a difficult enough task surely; without wasting much time in giving details of a treatment which I did not suppose many would care to try until very conclusive evidence of its efficacy had been presented, but although, some physicians have secured most brilliant results from the treatment by relying on these published directions as their only guide, I fully recognize their inadequacy and have always intended to write a treatise on the abortive treatment of typhoid fever, as soon as there seemed to be a demand for it.

Since the publication of my first paper in February last, I have received many letters asking for exact details of my method of aborting typhoid fever, but I do not find the name of Dr. W. S. Caldwell of Freeport, Ill. He must therefore have obtained his whole knowledge of this important subject from one or more of these incomplete papers written for an entirely different purpose. Yet he published a letter in the JOURNAL of the 15th inst., in which he confesses his inability to succeed with a treatment of which he must necessarily know so little. Immediately on receipt of the JOURNAL containing his criticism, I wrote him the following polite letter:

YOUNGSTOWN, OHIO, Dec. 15, 1894.

MY DEAR DR. CALDWELL:—Presuming that the object of your letter in the current issue of the JOURNAL of the AMERICAN MEDICAL ASSOCIATION is to "seek for the truth," and believing that if put in possession of all the data at your disposal, I could not only show you why you failed to secure the results which my charts show are possible, but how you may obtain even better results than I have had, because my work has been done under difficulties and I have made many mistakes which you could avoid.

Will you therefore give me the necessary information by answering the inclosed list of questions:

1. How many cases of typhoid fever have you treated by my method?
2. On what day of the disease did you begin the treatment of each case?
3. What was each patient's condition when the treatment was begun?
4. What was the exact formula used in each case?
5. What was the size of doses given?
6. How often were they given during the first six days?
7. What other medicines were given besides those advised by me?
8. What was the daily morning and evening temperature?
9. Give the pulse record.
10. How many times did the bowels move each day?
11. How soon after beginning treatment did the tympanitis disappear?

And add any further information that you may possess about them. Will you also send me samples of the remedies you used, or if this is not possible give me the name of the druggist who prepared them for you, so that he may send me sample on order?

Hoping to hear from you at once, I beg to remain, my dear sir,

Most respectfully yours,  
JOHN ELIOT WOODBRIDGE.

P. S.—Should you have other cases of typhoid fever and will telegraph me, I will go to Freeport free of cost to your patient or yourself, and show you how to shorten the course of the disease to less than two weeks and how to save the life of every patient.

This letter he probably does not consider worthy of his attention, as more than a week has elapsed and I have received no answer. His published letter is therefore the only measure I have by which to judge of his ability to treat a case of the disease which he truly designates "terrible."

First, he says I have published . . . . "in several medical journals." . . . . This is not true. I have never published a paper on typhoid fever in any journal, magazine or paper, except the JOURNAL of the AMERICAN MEDICAL ASSOCIATION. One paper was published in the Transactions of the Ohio State Medical Society.

. . . . a "paper" . . . . So he probably has seen but one of my five published papers on the subject, and he does not say which one.

He next errs by calling a paper or series of papers, written to prove that typhoid fever can be aborted. . . . "paper on the treatment of typhoid fever." Notwithstanding the fact that less than two and one-half of the sixty pages, refer to treatment. He says: "The first part of his prescription" (by which he evidently means—first prescription)—"containing" . . . . "guaiaicol." Is this only an inaccuracy, or does Dr. Caldwell not know the difference between "guaiaicol" an acrid, poisonous, oily liquid and guaiaicol carb., a white, crystalline non-poisonous salt?

It would be unreasonable to suppose that Dr. Caldwell would write with less care or less accurately for the thousands of readers of the JOURNAL than he would for his druggist. Therefore judging his prescriptions by his published criticism we are justified in giving expression to some surprise that "his vigorous young woman" was in condition to have a temperature of 105 degrees F. after "two weeks trial" without taking into consideration the fact that she was subjected to at least three different methods of treatment, viz., the Brand or bath, the Woodbridge, and the compromise or sponge treatment.

Without taking the trouble to criticize the remainder of this letter, it seems clear that if others have tried my abortive treatment of typhoid fever with no better preparation and as carelessly as the Doctor's letter would lead us to suppose he conducted his experiment, then we shall probably hear of other failures as dismal. We shall undoubtedly hear, too, of some successes, and one brilliant success should outweigh an hundred failures in estimating the value of the treatment. The failures may be due to inert or impure drugs, to carelessness or want of skill in compounding them, to their improper administration or even to the administration of other remedies interfering with their action. Thus the physician who prescribes, the nurse who administers, the druggist who dispenses, or even the pharmacist who manufactures the remedies, one or all of them may contribute to the failure, making that but at best a negative evidence, while a single well established success puts the stamp of value on the treatment. The gun that speeds the bullet true to the mark in one hand, if equally well charged and truly held, will do so in every hand, but if the powder be poor, the bullet untrue, or the hand that holds the gun unsteady, no matter how accurate the weapon may be, the bullet may be expected to fly wide of the mark.

Respectfully yours,

JOHN ELIOT WOODBRIDGE, M.D.

## Treatment of Typhoid Fever.

COLUMBIANA, OHIO, Dec. 25, 1894.

To the Editor:—In response to the physician who has been using Dr. Woodbridge's treatment for typhoid fever and has not met with the success he had hoped for and that Dr. Woodbridge had assured him he would meet with; and to all who would try it, I desire to say that I have been carefully testing it for the past three months, and so far it has proved very successful in my hands. In that time I have had an unusual number of cases of typhoid fever. Not being satisfied with the old method of treatment, I was induced to try the plan proposed by Dr. Woodbridge. Some of my cases presented unusually severe symptoms, temper-



ature ranging as high as 105.5. While I was not able to abort it entirely in all of my cases, yet the temperature was materially reduced in a very short time, the fever ran a very mild course and my patients were soon in a convalescent stage.

I find this treatment must be employed early. In one or two cases I used other measures first; finding they did not accomplish the end desired, I then adopted the Woodbridge method after a delay of a day or so. In these cases my results were not so good as when I used his measures first. Perhaps the physician who says he practices very conservatively, failed to use the measures early enough to abort the disease, and thus became discouraged with the remedy. If this gentleman, and others also, will give the method a fair trial, using the treatment early and calling Dr. Woodbridge in consultation in the severer cases, allowing him to explain more fully his plan of treatment, I think the results will be more satisfactory.

Yours fraternally,

C. R. JUSTICE, M.D.

MERCED, CAL., Dec. 27, 1894.

*To the Editor:*—Replying to Dr. Caldwell, will say I have tested the antiseptic treatment of Dr. Woodbridge sufficiently to convince me of its great value. I have been unable, so far, to carry out this treatment *exclusively* from beginning to end of case, for various reasons, but the results obtained in the way I used it, convince me of its superiority. Then it appeals to the *reason*; it not only destroys the bacilli but carries them off, and by giving large quantities of water we have an (almost) antiseptic irrigation of the intestines.

W. N. SHERMAN, M.D.

### The Practical Importance of Well Established Facts in Therapeutics.

*To the Editor:*—Dr. N. S. Davis puts the questions: If alcohol when taken into the living body directly diminishes nerve sensibility, muscular force, and so alters the constituents of the blood as to retard both the internal distribution of oxygen and natural tissue metabolism in direct proportion to the quantity to be taken (the established fact according to Dr. Davis), why do we continue to speak and write concerning it, or to use it, as a *stimulant, heart tonic or restorative agent*? The answer seems to be that experience proves that we are right in spite of the supposed established facts.

Let me briefly illustrate: In the year 1870 I started to walk from Courmayeur to Chamounix via the Col du Géant, a climb of 10,000 feet and a march of some six or seven hours over the Mer de Glace. I arrived at the summit of Col between 9 and 10 o'clock A.M., and after resting one hour for breakfast, commenced the descent. At this hour the heat was intense, and the motion of walking on the glacier was as irregular and uncertain as on board a ship. I was seized with *mal de montaigne*, vomiting, diarrhea and nervous prostration exactly similar to similar experiences at sea, and I lay down for an hour and slept, but no sooner did I begin to walk than the vomiting returned. My guides and porter made a *chaise à porteur* of their staves and alpenstocks. They essayed to carry me, but the motion of their movements was even worse than that of walking and the attempt was given up. With the prospect of being benighted on the ice I then sent on two men to Montainvert with instructions to return as quickly as possible with wraps, fuel, restoratives and other requirements for passing the night in safety. In the meantime I struggled on for a few yards at a time, until at last even a few steps brought on such prostration that I was compelled to stop. My condition became alarming, my face was deathly, I was pulseless, my hands and feet cold and I was quite unable to rise; and my friends covered me up in shawls, chafed my hands and did their best to

maintain my circulation. We were waiting most anxiously for the return of my men with the necessary restoratives, when we were accosted by an Irish gentleman on his way to spend the night upon the glacier with the object of climbing one of the neighboring peaks to see the sun rise. He saw and diagnosed my case. He took out his flask of brandy and in the course of fifteen minutes gave me fully half a pint without a drop of water. Within another ten minutes I got up and shook myself and declared my ability to walk. I boasted of having on a pair of brandy boots. I walked forward without a trace of nausea, crossed the "Mauvais pass" without assistance or mistake, and arrived at the Hotel Montainvert after three hours hard walking, and after a long sleep awoke to eat the heartiest breakfast of my life. It is safe to say that the sensibility of my nerves was not reduced, that the distribution of oxygen was not retarded, that the natural tissue metabolism was not interfered with. On the contrary, my nerves were stimulated, my heart action was excited and my whole body and muscular system was raised to a condition wonderfully like health.

Let me give one more personal experience: Just eleven years ago I had been greatly overworked and had lost much sleep. I was in close attendance upon a patient who died from pneumonia of a most malignant type. I paid him a long visit a few hours before his death and although boasting to a friend of my perfect health I remarked on getting into bed that I felt a curious sensation in my right loin as though I had suffered from a blow. I slept well but next morning the pain returned. Then cough, hemoptysis, rapid pulse. Temperature 104 degrees and in twenty-four hours all the symptoms of double pneumonia were manifest. At the age of 62, with an intermittent pulse the prospect was not flattering. On consultation, alcohol was the remedy prescribed. I took half an ounce of brandy or whisky every two hours. The pulse became regular and the symptoms slowly declined. I took the dose religiously for nine days and my recovery was perfect. I am to-day in my seventy-fourth year. Only a few weeks ago I climbed 3,200 feet in three hours and a quarter, without the least distress, and the day afterward walked for at least seven hours. I do not remember the time when I have not been accustomed to drink wine with my meals. For over fifty years I have drunk wine every day, and I may say truly in the last forty years I have not willingly drank forty glasses of cold water to allay my thirst. After such personal experiences, (and indeed I can relate even more startling results in the case of patients) I may surely be pardoned in doubting the apparent facts which Dr. Davis regards as well established.

Yours very obediently,

J. H. STALLARD, M.B. Lond., M.R.C.P., M.R.C.S.,  
and late Physician to the San Francisco Polyclinic.

### PUBLIC HEALTH.

**Low Death Rate.**—Computed on the figures of the school census of April, 1894—which fixed the population at 1,567,727, or 32,273 less than the population of 1893—the death rate of Chicago last year was 15.1 per 1,000. The Health Commissioner, Dr. Reynolds, reports 23,701 deaths from all causes, as against 27,083 during the previous year.

**Glanders in Havana.**—*El Progreso Medico* states that, while glanders has been known to exist in Havana for years, the unusual number of cases in 1894 ought to attract the attention of the health authorities. The remedy is well known to science, but the authorities either don't know it or won't apply it. It is not grooms alone who contract the disease;

no one is safe from it, and it is often the passer-by who is attacked. *El Progreso* quotes a distinguished veterinary surgeon as saying recently that 10 per cent. of the 15,000 horses in Havana are affected with the disease. It is not surprising, then, that glanders numbers more cases than any other infectious disease in that city. To the cases in private practice must be added those in the Mercedes Hospital; in one ward alone clinical and bacteriologic examinations showed the presence of five cases of the disease from January to August. Dr. Salagridas, who has charge of the ward, says glanders is favorably influenced by both yellow fever and typhoid fever; he has seen three years of the first and two of the latter. The journal cited urges that stables be thoroughly inspected and all diseased animals removed; and points out that in Germany and elsewhere the government, in the interest of public health, pays for horses destroyed, so that owners have no incentive to hide diseased animals; and adds that in really civilized countries human life is held at its true value, but in the present case, while the indifference is general, the fault is in great part due to the authorities. The professional press has sounded the alarm many times, but the danger is as serious and as menacing as ever.

**Specific Organisms of Vaccinia and Variola.**—The etiology of smallpox is a problem of such interest that any contribution to its study of *prima facie* merit should be brought promptly to the attention of the bacteriologic world. During the past year Mr. J. Christian Bay, bacteriologist of the Iowa State Board of Health, has carried on a series of investigations concerning the specific organisms of vaccinia and variola, a detailed account of which has been forwarded to the *Medical News*. Through the courtesy of the author the JOURNAL is enabled to present a summary of the important points of his paper. During the past thirty years many bacteriologists—among whom the author cites Chauveau, Hallier, Luginbuehl, Beale, Cohn, Weigert, Klein, Klebs, L. Voigt, Pfeiffer, Hlava, Koch, Feiler, Crookshank, Copeman, Rille, Martin, Coze, Feltz, Baudoin, Plaut, Zimmermann, Toussaint, Buttersack, Landmann and Dräer—have investigated the smallpox and vaccine lymph, and some of them have found one or more cocci to which they ascribed the rôle of *causa morbi*; others were of the opinion that animal parasites caused the disease; and a few—e.g., Plaut and Zimmermann for sheep-pox—have isolated bacilli of different species, common saprophytic bacteria, none of which seemed to have any causal relation to vaccinia or variola. Plate cultures after Koch's method reveal no organisms in vaccine or smallpox lymph, neither do microscopic examinations. The author prepared test-tube cultures in Pasteur's fluid and in bouillon rendered alkaline with  $\text{Cl Na}$ ; vaccine points were dropped, or samples of smallpox deposited, in the medium under the usual precautionary measures. On the first day after incubation the medium became slightly turbid and, during the second and third days, a grayish, folded, greasy-looking film developed on the surface. Microscopic examination showed the presence of bacilli, measuring  $0.6$  to  $1\mu$  by  $0.2$  to  $0.3\mu$ ; they are colorless, motionless and bear one spore at each end of the cell—hence the organism has been referred to Kern's genus *Dispora* and named *Dispora variolæ*. It was found, with three exceptions, in sixty-five cultures from vaccine points and in forty cultures from the lymph of confluent smallpox; two cultures failed to respond to inoculation. The organism is somewhat polymorphous; in old cultures the cells are arranged to a great extent in threads; the dimensions of the cells also vary as above stated. Spores are found being formed at the beginning of the cell development and the number of spores constantly increases as development progresses; in old cultures very few vegetative cells are found while the number of free spores largely predominates. The author is of the opinion that the organisms, cocci, described by others as *Micrococcus vaccinæ*, *M. variolæ*, *Microsphaeria vaccinæ*, etc., are identical with the spore stage of his *D. variolæ*; and believes that his observations and conclusions as to the facts of the spread of smallpox warrant

the assumption that the spores are the main source through which the disease, itself, as well as vaccinia, is reproduced. Mr. Bay is further investigating the results of inoculations upon animals and experimenting with a view to the preparation of vaccine in the laboratory. It is in this last object that health officers and sanitarians will be most directly interested and hope that Mr. Bay's claims may be substantiated by other investigators.

**Summary of Smallpox in 1894.**—From reports of JOURNAL correspondents and other sources the following summary of the diffusion of smallpox in the United States in 1894 has been compiled:

Arizona: Nogales, 1 case.  
 Connecticut: Manchester, Winchester, Canaan, Norfolk, South Norwalk, Waterbury, New Haven, Putnam, Bridgeport; nine places, 52 cases, 11 deaths.  
 District of Columbia: Washington; 18 cases, 7 deaths—one new case and two deaths, December 31.  
 Georgia: Atlanta, Senoia; two places, 12 cases.  
 Illinois: Alton, Aurora, Bloomington, Braidwood, Chicago, Danville, Decatur, Downer's Grove, Drainage Canal, East St. Louis Race Track, Edwardsville, Elgin, Evanston, Freeport, Galesburg, Genoa, Greenbush, Harvey, Havana, Hoopston, Joliet, Jonesboro, Kingston, Libertyville, Lombard, Maywood, Morris, Paris, Peoria, Rockford, Rock Island, Roodhouse, Round Grove, Spencer, Sandwich, Toluca, Tolono, Upper Alton; thirty-nine places, 3,209 cases, 1,050 deaths; in Chicago, 3,062 cases, 1,029 deaths; in the State *ex Chicago*, thirty-eight places, 147 cases, 21 deaths.  
 Indiana: Fort Wayne, Kewanna, South Bend, Crown Point, Indianapolis, Fulton County, Marshall County, Pulaski County, Wayne County, Johnson County, Blackford County, Lake County, DeKalb County, Kosciusko County, Whitley County, Grant County, Walkerton; seventeen places and counties; 105 cases, 17 deaths.  
 Iowa: Tama and six other places.  
 Kansas: Atchison; 44 cases, 9 deaths.  
 Kentucky: Louisville, Paducah; two places, 20 cases.  
 Louisiana: New Orleans; 5 cases, 1 death.  
 Maine: Kennebec, Bangor; two places, 3 cases, 1 death.  
 Maryland: Baltimore, Glymount; two places, 9 cases.  
 Massachusetts: Boston, Chelsea, Springfield, Worcester, Lawrence, Yarmouth, South Boston, Lynn, Waltham; nine places—182 cases, 30 deaths in Boston.  
 Michigan: Otsego, Crystal Lake, Otsego Tp., Menominee, Ishpeming, Kalamazoo, Jackson, Marquette, Bay City, Muskegon, Grand Rapids, Sturgis, Napoleon, Summit, Detroit, Allegan, St. Joseph, Flint, Frenchtown Tp., Farmington Tp., Ridgeway Tp., Berlin Tp., Ypsilanti, Pontiac, Macomb Tp., Clayton Tp., Manchester, Rivers Tp., Norvill, Cheboygan, Royal Oak, St. Johns, Sewaba Tp., Adrian Tp., Danby Tp., Watersmeet Tp.; thirty-six places, 180 cases, 41 deaths.  
 Minnesota: St. Paul, Duluth, Two Harbors, Red Clover Tp., La Crescent Tp., Belle Plaine, Brainerd; seven places, 29 cases, 3 deaths.  
 Missouri: St. Louis, Mountain Grove; two places, 21 cases, 2 deaths.  
 New Jersey: Hoboken, Jersey City, Newark, Paterson; four places.  
 New York: New York city, Brooklyn, Red Hook, Tivoli, College Point, Walworth, Manchester, Ontario, Yonkers, Utica, Sing Sing, Palmyra, Rochester (near), Geneva, Ithaca, Mt. Vernon, Stapleton, Salina, Newburg, Port Jervis, Nelsonville, Binghamton, Wayne County, Syracuse, Schenectady, U. S. revenue cutter *Manhattan*, five ocean steamers at quarantine—one on December 31; twenty-six places, 1,690 cases, 442 deaths.  
 Ohio: Springfield, Columbus, Lima, Dayton, Worthington, Toledo, Cleveland, Deerfield, Cincinnati; nine places.  
 Pennsylvania: Oakdale, Jeannette, Maconaquia, Reading, Fritztown, West Leesport, Gibraltar, Friedensburg, Mechanicsburg, Carlisle, Wilton Grove, Pittsburg, Williamsburg, Tyrone Forges, Elk Co., Williamsport, Philadelphia, Shamokin, Dagus Mines, Riverside, Danville, Lee, Shickshinny, Muncy, Lewistown, Jerseytown, Harrisburg, Lewisburg, Blandon, Walnuttown, Liedel's, Hyde Park, West Hempfield, Derry Tp., Dorrancetown, Burt, Carroll Tp., Shermansdale, McKeesport, Towanda, Ridley Park; forty-one places, 1,066 cases. December 18 there were 40 cases and 100 houses in quarantine in Philadelphia.  
 Rhode Island: Providence; 5 cases, 1 death.  
 Tennessee: Memphis, Nashville, Chattanooga, five villages near Nashville; eight places, 25 cases.

Texas: Victoria, San Antonio, Texarkana, El Paso, Cleburne; five places, 106 cases, 16 deaths.

Vermont: Brattleboro, Pomfret, Washington; three places.

Virginia: Southwest Virginia, Lunenburg, Shendon; three places, 48 cases.

West Virginia: Lewisburg; 12 cases.

Wisconsin: Janesville, Milwaukee, Juneau, Sheboygan, Portage, Jefferson, Elkhorn, DePere, Camp Lake, Beloit, Lewisburg, Neenah, Fort Howard, Madison, West Superior, Green Bay, Manitowoc, Dodge County, Waukesha, Merrimack, Menasha, Wausau, Juda, Granville, Greenfield, Wauwatosa, Raymond, Lake, Dover, LaCrosse, Two Rivers, Liberty, Oneida Reservation, Milwaukee Tp., Ellsworth, Wonewoc, Franklin, South Milwaukee, Muskego, Spring Prairie, Beaver Dam, Rochester, Rhinelander; forty-three places, 1,866 cases, 399 deaths—in Milwaukee, 1,161 cases, 317 deaths; in the State *ex* Milwaukee, 705 cases, 82 deaths; and at the end of the year Two Rivers and Rhinelander were the only infected places outside of Milwaukee.

The foregoing, though by no means complete, shows the wide extent of territory invaded—twenty-five States, one Territory and the District of Columbia, a total of 282 infected localities, with an aggregate of 8,719 cases and 2,084 deaths reported. In five States from which the reports are most complete, viz., Connecticut, Illinois, Michigan, Minnesota, and Wisconsin, there were 132 infected localities, with a total of 1,113 cases, exclusive of Chicago and Milwaukee. An examination of the individual reports leads to the belief that there were fully 10,000 cases of the disease with an aggregate of 3,000 deaths during the year. Twelve infected ocean steamers were detained at the quarantines at Boston, Darien, Ga., Delaware Breakwater, Mobile, and New York—the last being a Thingvalla liner at the port of New York, December 31.

## BOOK NOTICES.

**Atlas of Clinical Medicine.** By BYRON BRANWELL, M. D., Assistant Physician to the Edinburgh Royal Infirmary, etc. Vol. iii, Part I. Edinburgh: Printed by T. and A. Constable at the University Press. 1894.

Part I of Vol. II of this excellent work has appeared. The high standard is maintained as in the past. The contents are: 1, The Thyroid Treatment of Skin Diseases; 2, Poliomyelitis Anterior Acuta; 3, A Remarkable Case of Cancer of the Breasts, Spleen and other Organs.

There are several well executed plates accompanying, showing psoriasis, lupus and ichthyosis treated by thyroid extract; also, two plates showing drawings in cases of poliomyelitis.

**Transactions of the State Medical Society of Wisconsin.** For the year 1894. Madison, Wis. Cl., pp. 504.

This volume is handsomely printed and contains all the papers read at the last meeting of this flourishing society held at Milwaukee, under the Presidency of Dr. B. C. Brett of Green Bay.

It is well edited by Secretary Sheldon and the society is to be congratulated on the excellence of the papers and the typographical appearance of the volume. Dr. Reineking, Chairman of the Committee on Surgery, began his annual report with an appreciative sketch of the lamented Billroth. The next annual meeting will be held at West Superior, Wis., June, 1895. Almon Clarke, M.D., of Sheboygan, is President and C. S. Sheldon, of Madison, Secretary.

**The Medical Register of New York, New Jersey and Connecticut for 1894-5.** Published under the supervision of the New York Medico-Historical Society. JOHN SHRADY, M.D., Editor. Volume xxxii. G. P. Putnam's Sons. 1894.

This ever-welcome Annual contains the usual guide-lists and information, as to current medical history, for the three States named. The book resembles closely its recent predecessors, being bound in green cloth, as comports with the nickname or quick name that it has held for more than a quarter of a century. The type is newer and the paper cleaner-looking than some former issues, but the general

make-up follows the traditions of the book. The only illustration proper to the work itself is a photogravure of the late editor, from 1878 to 1893, Dr. William T. White. The likeness will be readily recognized by members of the Association as belonging to a frequent though quiet fellow member. The information regarding the hospitals and other institutions in and around New York is arranged for local reference chiefly, but it can be made available to others at a distance who have need for consultation or post-graduate training at the metropolis.

Every library of considerable size throughout the country would do well to have a copy of this book for the reference table. This book stands for the best interests and influences of the region whence it issues, and its supporters are the filial sons of the National Association. Dr. John Shradý, the new editor, is not altogether new to the work, since he was one of the earliest of the compilers, when the book was much less of an institution than it is now. He has been identified with the work of the Medico-Historical Society, and with medico-historical research in New York during his whole professional life. He has many qualifications for the editorial charge of this valuable annual. The delayed issue of the volume this year should be remedied, if possible, in 1895; the profession is ready to welcome any annual directory if it appears on or before June 15; if the date is later than that, its members begin to grow more and more querulous; and some become indifferent.

**Diphtheria: Observations on its History and Progress, more especially in New Orleans.** By JOSEPH JONES, M.D., LL.D., New Orleans. Pp. 28, paper. 1895.

In this brochure Professor Jones makes some valuable suggestions on the causation of diphtheria, its pathology, treatment and prevention. He concludes as follows:

After careful examination of all the available facts relative to the origin, treatment and prevention of diphtheria, I have come to the conclusion:

1. That the United States Government is the proper authority to whom the people should look for the institution of the proper measures for the eradication, treatment and prevention of diphtheria, and similar infectious and contagious diseases.

2. The Congress of the United States should pass the necessary acts empowering the President to appoint three Commissions, composed as follows:

(a).—A Commission selected from the surgeons and assistant surgeons of the Regular Army, empowered to make the necessary investigations, furnished with the necessary means to establish the necessary bacteriologic laboratories in the large cities, for the manufacture and continuous supply to the citizens of the United States of the antitoxin serum for the treatment of diphtheria, yellow fever and similar diseases.

(b).—A Commission selected from the surgeons and assistant surgeons of the medical officers of the United States Navy, empowered to institute the necessary investigations, furnished with the necessary means to establish the necessary bacteriologic laboratories in the large cities, for the manufacture and continuous supply of the antitoxin serum for the treatment of diphtheria, yellow fever and similar diseases.

(c).—A Commission selected from the surgeons and assistant surgeons from the United States Marine-Hospital service, empowered to institute the necessary investigations, furnished with the necessary means to establish the necessary bacteriologic laboratories in the large cities, for the manufacture and continuous supply of the antitoxin serum for the treatment of diphtheria, yellow fever and similar diseases.

These Commissions, after thorough organization, should act in entire accord with each other, and with the State Boards of Health, or with similar commissions appointed by the Governors of the individual States.

It is evident that the United States possesses unlimited supplies of horses in its cavalry and transportation service; and it is farther evident that with such an arrangement there need never be a scarcity of the antitoxin supply for the treatment of diphtheria, yellow fever and similar diseases.



## NECROLOGY.

W. J. HALL, M.D., an American physician, residing in Corea, during the past three years, is reported by a cablegram, dated December 4, to have died from an attack of typhus fever. The last intelligence by mail from him had reference to his helpful visits, as a volunteer surgeon to one of the battlefields in Corea. Dr. Hall was a graduate in medicine at the Bellevue Hospital Medical School, and was an East Side missionary for two or more years, to fit him the better for work among the poorer Orientals. He was only 35 years of age at the time of his last illness, which must have been rapidly fatal.—Thomas P. Norris, M.D., formerly a coroner of Brooklyn, N. Y., died from renal disease on Dec. 21, 1894. He was a graduate of the Medical Department of New York University in 1854, and had been in Brooklyn for the greater part of forty years. He was for a time, however, a practitioner in East Tennessee. He was a native of Ireland, but came to this country when he was about 10 years old. He was a good political speaker, and his services were sought often and occasionally rewarded. He held an important appointive office, that of Commissioner of Charities. His final illness was somewhat protracted.—Sylvester Mead, M.D., of Greenwich, Conn., died December 11, aged 88 years. He was believed to have been the eldest living alumnus of the Yale Medical Institute, he having graduated therefrom in the year 1829. Dr. Mead died in the harness, having continued in the practice of his profession sixty-five years.—Thomas H. Parkes, M.D., of Brooklyn, N. Y., died on December 21. He was an American by birth, of English parentage, and was 31 years of age. He died suddenly from edema of the glottis. Two hours before his death he was present in good health at a social gathering. He was a graduate in the year 1890 at the Long Island College Hospital.—R. H. Cummins, M.D., of Wheeling, W. Va., died December 13, of diphtheria, contracted while in attendance upon several severe cases of that disease. He was a graduate of the University of Pennsylvania and a man of fine character. He met death fearlessly, a martyr to his chosen calling.—George Jewett, M.D., of Fitchburg, Mass., December 16, aged 68.—Joseph W. Taylor, M.D., of Long Branch, N. J., December 18, aged 36.—J. M. Cook, M.D., of Muskegon, Mich., December 21.—Ward Cook, M.D., of Pendleton, Ind., December 24, aged 87. He had practiced medicine for fifty-seven years and was a member of both the county and State medical societies.—J. M. Hopper, M.D., of Rutherford, N. J., December 18, aged 70.—J. M. McMeen, M.D., of Danville, Ill., December 28, aged 65 years.—Dr. Lezenber, at Logansport, Ind., December 24.—F. H. Wilson, M.D., Leavenworth, Kan., December 25, aged 66.—Henry M. Hooper, M.D., Rutherford, N. J., December 21.

## SOCIETY NEWS.

**The Muskingum County (Ohio) Medical Society** held a meeting in Zanesville, December 16.

**The Frontier Medical Association** held its semi-annual meeting at Huntington, Que., December 19.

**The Central Wisconsin Medical Society** held a meeting in Janesville December 27.

**The Northern Tri-State Medical Association** met at Hillsdale, Mich., December 20. Attendance one hundred.

**The Binghamton (N.Y.) Academy of Medicine** held a meeting December 18. The program was interesting and the attendance large.

**The Academy of Medicine and Surgery** of Richmond, Va., held a meeting December 16. The following officers were elected for the ensuing year: President, W. S. Gordon; First Vice-President, V.W. Harrison; Second Vice-President, R. D. Garcin; Third Vice-President, A. L. Wellford; Secretary and Reporter, Mark W. Peyser; Assistant Secretary, W. S. Beazley; Treasurer, J. T. Woodward, and Librarian, J. F. Crane.

**Northwestern Ohio Medical Association.**—The forty-ninth semi-annual meeting of the Northwestern Ohio Medical Association closed its session at Lima, Ohio, December 19. The following officers were elected: President, J. K. Woods, Lima; Vice-President, Joseph Sager, Celina; Second Vice-President, W. E. Hoover, Lima; Secretary, Chas. Graefer, Sandusky. The next meeting will be held in Findlay June, 1895.

**The Kansas City Medical and Surgical Society** held its annual election of officers December 22. The following were elected: F. G. Henry, President; J. W. Foster, First Vice-President; Z. Nason, Second Vice-President; Theodore W. Schafer, Third Vice-President; C. M. Stemen, Secretary; Edward Schaefer, Assistant Secretary; P. C. Palmer, Treasurer.

## MISCELLANY.

**Association of Erie Railway Surgeons** will hold their annual meeting January 10 at Youngstown, Ohio; Dr. C. B. Kibler, President.

**College of Physicians and Surgeons.**—[By telegraph to this JOURNAL.] The annual election of the College of Physicians and Surgeons of Philadelphia was held Jan. 2, 1895. Prof. J. M. Da Costa was elected President, and Prof. John Ashurst Vice-President, for the ensuing year.

**Honors for Pasteur.**—At a recent meeting of the Municipal Council of Paris, the Superior Normal School was given 1,500 francs for the purchase of a bust of Pasteur and the Council decided that the Rue d'Ulm should be named Rue de Pasteur.

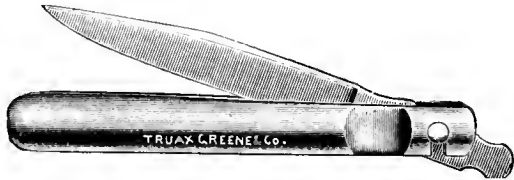
**Souchon's Anesthetizer.**—Dr. Souchon applied for a patent for his anesthetizer to test the originality of his invention. Having succeeded, he now waives all his rights and privileges in all cases where the patent is used for medical purposes only.

**Centenary of Vaccination.**—The German Institute for Vaccination is preparing to celebrate, in 1896, the centenary of Jenner's discovery. It is proposed to have at the same time an exposition of all articles concerning vaccination—old and new instruments and methods of preserving vaccine, original manuscripts on variola and vaccinia, medals, portraits and autographs of celebrated inoculators, vaccinators and anti-vaccinators.

**Action of High Pressures on Bacteria.**—Roger has studied the action exerted on bacteria by compression of the liquids containing them. The pressure varied from 1,000 to 3,000 kilos per cubic centimeter. The staphylococcus aureus and the bacillus coli were not affected, the former retaining its chromogenic powers. At 3,000 kilos the streptococcus had its vegetability and virulence affected. The anthrax with spores after supporting a pressure of 3,000 kilos grew about as well as before, but its virulence was slightly diminished. The anthrax without spores, on the contrary, was strongly attacked both as to vegetability and virulence; the cultures which had supported 3,000 kilos did not die for eighteen or nineteen days. The author thinks—*Le Progres Medical*—that we may thus be able to create a chronic disease analo-

gous to that which Phisalix obtained by inoculation with vaccine from animals with anthrax.

**A New Instrument.**—Maclean's general utility knife may be carried in the pocket like a common penknife and may be useful for *any surgical procedure* from tracheotomy or tonsillotomy to laparotomy or amputation at the hip joint. It is so



constructed as to be very easily rendered aseptic, and inclosed in a chamois skin envelope, it can be carried in the pocket with absolute safety. Suggested and recommended by Donald Maclean, M.D.

**An Entomologic Patient.**—The editor of the *Brooklyn Medical Journal* gives the following as an incident, founded on fact: "A few weeks ago an eccentric appearing individual entered the office of one of our most distinguished surgeons, who lives on the corner of two well-frequented streets, and said that he had come from the east end of Long Island to consult a physician whose address he was unable to find. When asked the name of the physician he responded that he could not at the moment recall that either. Then, pausing for awhile, he turned to the doctor and said: 'Well, how are you on worms on this corner, anyway?'"

**The Railway Surgeon.**—Acceptance and resignation of Dr. Reed. The following is a copy of a letter which is self-explanatory, and consequently needs no comments:

COLUMBUS, OHIO, Dec. 19, 1894.

DR. S. S. THORNE, President National Association Railway Surgeons, Toledo, Ohio.

Dear Doctor:—Having been officially notified of my unanimous election to the position of Editor of the American Academy of Railway Surgeons, and having decided to accept the same, I beg leave to tender my resignation as the duly elected editor of *The Railway Surgeon*, the official organ of the National Association of Railway Surgeons, to take effect Jan. 1, 1895.

With my best wishes for a continuance of the prosperity of the National Association of Railway Surgeons, and the future success of *The Railway Surgeon*, its official organ, I have, my dear Doctor, the honor to remain,

Very respectfully yours, R. HARVEY REED, Editor.

**Foot and Mouth Disease in Germany.**<sup>1</sup>—The flap and foot-rot (*Maul- und Klauenseuche*) has again broken out among the farm animals in central Germany, notably the Voigtland and Saxe-Altenburg. This is more unfortunate for the farmers in this part of the country, as only two years ago the same disease reduced the stock considerably, and as the drouth of 1893, with its subsequent fodder scarcity, compelled the farmers to slaughter large numbers of their cattle. Though the local authorities are doing their utmost to prevent an extension of the disease, they have, as it appears, not yet succeeded, for nearly every new issue of the official papers mentions new cases. The frequent appearance of the disease in the same locality is, certainly, no evidence of a healthy condition of farm animals.

ANNABERG, Oct. 16, 1894.

THEO. M. STEPHAN, Consul.

<sup>1</sup>The Secretary of Agriculture in acknowledging the receipt, by reference from the Department of State, of a copy of Consul Stephan's report, says: "Consul Stephan states that 'the flap and foot rot has again broken out among the farm animals in central Germany.' As no such disease is known in English-speaking countries, it is fortunate that the Consul placed the German designation (*Maul- und Klauenseuche*) in parenthesis, for otherwise it would have been impossible to determine whether this was some new plague requiring unusual precautionary measures to guard against its introduction, or whether it was a peculiar name given to a well-known disease. The English equivalent of *Maul- und Klauenseuche* is foot-and-mouth disease. This is an extremely contagious and rapidly spreading disease, which does not exist on the American continent, and requires the most rigid measures for its exclusion."—*U. S. Consular Reports*, December, 1894.

**The Williams Hospital at Pang-Chuang, China.**—This hospital has been so named in honor of the late Hon. S. Wells Williams, M.D., who remembered it in his will. The sum of \$3,000 here judiciously spent has given the place a walled in plot of ground with buildings and gatehouse. In very busy times there have been 100 male patients and 60 female. The cost of the plant is a little more than one-half what the endowment of a single bed in one of our city hospitals would require. For the sake of argument the capacity of this hospital being placed at 100, the cost of the plant, per bed, may be placed at \$30, whereas not a few of ours are rated at fifty to one hundred and fifty times that amount. Dr. Albert Peck, now in charge, states that strangers seek his place from widely scattered and very distant places. Some of them have to travel 200 miles by very tedious means of transportation. Since the spring of 1880 not less than 65,000 persons have visited the hospital or dispensary. The following is an "instructive case" of surgery attended by Dr. Peck: "Years ago, while living at Pao-ting-fu, a little man made his appearance at the hospital with a large tumor on his neck. He had never seen a European before, but came with his mind fully made up for an operation, owing to reports he had heard of us in his country home from patients who had been at the hospital. Against the remonstrances of his friends and neighbors, he had sold his little property in order to get money to live on. His simple reply to these remonstrances was that his life was made a burden to him by his tumor, and he was going to try the foreign doctor and, in the expressive idiom of his language, if he was 'cured well' he could earn some more money, and if he was 'cured dead' he wouldn't need it. The foreign doctor tried to persuade him against so formidable and risky an operation, but without avail. Fortunately, he lived through it, and the healing of the wound went on normally until delayed by a rather severe attack of erysipelas. Before this danger was passed he sent word by the gatekeeper that he must go home, as his money was spent. The patient was told that he would not be allowed to leave yet. But the next morning he was missing. It was supposed that the man had died, but a long time afterward it was learned that he was alive and acting as a self-constituted preacher of the little of Christian doctrine that he had been able to learn while under treatment. While in the hospital he had seemed very stupid; no one thought he had taken in much of the truth; but he had bought and paid for a little elementary book and learned to read it. The simple explanation had remained in his memory, and after his recovery at home he had taken his book with him when visiting the little fairs where all the business of neighboring villages is done; he had been notable as the man with the large tumor, and now when he came around without it he was naturally an object of curiosity. They said he kept a kerchief around his neck, and when the crowd gathered around he would say: 'My friends, when I was in the hospital they taught me of a religion there that is far more precious than the cure of my body. I have a little book here which tells about it, and if you will sit down and let me read and explain it to you, then I'll show you my neck.' His cup was small, but it was just as full as though it were an ocean brimming over."

#### Louisville Notes.

**HEALTH OFFICER'S REPORT.**—During the past week there were sixty-two deaths, the largest number, sixteen, being due to pneumonia; and there were ten deaths from phthisis.

**MEDICAL TESTIMONY.**—The President of the United States recently pardoned a prisoner undergoing sentence in the Jeffersonville Prison. The pardon was granted on a certificate from several medical men that he was incurably diseased. After release he boasted of his good health, whereupon an investigation was ordered and the prisoner was afterward examined by a representative of each medical college in the city, and the first report of the prison physician was corroborated. It was found that he had a cavity in one lung, had hectic pulmonary hemorrhages, night sweats, loss of flesh, elevated temperature and considerable cough.

**NEWSPAPER MEDICINE.**—As another evidence of the oftentimes ludicrous mistakes made by newspapers in the recording of things medical, anent the case of Zink; the following appeared in large headlines over the report of the physicians' examinations: "Henry Zink will die now sure; the doctors all agree he is in a bad way. Examined by professors of all the medical colleges at the request of Dr. Peyton; he has *palpitation*, moist râles, and *breathes cavernously*." The above lines were culled from the medical report, and the report is made to read: "Physical examination left lung—*palpitation*—increased vocal fremitus, etc., and palpitation is recorded as one of the ex-convict's troubles.

**KENTUCKY SCHOOL OF MEDICINE.**—The formal opening and dedicatory exercises of this school were held December 23 at the new hospital adjoining the old building. The profession of Louisville was invited and many ladies were present. Dr. W. H. Wathen presided, Dr. J. R. Marvin gave a history of its erection. He stated that the building is owned in its entirety by the Faculty; that not a cent of money was asked from outside. He congratulated the coming classes of the school because of the advantages offered by the school now being equipped with a hospital in connection with it, and because of the perfect clinical arrangements in the dispensary. Dr. J. H. Broadus, President of the Board of Trustees in a brief speech dedicated the "Kentucky School of Medicine to the cause of science and for the relief of the sick poor." The guests at the conclusion of the remarks were invited to inspect the building and a collation was served.

#### St. Louis Notes.

**NEW ELECTRIC AMBULANCE.**—The new electric ambulance is out of the shops, and was given a trial with members of the Board of Health as passengers. It went into regular service January 1. This is designed to take the place of the ambulance car which was put in operation last summer on the Union Depot Line. It runs by the Female and City Hospitals, and has been used largely in affording transportation to convalescing patients leaving those institutions, as well as taking patients not disabled to those institutions. It is an ordinary car reserved for this special use, and runs on a regular schedule from Tower Grove Park to the switch at Twelfth and Pine Streets. The new electric ambulance was made and fitted up specially for the purpose, and has every ambulance equipment necessary. It is the intention to run switches into the grounds at the City and Female Hospitals, and also to construct an extension from the present terminus of the Tower Grove Division on Arsenal Street to the Poorhouse and Insane Asylum. It is probable that Dr. A. W. Latimer, who has been in charge of the former ambulance car, will remain in charge of the new service.—*Republic*.

**DIPHThERIA CULTURE TUBES.**—Health Commissioner Homan is in receipt of the printed instructions to physicians for the use of culture tubes in diagnosing diphtheria. These tubes are for use only in making a correct diagnosis of doubtful cases. It frequently happens that diphtheria is mistaken for croup or laryngitis, especially in the early stages, and the household and neighborhood not being apprised of the contagious nature of the disease, proper steps are not taken to isolate the patient. Thus the danger of contagion is greatly increased. The directions to physicians follow: "The patient should be placed in a good light, and, if a child, properly held. In cases where it is possible to get a good view of the throat, depress the tongue and rub the cotton swab gently, but freely, against any visible exudate or patch. In other cases, including those in which the exudate is confined to the larynx, pass the swab far back, avoiding the tongue, and rub it freely against the mucous membrane of pharynx and tonsils. Without laying the swab down, withdraw the cotton plug from the culture tube, insert the swab, and rub that portion of it which has touched the exudate gently, but thoroughly, back and forth all over the surface of the blood serum. Do not push the swab into the serum, nor break the surface in any way.

Then replace the swab in its own tube, plug both tubes, put them in the box, and return the culture outfit at once to the station from which it was obtained. The tubes will be received and report furnished by the department within twelve hours, by mail or telephone, giving the results of the bacteriologic examination without charge."—*Republic*.

#### Washington Notes.

**MEDICAL SOCIETY OF THE DISTRICT.**—At the regular meeting of the Society, held December 19, the President, Dr. S. C. Busey, delivered his annual address. He took for his subject, "The Medical Society of the District of Columbia in 1894," and made some important recommendations concerning its future.

**HEALTH OF THE DISTRICT.**—The report of the Health Officer for the week ended December 22 is as follows: Number of deaths (still-births not included): White, 54; colored, 35; total 89. Death rate per 1,000 per annum, white, 14.04; colored 19.05; total, 15.68. Death rate per 1,000 per annum for corresponding week last year 20.07.

**CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.**—The end of the year will be the occasion of a change at the Emergency Hospital, in which Dr. Leonard Bell, the present resident physician, will retire to take up private practice in his home in Indianapolis. Dr. James R. Church, who is first assistant surgeon, will be promoted to fill the vacancy, and Dr. Peter Smith will become first assistant. A competitive examination was held on the 28th inst., for the position of second assistant physician. The Georgetown, Columbian and Pennsylvania Universities were represented. All the applicants received very high marks and were very evenly matched, but Dr. E. G. Shortledge, of Wilmington, Del., representing the University of Pennsylvania, made the best rating, and was recommended by the examining committee for appointment.

**WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.**—The two hundred and nineteenth meeting of the Society was held on the 21st inst. Dr. G. B. Harrison read a paper, "The Report of a Case of Puerperal Eclampsia," a very interesting discussion followed, opened by Dr. A. F. A. King. Dr. H. L. E. Johnson presented a specimen of urine from a case of chronic interstitial nephritis. The urine contained over one-third albumen by volume, which was not coagulated by heat (boiling), addition of small quantity of nitric acid and subsequent standing until cool. A large excess of acid with heat showed the presence of the amount of albumen stated. A small quantity of acid added to cold urine showed a decided cloud, but as the acid passed to the bottom of the tube all opacity disappeared. He had seen only two cases of this condition, one in a puerperal eclampsia case in which albumen was supposed to be absent. This was a specimen of acid albumen or syntonin, and is not frequently observed. He warned against carelessness in urine analysis, especially on the part of examiners for life insurance.

**SMALLPOX HOSPITAL RE-OPENED.**—The reappearance of smallpox required the opening of the smallpox hospital and as Dr. Nevit was on his wedding trip, Dr. Llewellyn Elliot was placed in charge and has displayed great skill and judgment in its management and the care of patients. The outbreak occurred in a case of confinement December 1 of still birth, with death of mother on eighth day from what was called by her medical attendant, a colored clerk in one of the Departments, puerperal fever. The undertaker noticed the eruption and regarded the case one of smallpox, but relying on the death certificate, thought his fears were groundless and the child was buried in a cemetery here, but the mother after being viewed by her friends here, was carried on a passenger steamer about seventy miles down the river in Maryland, where a public funeral was held in a church. Several cases are reported there as a result with thirteen cases here. The case originated in one of the most thickly populated courts in the district and though the Health Officer has taken every precaution, a great many new cases are expected.

**"SUNDOWN DOCTORS" CHECKED BY COMMISSIONER LOCHREN.**—The Commissioner of Pensions has issued an order that will prevent clerks in the Bureau, who are physicians, from practicing medicine after office hours. In this branch of the government service, as well as in others, there are a number of graduated physicians who attend patients after office hours, and are known as "sundown doctors."

The order states that if any clerk or employe of the Pension Bureau shall attend patients as a physician or medical adviser, it will be regarded as sufficient ground for recommending that his further services in the Bureau will be no longer required. The danger of bringing contagious diseases to the other clerks and employes, and allowing such diseases to spread in the community is said to be obvious, and has been manifested in recent cases. Moreover, a calling which is likely to require clerks and employes to be up at night, and to demand their prompt attention at all times, is regarded as inconsistent with the proper discharge of their duties in the Bureau. The issuing of the order was caused by a negro doctor, named Johnson, employed in the Bureau, attending a smallpox case, for which he was suspended. While no official notification has yet been issued, it is almost certain that a similar order will be made including the entire Interior Department, not only physicians, but those who engage in any outside work of any other character. This, it is said, will not apply to employes pursuing studies at night. The regular profession, to a man, naturally indorse this action of the Commissioner.

#### Hospital Notes.

**DR. B. D. EASTMAN** has been reappointed Superintendent of the Kansas Insane Asylum at Topeka.

**THE NEW FREE HOSPITAL** for women, at Brookline, Mass., was dedicated January 1.

**ST. MARGARET'S HOSPITAL.**—The plans for the new St. Margaret's Hospital to be built in Pittsburg, Pa., are nearly completed. The estimated cost of the building is \$250,000.

**THE NEW ST. LUKE'S HOSPITAL** at Davenport, Iowa, will be opened February 1.

**E. H. BENNETT.**—By the will of the late E. H. Bennett, of Janesville, Wis., the City Hospital of that place receives the sum of \$1,000.

**DR. FRONTZ**, of Williamsport, Pa., has been appointed resident physician to the State Reformatory at Huntington, vice Dr. D. P. Miller, resigned.

**SAN GABRIEL HOSPITAL BURNED.**—Advices from Montevideo report the destruction by fire of a hospital at San Gabriel (Brazil), by Brazilian troops. More than one hundred and twenty rebels perished. It is said that several who tried to escape were forced back into the flames by bayonets.

**SPRINGFIELD (MASS.) HOSPITAL ASSOCIATION.**—The annual meeting of the Springfield (Mass.) Hospital Association was held December 16. The total number of cases treated during the year was 338.

**JANE C. STORMONT HOSPITAL.**—The charter of the Jane C. Stormont Hospital and Training School for Nurses, at Topeka, Kan., has been filed. Mrs. Dr. Stormont donated \$10,000 toward building the hospital.

**THE MANCHESTER BROWN SURGICAL HOSPITAL** at Milwaukee, was formally opened December 21. The hospital will be devoted exclusively to surgical cases. The building has accommodations for fourteen private patients and thirty in wards. There are three operating rooms, sun rooms, a diet kitchen, and a dispensary.

**THE ILLINOIS STATE BOARD OF PUBLIC CHARITIES** has recommended special appropriations as follows, for the various State charitable institutions, for general improvements and repairs: Northern Hospital for the Insane, \$94,000; Eastern Hospital for the Insane, \$132,000; Central Hospital for the Insane, \$42,300; Southern Hospital for the Insane, \$47,720; Asylum for Insane Criminals, \$6,700; Institution for Education of the Deaf and Dumb, \$22,350; Institution for the Education of the Blind, \$26,500; Asylum

for Feeble-Minded Children, \$27,400; Soldiers' and Orphans' Home, \$15,800; Charitable Eye and Ear Infirmary, \$12,200; Soldiers' and Sailors' Home, \$53,500. Amounts asked for ordinary expenses for the next two years, and upon which the State Board is not called upon to pass, are: Northern Hospital for Insane, \$350,500; Eastern Hospital for Insane, \$580,000; Central Hospital for Insane, \$330,000; Southern Hospital for Insane, \$260,000; Insane Criminals, \$85,600; Institution for Education of Deaf and Dumb, \$210,000; Institution for Education of Blind, \$100,000; Asylum for Feeble-Minded Children, \$181,000; Soldiers' Orphans' Home, \$108,000; Charitable Eye and Ear Infirmary, \$54,000; Soldiers' and Sailors' Home, \$360,000.

**A NEW HOSPITAL** was opened at Beaver Falls, Pa., January 1.—A sanitarium for consumptives is to be founded at Liberty, N. Y., on a 200 acre tract of land secured for that purpose.—A pleasant incident of the holiday season, was the trip Christmas Eve, to four of the large hospitals of Chicago by the choir boys of Grace Church. A coach was furnished them by a generous liveryman, Mr. Payne, and the boys visited St. Luke's, Mercy, Cook County and the Presbyterian Hospitals, where they sang in chorus in the corridors, and greatly cheered the inmates of the institutions named.—The Annual Meeting of the Directors of Hartford, Conn., Hospital was held Dec. 20, 1894. Officers were elected as follows: President, Dr. Gurdon W. Russell; Vice-President, Jonathan B. Bunce; Secretary and Treasurer, Ward W. Jacobs; Executive Committee, Henry K. Morgan, Dr. Harmon G. Howe, Thomas Sisson; Committee on Finance, Jonathan B. Bunce, Henry A. Redfield, Henry C. Dwight; Librarian, Dr. William W. Knight. The following medical and surgical staff was appointed: Dr. Gurdon W. Russell, chairman; Dr. P. H. Ingalls, secretary; consulting physicians and surgeons, Dr. Gurdon W. Russell and Dr. Ashbel W. Barrows; visiting surgeons, Dr. George C. Jarvis, Dr. G. Pierrepont Davis, Dr. Harmon G. Howe, Dr. Melancthon Storrs; visiting physicians, Dr. Horace S. Fuller, Dr. William W. Knight, Dr. James Campbell, Dr. Edward K. Root; ophthalmic and aural surgeon, Dr. William T. Bacon; gynecologist, Dr. P. H. Ingalls; orthopedic surgeon, Dr. Ansel G. Cook; pathologist, Dr. Charles C. Beach; physician to the Old People's Home, Dr. Charles C. Beach. The Executive Committee explained the great need of further accommodations for nurses in the hospital, and the matter was referred to the Executive Committee with power to obtain plans for a building, and report to the directors.

## THE PUBLIC SERVICE.

**Army Changes.** Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Dec. 22, 1894, to Dec. 28, 1894.

First Lieut. A. N. STARK, Asst. Surgeon, is granted leave of absence for one month, to take effect upon his return to Ft. Sam Houston, Texas. Capt. JAMES D. GLENNAN, Asst. Surgeon, is relieved from duty at Ft. Sill, Oklahoma Terr., and ordered to Ft. Snelling, Minn., for duty at that post.

#### LETTERS RECEIVED.

Anderson, Winslow, San Francisco, Cal.; Atkins, Wm. T., Chicago, Ill. Burr, C. B., Flint, Mich. Cattell, H. W., Philadelphia, Pa.; Conway, W. K., Ridgely, Pa. Eastman, Thos. B., Indianapolis, Ind., (2). Fyke, E. E., Centralia, Ill.; Fay, J., Altoona, Pa.; Fulkerson, W. D., Coffeysburg, Mo. Gapen, Clark, Kankakee, Ill.; Green, Le Roy, Waterford, Ontario; Guelliot, O., Reims, France. Hummel, A. L., Philadelphia, Pa., (2); Hazelwood, A., Grand Rapids, Mich.; Heise, W. F. C., Chicago, Ill.; Haines, W. J., West Farmington, Ohio. Jordan, Edwin O., Chicago, Ill. Kuhn, G. A., St. Louis, Mo. Leedom, Charles, Philadelphia, Pa.; Larkins, E. L., Terre Haute, Ind.; Lippincott, J. B. Co., Philadelphia, Pa. Maltine Mfg. Co., New York City; Morse, F. P., New York City; Meyer, Theo., Salt Lake City, Utah; MacMonagle, B., San Francisco, Cal.; Marchand, V. H., Haubstadt, Ind.; Montgomery, E. E., Philadelphia, Pa.; Morse, L. D., Advertising Agency, New York City; Mann, Edward C., New York City; Martin, F. A., Chicago, Ill. Niles, S. R., Advertising Agency, Boston, Mass. Paul, Kegan, Trench, Tribner & Co., Ltd., London, England. Ruggles-Gale Co., Columbus, Ohio; Ramsey, R. T., London, Ky. Steiger, E. & Co., New York City, (2); Smiley, Chas. W., Washington, D. C.; Souchon, Edward, New Orleans, La.; Stearns, F. & Co., Detroit, Mich. Thomas, Homer M., Chicago, Ill. Woodbridge, J. E., Youngstown, Ohio; White, Geo. W., Boston, Mass.; Wahrer, C. F., Ft. Madison, Iowa; Würdemann, H. V., Milwaukee, Wis., (2).



# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, JANUARY 12, 1895.

No. 2.

## ORIGINAL ARTICLES.

### HOSPITALS FOR THE INSANE—THEIR SCOPE AND DESIGN.

BY EDWARD F. WELLS, M.D.

CHICAGO.

Shall the State have the custody of all its insane, or shall certain classes be relegated to county care? Shall the State care for the acute and the chronic insane separately or shall the hospital and the asylum be combined in one institution? Shall employment, especially agricultural, be afforded the patients, and if so to what extent? Should epileptics be received into insane hospitals or should they be cared for in a separate institution? Should any class of the insane be "boarded out," as practiced at Gheel, in Scotland and in Massachusetts? What should be the scope and design of the modern institution for the insane? These are questions of perennial and engrossing interest to the social economist, the legislator, the executives of our States and to the public at large, and they will be considered, with especial reference to the present status in Illinois, as fully as the limits of this paper will allow.

#### STATE VERSUS COUNTY CARE.

Every person adjudged insane and requiring other than family care—acute or chronic, curable or incurable—should be under the control of the State. This is in the line of the opinions expressed by almost every one who has given the subject any special consideration. This entire ground has been so often gone over that another review may well be omitted and attention will only be asked to a limited field.

In the Report of the Board of State Commissioners of Public Charities, of this State, for 1890, page 104, occurs the following paragraph:—

"In the present report and chapter will be found accounts of ten naked patients, six men and four women, in Adams County; an insane woman confined in a pen in Bond County; an insane man in Boone County who is so troublesome that the keeper is paid extra for taking care of him; a miserable pen in DeKalb County; another in Franklin County; the insane department in Fulton County is declared a nuisance which should be abolished; in Jackson County three idiots, one of them an epileptic, are taken care of by an insane woman; in Jefferson County an insane woman sleeps alone in an outhouse; in Kane County, where fourteen insane are locked up, they make day and night hideous, and thirteen of them are disposed to denude themselves; in Knox County a naked man was found; in McHenry County the authorities are compelled to care for a man who can not even feed himself; the new insane department in Menard County already smells to heaven; the insane department in Montgomery County is condemned as unfit for use; the same is said of that in Shelby County; in Stark County two steel cages have been purchased for the insane, six by seven feet in size; in Wayne County the insane are filthy and ragged; Whiteside County has a naked insane woman on straw in a box."

Contrast this picture of county care, with its evi-

dent lack of medical supervision, of trained attendants, of facilities for classification and of suitable accommodation, with the intelligent and humane care given the insane in the four State hospitals, and there will be a ready appreciation of the force and sufficiency of some of the reasons upon which is based the opinion expressed.

There can be no doubt in the mind of any reasonable person that the circumstances which made it possible, in 1890, to frame such an indictment against the county care of the insane as that embodied in the quotation above given, were largely brought about by an evasion, by the managers of the State hospitals, of the last clause of Section 3 of an Act to regulate the State charitable institutions, in force April 15, 1875, which provides:—

That, in the admission and retention of patients, curable and recent cases shall have preference over cases of long standing, and that violent, dangerous, or otherwise troublesome cases shall have preference over those of an opposite description.

Human nature is much the same the world over, and so long as the laws permit insane patients to be returned to the counties by the State institutions, it will occasionally occur that trustees and superintendents of State hospitals, biased by self-interest, will allow patients such as those above described, to find their way back to the county asylums, the while harmless and easily cared for cases are being shown to visitors in the front wards of their hospitals. The remedy for this evil lies in prohibiting, absolutely, the care of the insane at the hands of every county in the State, with the possible exception, at present, of Cook. The prohibition might be omitted in exceptional instances, as for example, in the case of a mild, quiet, harmless, chronic pauper patient, who would be happier in the county almshouse, with its more elastic rules and greater freedom. In such a case the patient might be paroled to the county, the latter receiving a stipend from the State institution. He should, however, remain under the control of the hospital and should be visited at regular intervals by one of its medical officers. The hospital should also receive regular reports from the almshouse superintendent and physician and, at least once a year, a special report from the visiting agent of the Board of State Charities.

#### SCOPE OF THE INSTITUTION.

Certain classes of the insane require institutional accommodation of a different and slightly more expensive character than that which is amply sufficient for the ordinary chronic and incurable classes. Of the former may be mentioned the recent admissions; the acute cases; the weak and helpless; the sick and injured; the suicidal and homicidal; the filthy; those who denude themselves, etc. These require for their care and treatment wards of smaller size and a larger proportion of superficial space, together

with accommodations for a greater number of attendants—in short, *hospital* accommodation. The ratio of these to the other classes may be estimated at about one of the former to five of the latter.

Another group of cases would include the convalescents; the mildly insane; those with lucid intervals; the quiet; the well-mannered, etc. These may, for the most part, be treated with much freedom and require, so far as practicable, home comforts. Wards for their accommodation need neither hospital nor prominent custodial equipment, and only a small staff is required for their care. These classes constitute about one-sixth of the insane. The remaining two-thirds form the bulk of the chronic and incurable classes which need simply safe and comfortable asylum accommodations and care.

#### COMBINED OR SEPARATE INSTITUTIONS FOR THE ACUTE AND CHRONIC CLASSES.

Because a very large proportion of the insane are cases of long standing and hopeless it has been proposed, on many occasions, to care for these in separate institutions, cheaply constructed and conducted. This has been urged chiefly from an economic standpoint. In this connection it may be said that, as a general proposition, the cost of hospitals in the past has not been determined, in any great measure, by the character of the patients to be treated. It has been shown that the proportion of patients requiring special hospital facilities, which add but little to the expense, is only about one-sixth of the whole number. Is it not as reasonable to cheapen, as far as practicable, the construction of the wards for the remaining classes in connection with a general as with a special institution? Unhesitatingly, yes. As a matter of fact, the cost of these institutions is governed almost entirely by their size; the cost of the central plant; the character of the construction of the ward buildings; the technical knowledge employed in formulating plans and the efficiency of administration during construction. In erecting these great eleemosynary institutions there should be, in the matter of cost, a happy medium which should be earnestly sought. The expenditure of vast sums for useless accommodations, expensive administration buildings or costly embellishment should be absolutely interdicted, but if this wasteful extravagance is to be so severely deprecated, what words shall we use in condemning the criminal parsimony which erects flimsy fire-traps—lacking only time and opportunity for affording a horrible holocaust of the helpless insane wards of the State?

For practical purposes, insane hospitals, in their construction, may be divided into three classes:—1, ordinary, or quick burning construction; 2, slow burning, or semi-fireproof construction; 3, strictly fireproof construction. Justice, humanity and true economy should prevent the erection of buildings of the first class. Buildings of the second class may be allowable, provided the roofs and attics are made indestructible, the buildings not more than two stories in height and with a proper arrangement of rooms and exits. The recent and remote experience of this State; a correct appreciation of the obligations of the State to those whom it compels to inhabit these structures and a true economy point unwaveringly toward the third class as the proper one to be adopted. Fortunately the comparatively small additional expense of fireproofing buildings places this form of construc-

tion within the reach of, certainly the great State of Illinois. Generally speaking, it may be said of buildings for the insane that if they are very cheap they are not safe, and if entirely safe they can not be very cheap.

The first, and in many respects the most notable example of the establishment, on any considerable scale, of a separate institution for the exclusive use of the chronic and incurable insane was that at Willard, in New York. This asylum was opened in 1869 and its capacity gradually enlarged to 1,938. It has 904 acres of land and the estimated value of lands, buildings and equipment is \$1,541,000, or a per capita rate of \$795. The character of some of the construction may be inferred from a statement to the State Commissioners in Lunacy, in 1891:—

"A great deal was done during the year in the way of extraordinary repairs . . . The greater part of the foundation walls of detached group No. 2 were taken down and rebuilt." "A portion of the buildings of this institution was formerly the property of the old State Agricultural College."

In 1881 the State of New York established, at Binghamton, a second asylum for the chronic insane. This institution has 1,057 acres of land and a total valuation of \$759,375. The capacity is 1,050, thus giving a per capita cost of \$723.

These two asylums for the chronic and incurable insane were never satisfactory to patients, their friends or the medical officers of these and the other hospitals of the State, and in 1890 the project of the separate care of these classes was definitely abandoned by the Legislature. These hospitals now admit all classes of the insane and the other six State institutions retain their chronic cases. Dr. T. S. Armstrong, late superintendent of the Binghamton Asylum, in his report for 1888, mentions one of the objections met with as follows:—

"Many patients coming to this institution get the idea that they are incurable (as many of them are), and that they must remain here so long as they live. . . . To them it blots out all future prospects of recovery, and of a return to their home and friends. The mental, moral and physical effect of this is most unfortunate."

The Legislature of Massachusetts, in 1890 and 1892, authorized the building, at Medfield, of an asylum for the chronic insane, with a capacity for 1,000 patients and to cost, exclusive of expenses for land and administration, \$500,000. In order to keep within the appropriation, buildings were erected which, when nearly completed, were condemned as being too unsafe for occupancy. To make the fire-traps safe it was found to be necessary, at enormous expense, to replace the hollow wooden partitions by brick and terra cotta; the wooden supports of the floors and roof by iron beams and columns; to excavate for additional foundations; to provide additional means of exit in case of fire, etc. It is safe to say that these changes, together with the suits for damages which were expected to follow, will bring the total cost to a point far beyond the original estimates.

Pennsylvania began, in 1891, at Wernersville, an asylum for the chronic insane, with a capacity of 800. It has only recently been opened. The State Committee on Lunacy say, in their report for 1892, in considering its success:—

"The success of this asylum will greatly depend upon the appointment of the medical officer and his subordinates. All such officers should be shown to be in harmony with the theory of the separate care of the class for which the institution is intended."



The above four instances are the only examples, so far as my information extends, of the separate care, upon a large scale, of the chronic insane in institutions especially established for this purpose by any of the States. Of these, two have been abandoned after trials of twenty-two and nine years, respectively; one has been inaugurated within the past few weeks, and one is yet in process of construction.

The department for the chronic insane of the Worcester hospital and the county asylums of Wisconsin are not considered germane to this subject. Of the latter Dr. Walter Kempster says:—"The so-called 'Wisconsin plan' does not meet the conditions which an enlightened people demand, and sooner or later will be supplanted by some such management as the great State of New York has wisely adopted, and which I believe to be just and right."

The many arguments against the separate care of the chronic insane have been advanced so often and so forcibly during the past thirty years that they require at my hands no extended mention. It must be clear to any intelligent mind that every advantage of economical provision and maintenance, of comfort and occupation, which the chronic insane may have in separate asylums may be afforded them in hospitals for all classes; and further, that if any division of this kind will cost less for the chronic, it will add correspondingly to the cost for the care of the acute cases.

#### AGRICULTURAL EMPLOYMENT.

It has always been recognized, more or less fully, that occupation is useful for the insane. Thus the ancient Egyptians treated their insane by "amusement, occupation and healthful habits." It was occupation, especially in tilling the soil, that has made the Gheel colony a possibility and in the present century the advantages of having a large farm attached to hospitals for these classes have been fully appreciated since 1821, when Esquirol established his farm and called attention to the benefits derived therefrom. In this country it is a firmly established custom, from which reason and experience would not warrant a departure. The amount of land attached to a few of the leading hospitals, together with the proportion per patient, is herewith given:—

State.	Hospital.	Acres.	Capacity.	Per patient.
Massachusetts	Westborough	336	405	.83 acres
"	Danvers	255	863	.29 "
"	Northampton	493	470	1.05 "
"	Taunton	172	698	.24 "
"	Worcester	438	650	.67 "
New York	Utica	225	700	.32 "
"	Poughkeepsie	683	830	.76 "
"	Middletown	281	675	.41 "
"	Buffalo	203	525	.38 "
"	Ogdensburg	950	1,500	.63 "
"	Rochester	35	300	.11 "
Indiana	Indianapolis	160	1,524	.10 "
"	Evansville	160	400	.40 "
"	Richmond	309	434	.70 "
Minnesota	Rochester	480	630	.76 "
"	St. Peter	673	940	.72 "
Iowa	Independence	580	800	.72 "
Illinois	Jacksonville	160	1,180	.13 "
"	Elgin	510	1,100	.46 "
"	Kankakee	840	2,000	.42 "
Totals and averages, 21 hospitals		7,853	16,624	.47 acres

In my opinion an hospital intended for all classes of the insane should have at least one-half acre of good arable land for each patient, and double this amount would not be excessive.

In regard to the proportion of male patients—of mixed classes—who are able to work upon a farm, statistics give us no reliable information. As the result of much inquiry and personal observation, I am of the opinion that the number of these patients who are able to work and who would be benefited by

out-door employment is much larger than is generally supposed. It may be reasonably assumed that, in round numbers, 25 per cent. of hospital patients are obviously unfit for such employment, and of the remainder probably two-thirds could be advantageously employed in this manner. The spirit of our people is opposed to employing women at farm work, but an equal proportion of female patients may be given, in other directions, suitable and healthful employment. Useful employment is pleasurable and remediable to the insane while enforced idleness is a grievous punishment. Experience has long since demonstrated that properly regulated employment, together with an abundance of good food are prime factors in bringing about the result of a healthy, quiet and contented hospital. How often has not every one who has had practical experience with the insane seen restless, excited and sleepless patients become quiet, contented and sleep like babes under the influence of interesting occupation and a liberal dietary!

#### EPILEPTICS.

Epileptics who are insane should be cared for in hospitals for the insane, rather than in institutions for epileptics. If this point is conceded the erection of an institution for epileptics would not relieve the overcrowding in the hospitals for the insane. The fact, however, that the non-insane epileptics require a special care which can not be given them in the county almshouses, renders it highly desirable that such of these as are public charges should be given a State institution for their care. Such an institution should be as largely industrial as possible and might be made nearly self-supporting. According to the Report of the Board of State Charities for 1892, there were in the county almshouses of this State, 247 epileptics—140 males and 107 females. These, together with the purely epileptic in the Institution for the Feeble-Minded, and those awaiting admission into the latter, would be sufficient to fill a large institution.

#### BOARDING-OUT SYSTEM.

In the legendary period of history an Irish maiden fled to Flanders to escape the persecutions of a cruel father. She was here discovered by her unnatural parent and after suffering great indignities at his hands died and was buried in the chapel at Gheel, near Antwerp. The patient fortitude displayed by the young girl led to popular sympathy and, finally to her canonization as Saint Dymphna. By some means, not now clear, the belief became prevalent that miraculous cures of those affected with mental disorders were brought about by worshiping at the shrine of St. Dymphna, and as early as the seventh century the insane began making pilgrimages thence, hoping to find relief from their infirmities. These found entertainment, during their sojourn, in the houses of the neighboring peasants. In some cases their stay was greatly prolonged and in not a few instances they were abandoned by their friends and relatives. Many peasant hosts continued to keep these abandoned lunatics and, to lighten the burthen of enforced hostship the guest was required to assist in the peasants' work. In some cases, also, the poorer pilgrims were received as guests conditioned upon their performing services to pay, wholly or in part, for their keep. As time passed it became apparent to the peasantry that the care of the insane was prof-

itable to the community, both directly from the money paid by those able to pay and from the service rendered by those unable to pay in money. Unfortunately there accumulated a class too poor to pay and unable to work, and the burthen thus produced was relieved by the State paying an annual stipend for their keep. In this manner, after centuries of gradual development, has been formed the peculiar community of Gheel, wherein peasants receive into their homes, as guests, the insane and are recompensed therefor by a stipend from the State, the estate of the patient or by his labor.

In 1851 the Belgian government assumed control of the insane at Gheel, established an infirmary, provided for supervision and proclaimed regulations for the host-guest relationship of peasant and patient. The village embraces a large agricultural district and contains about 11,000 inhabitants, including 1,800 insane. The latter are, for the most part, accommodated in the homes of the peasants, not more than two of each sex being allowed in one house. The system seems to be locally satisfactory.

The success of the Gheel colony has led to the query whether this boarding-out system, modified to meet local requirements, might not be advantageously adopted elsewhere. Two lunacy boards, notably—those of Scotland and of Massachusetts—have answered this question affirmatively, and in both localities the system has been in operation long enough for us to judge its results.

In Scotland, where the boarding-out system has been in vogue a great many years, it has met with a fair measure of success. As a rule, patients are dispersed and are not concentrated in villages. In some instances, however, the harmless and incurable insane of the larger centers of population, as for example Edinburgh and Glasgow, are placed, to the number of ten to fifty in certain villages, but the practice is not considered desirable. Not more than four patients are permitted in any one house, but the actual number scarcely ever exceeds one or two. They are regularly visited by the visiting agents of the Lunacy Commissioners, and are under the control of these officers. So long ago as January, 1875, Sir James Coxe, one of the Commissioners, in a letter, says:—

"There is a growing difficulty in procuring and retaining suitable accommodations. . . . As a rule, the chronic patients removed from asylums are sent home to their parishes to live with friends."

This difficulty of finding suitable homes for those having no friends, willing to assume their care, has increased rather than diminished, and the Commission, in their report for 1884, make special mention of the fact:—

It was being forcibly recognized in Scotland that great care was required in the selection of households in which lunatics could be safely and advantageously "boarded out." It was realized that if the system was not to be discredited, more and extraordinary care would be needed in the sending from the asylums only suitable cases and finding for these congenial homes. It had been noted that where the family as a whole were uncongenial to the temperament of the patient the latter was often soon returned to the asylum in an excited and miserable state. It could not be doubted that, in some cases at least, mischief may be and is done by "boarding-out" harmless lunatics in households where they are exposed, not simply to privations, but to irritation and petty grievances hard to bear.

With the most strenuous exertions it has never been possible to get out, in this manner, any large

proportion of the insane, notwithstanding the well-known docility of the Scotch lunatic.

Massachusetts began, in 1881, to employ the "boarding-out" system in the care of a small portion of her insane.

During the first year 5 were "boarded-out;" during the second year the average number out, was, 21; third year, 60; fourth year, 113; fifth year, 94; sixth year, 126; seventh year, 142; eighth year, 168; ninth year, 164. Of the forty-seven thus sent out in 1892 forty-three were placed out for the first time. Of these, seven were returned to the hospital; two from persistent use of bad language; four for non-conformity to family life and requirements; and one because of frequent elopements. All of these, upon their return to institution life, immediately resumed their former quietude and readily acquiesced to existing rules.

Previous to making the change from institution to family life it is the custom to obtain the consent of the patient, if sufficiently intelligent; of the friends, and, if a pauper, of the overseers of the poor. Of this phase of the subject the Board of Lunacy, in their report for 1893, says:—

"It not infrequently happens that patients who appear suitable for family life object to the change, being fond of the regular and pleasant life at the hospital; or their friends think the change unwise; or overseers of the poor object, both on the score of economy and dislike of the system. More women than men are boarded out, and are generally preferred to men as boarders. Applications for boarders are filed, and the families are visited and carefully examined. After being placed, it sometimes happens that a patient has to be transferred several times before a suitable family can be found. During the last few years so many patients suitable for boarding-out have been removed from the hospitals . . . that but a small number has been left; these, from time to time have all been placed in families. In future the number will increase but slightly, only such cases occurring as naturally develop in the institutions."

In their report for 1894, the Board again expresses its opinion:—

"It will be seen that the number of insane boarded in families has somewhat decreased during the year, although persistent efforts have been made to place out all who appear suitable for such treatment."

Without special thought or design there has been developed a most admirable system of dispersion of the harmless chronic insane. I refer to the parole system, under which properly selected cases are sent home to the friends and relatives for immediate care, but remain under the jurisdiction of the hospital authorities. This necessarily has a narrow field, but it is fully as wide in its applicability as the boarding-out system. More attention is given this feature in some institutions than in others, but experience shows that if the authorities are earnest and persistent in the matter a reasonable proportion of the insane may be very happily cared for in this manner. It is probable that the extension of the system, if thought desirable, might be stimulated by paying the friends having the patient in charge, a sum equal to the cost of his subsistence were he in hospital.

The extent to which the parole system is utilized in a few State hospitals is shown in the following table:—

State.	Hospital.	Date.	Patients in Hosp.	At Home on Parole	Per Cent.
South Carolina . . .	Columbia . .	Oct. 31, 1893 .	796	37	4.64
Ohio . . . . .	Columbus . .	Nov. 15, 1893 .	1,197	106	8.85
Minnesota . . . .	Rochester . .	July 31, 1888 .	751	26	3.46
" . . . . .	St. Peter . .	July 31, 1888 .	954	25	2.62
Nebraska . . . . .	Lincoln . .	Nov. 30, 1890 .	326	13	4.00
Kansas . . . . .	Oswatimie . .	June 30, 1890 .	519	34	6.55
Illinois . . . . .	Kankakee . .	Nov. 19, 1894 .	2,090	78	3.73
" . . . . .	Jacksonville .	Nov. 16, 1894 .	1,222	10	.81
" . . . . .	Elgin . . . .	Nov. 18, 1894 .	1,115	30	2.69
" . . . . .	Anna . . . .	Nov. 19, 1894 .	853	32	3.75
Totals and averages, 10 hospitals . . . . .			9,823	391	4.00

It is thus seen that about 4 per cent. of patients carried upon the hospital registers are at home on parole.

Desiring to obtain definite information of the workings of this system in this State, I recently wrote the superintendent of each of the large public hospitals for the insane inquiring as follows:—

1. How many patients have you on your register?
2. How many are at home on parole?
3. Is any supervision exercised over patients out on parole?
4. Is any special effort made to get harmless chronic cases out on parole?
5. Do you approve the system?

To these questions the various superintendents courteously replied as follows:—

Dr. Arthur Loewy, of the Northern, reports 1,115 patients on the register, with 30 at home on parole. Paroled patients are supervised by correspondence with their friends. He always recommends the removal of harmless chronic cases whenever they can be cared for at home. He approves the parole system.

Dr. W. C. Lence, of the Southern, states that at his institution no supervision of paroled patients is exercised, except to instruct the friends to return them if they become worse. Special efforts are made to get patients out on parole, and he approves the system.

Dr. J. F. McKenzie, of the Central, says: "We exercise no supervision over patients on parole. They simply have the privilege of returning within the quarter without further legal proceedings. We are compelled to make considerable effort to get chronic cases sent home in order to make room for acute ones, as our institution is now, and has been for several years, full to overflowing. I think the system of granting parole is a good one."

Dr. Clarke Gopen, of the Eastern, says: "There is no special supervision exercised over patients who are out on parole, except when we send a special attendant to accompany them, which we do at times. There has been no special effort made to get harmless chronic cases out on parole. I think, however, that much could be done, not only to relieve the institutions, but for the benefit of the patients themselves by such efforts. . . . There are many patients in this Institution who, I think, could get on outside. . . . If the friends or county authorities could be induced to take a proper interest in them. . . . In answer to your fifth question, I would say that I do approve of the parole system, as it is difficult for us to say positively when discharging a patient whether such patient is in condition to bear the strain of ordinary life or not, and this can generally only be ascertained by trial. The quasi-criminal method of commitment in vogue in Illinois, makes it a very unpleasant thing for a half-recovered patient to be re-committed to an institution."

Dr. McGrew, of the Cook County Insane Asylum, says:—"We have 1,067 insane patients on the register. Very few are at home on parole. . . . No special supervision by the asylum authorities is exercised over patients after they leave the institution. Friends are required to assume all responsibility after patients are removed. . . . No special effort is made to get harmless chronic cases at home on parole; neither is any great objection made to friends removing them if they desire, because of the over-crowded condition of the wards. We believe that the insane, including the harmless chronic cases can be better cared for—with more advantage to themselves by the asylum system rather than at home."

The advantages of the parole system, as practiced, over the boarding-out system lie in the fact that the harmless chronic insane are in the hands of their relatives and friends, who are apt to take in them a more kindly interest than would strangers who were actuated solely by mercenary motives. The subject is one of interest and practical importance and well worthy of extended inquiry and careful consideration.

(To be continued.)

Blank Applications for membership in the Association at the JOURNAL office.

## THE TREATMENT OF EXTENSIVE BURNS.

Read before the Chicago Pathological Society, Sept. 10, 1894.

BY EMANUEL FRIEND, M.D.

CHICAGO.

Of all accidents which befall the human race none, in my opinion, call for more speedy and at the same time scientific treatment to alleviate pain, shock and subsequent infection than an extensive burn of the second or third degree, may it be caused by the mere flame, molten metals, boiling fats, hot water, steam and the like. It is not the object of this paper to go into the minutiae of etiology, symptomatology or pathologic anatomic changes characterizing the different forms and degrees of burns, but merely to hint at the anatomic changes taking place in the three gradations under which all burns are classified, and suggest a method of application of one of the oldest and best of therapeutic measures, namely water.

In burns of the first degree, dermatitis combustionis erythematosa, we get a mild hyperemia of the papillary vessels of the corium with consecutive paresis and passive congestion, which causes a slight swelling and redness. If an exudation takes place, and such is generally the case to a greater or less extent, a yellowish discoloration takes place; whether this is caused by the instantaneous application of a flame or by the heat of the sun, as in erythema solare, the changes are practically the same.

Burns of the second degree, dermatitis combustionis bullosa, are characterized by the appearance of bullae, and vesicles of various sizes from a pin head to the size of the palm of one's hand, and even larger, which are due to a serous exudation from the papillary and upper vessels of the corium separating in part or the entire thickness of the epidermis from the corium beneath. Generally, one sees innumerable blebs and bullae, which have ruptured from, no doubt, sudden over-distension from the rapid accumulation of serum and corpuscular elements; and also in consequence of the trauma, from the patient's hands, in his endeavor to extinguish the flame, we have great shreds of epidermis hanging from the corium.

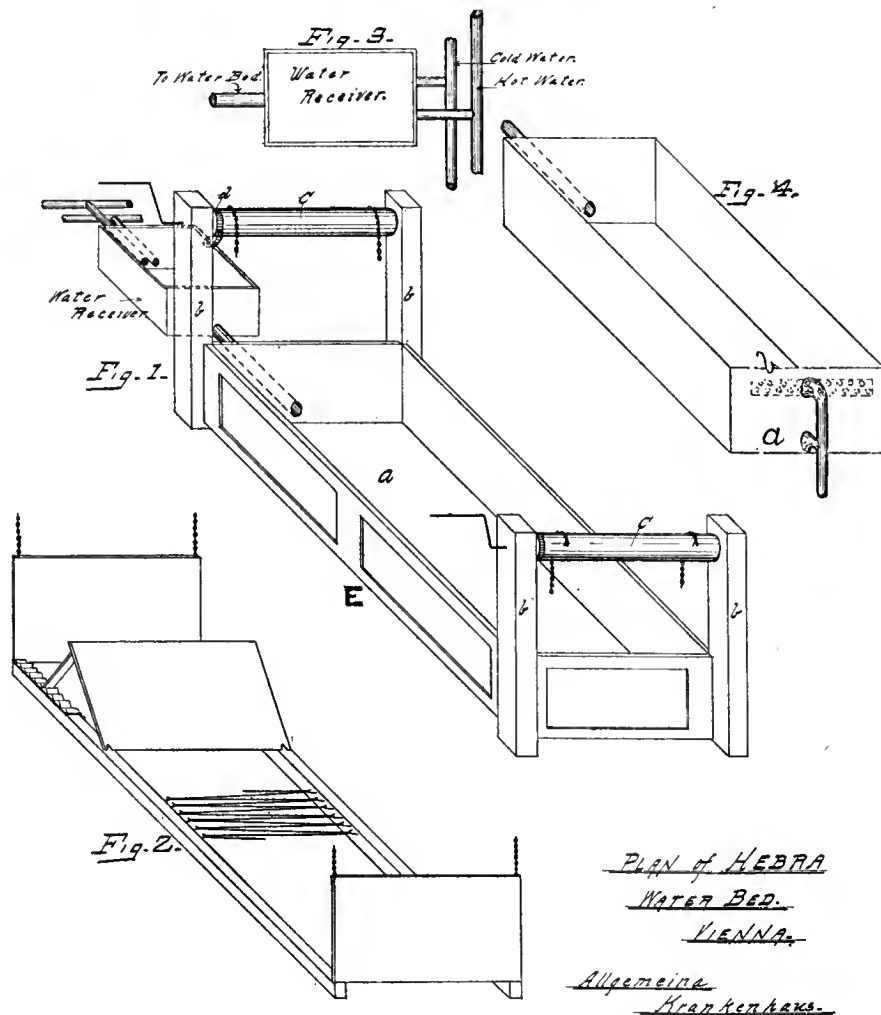
Microscopically, the appearance is the same, whether the bullae or vesicles be caused by steam, fire or a vesicant. Through the kindness of my friend, Docent Riehl, of Vienna, in presenting me with a piece of tissue containing a vesicle, caused by a mustard plaster just previous to the death of the patient, I am enabled to give the following brief analysis of the same:

The tissue after fixation and hardening was stained with lithium carmine and picric acid, Zeiss ocular No. 3, obj. a. On either side of the field one sees the remains of the epidermis which has been lifted from the corium beneath, in this specimen having been ruptured in the center, possibly in process of preparation; still adherent to the under and outer surface one sees epidermoidal elements, indicating that just at this point separation had taken place in the stratum lucidum, while beneath and still adherent to the corium one sees intact rete malpighii with several layers of prickle cells. The center of the epidermoidal covering of this bullae, or rather vesicle is lost, but the corium with its obliterated papillae indicates that a complete separation of the rete malpighii and overlaying layers of epidermis had taken

place here. The contiguous papillæ are widened, the vessels dilated, while the connective tissue fibers are swollen and literally teased asunder by the exudate of serum, with its corpuscular elements; the latter having taken the lithium carmine stain quite markedly.

Burns of the third degree, dermatitis combustionis escharotica. In this degree the elements of the corium have suffered primarily from the continuous application of the heat, causing a mortification. According to the agent producing the same, the parts become charred, bronzed, or dried and leathery. Frequently one sees in the bronzed denuded surface, twig-like figures representing the coagulated and carbonized contents of the superficial vessels. The em-

beds, and a nurse in constant attendance. Through the kindness of Professor Kaposi and his first assistant, Dr. Lukasiewicz, now Professor of Dermatology in the University of Zürich, Switzerland, I was enabled to study these cases, by having access to this water bed ward at any and all times. Of all appliances and devices invented by man to relieve human suffering, I know of none which is entitled to greater credit than the Hebra water bed in the treatment of burns. It is practically an oblong tank seventy-eight inches long, twenty-eight and one-half inches wide, twenty-one inches deep, lined with zinc, shown in the accompanying plan designated (Fig. 1 a). Supporting this tank are two head posts three by two inches and forty-nine inches in height, and two at the foot meas-



inent medico-legal authority, E. Hofman, of Vienna, has shown that this injection of the vessels does not become apparent when the body of a murdered person is subsequently burnt, and also that the deeper tissues are afforded a considerable protection by the superficial layers of the epidermis and corium. Thus has been shown in the cremation of bodies to what a great heat, continuously applied, the tissues must be subjected before an effect is perceptible on the deeper tissues.

In Vienna, all cases of severe burning are taken to the dermatologic wards of the Wiener Allgemeine Krankenhaus, and cared for in a room set apart from the general wards, provided with seven Hebra water

beds, and a nurse in constant attendance. Through the kindness of Professor Kaposi and his first assistant, Dr. Lukasiewicz, now Professor of Dermatology in the University of Zürich, Switzerland, I was enabled to study these cases, by having access to this water bed ward at any and all times. Of all appliances and devices invented by man to relieve human suffering, I know of none which is entitled to greater credit than the Hebra water bed in the treatment of burns. It is practically an oblong tank seventy-eight inches long, twenty-eight and one-half inches wide, twenty-one inches deep, lined with zinc, shown in the accompanying plan designated (Fig. 1 a). Supporting this tank are two head posts three by two inches and forty-nine inches in height, and two at the foot meas-

port (Fig. 2 a) which can be raised or lowered to suit the patient's convenience, it being supported by a cog and ratchet arrangement, which is also found attached to the head windlass of the bed proper (Fig. 1 d).

At the head of the tank (Fig. 1 a), but separate and distinct from same, is a water receiver (Fig. 3) connected to the tank by a single pipe; merging into this receiver is both a cold and hot water pipe, coming either from a range or boiler, according to the source of the hot water. The temperature of the water is hence regulated here instead of at the main tank. Naturally, the large tank (Fig. 1 a) is supplied with an escape pipe and a safety escape to prevent an overflow. (Fig. 4 a, b.)

Fig. 1 E represents the side woodwork of the bed.

Upon the patient's arrival, orders are given the nurse to prepare the water bed, whose arrangement as you have seen is so simple that an inexperienced hand can prepare it in five minutes. The temperature of the water should be about 25 or 26 degrees R., and increased after the immersion to 32 or 34 degrees R.

The patient is carefully lifted onto to the blanket covering the mattress, which is swung above the water's surface, which should reach to almost one-third of the top edge of the tank. Almost at the instant the patient is immersed his heartrending shrieks and moans will subside, and if asked after five minutes, regarding his condition, will state that he now feels comfortable. If necessary, stimulants can be given and if the patient be laboring under intense shock, the water can be made somewhat warmer than that which would give the most comfortable feeling to the patient, being gauged by the hand and thermometer. To the face is generally applied a mask of linen, saturated in carroll oil. Within an hour or two, after the more acute symptoms have subsided, the patient is raised out of the water, catheterized, and the loose shreds of epidermis trimmed off and existing bullæ are tapped, care being taken not to remove the epidermal covering. Then the case is treated symptomatically.

As I have before stated, the object of these few lines is not so much the recommendation of the agent (as water has been used from time immemorial for the treatment of burns by both the laity and physicians) as it is the method of application, and consequently I would suggest the adoption of the water bed in all hospitals; possibly some ingenious member of the profession could suggest a plan by which the idea could be carried out in private practice, namely an apparatus adjustable to any bath tub.

I am certain that, had we been possessed of such an apparatus during my term of service at the Michael Reese Hospital, it would have been decidedly to the patients' advantage as well as our own.

The advantages claimed for the water bed are:

1. Relieving the patient almost instantly of the excruciating pain consequent on a severe burn, and following the application and removal of dressings afterward.
2. Producing more rapid cicatrization.
3. Relieving shock.
4. Preventing infection from erysipelas, pus micro-organisms, etc.
5. Prevention of amyloid degenerations due to the confinement of secretions by dressings.
6. Saving of expense of material and time in frequent dressing.

Patients may be allowed to follow this aquatic life for months and months, Kaposi reporting one patient having spent 385 consecutive days and nights in the water bed. They eat, drink, sleep and frequently gain considerably in weight in the bed. Not alone can burns be treated in this manner, but all forms of disease in which there is an extensive loss of epidermis as in pemphigus foliaceus, gangrene, or in chronic suppurating wounds.

## FACIAL BLEMISHES; A PLEA FOR THE STUDY OF THE SCIENCE AND ART OF COSMETICS.

BY EDWARD H. SCHAEFER, M.D., PH.L.

KANSAS CITY, MO.

There are many affections and defects of the body that demand the attention of the physician, who, in applying his knowledge of how to relieve and accomplish a cure, thinks he has done all that he is able to do.

There is still one branch left, belonging to the external part of the human frame, to which very little attention has been devoted and even arbitrarily excluded from the province of medicine, and that is the science of cosmetics. Physicians have always searched for hidden troubles of the human economy, diseases that are internal, not discernible by the eye, thereby entirely ignoring the outward conditions of man.

That branch of medicine, intimately connected with dermatology, the science and art of cosmetics, has been until recently a kind of *terra incognita*, being exclusively in the hands of empirics or non-professional persons. For ages, men, and women especially, have striven to enhance their personal attractiveness, augmenting beauty and symmetry to their forms. What remedial means and agents could be utilized in order to beautify face and body were the source of greatest speculation. Every one, man and woman, wishes to appear attractive, which naturally is as it should be, and all means that are employed in that direction to accomplish the desired end, are truly commendable. How often will a woman refuse to take medicine for some slight trouble, but can be persuaded with ease to do so, if she is reminded that some cosmetic blemishes might be the result. The impressions made upon us by persons depend largely upon their external appearance. Anything pleasing in its nature will be estimated in a favorable measure of opinion.

Our ideas relate more or less to esthetics, be it in the form of objects or persons. Women, knowing this perquisite to attractiveness have, since the remotest ages used all such remedies at their command that would heighten their bodily charms. We all are aware how concerned women often are about any eruption on the face, as for instance, acne, lenticular spots, chloasma and other facial blemishes too numerous to mention. Should this not in itself be a mild reminder of the necessity that the physician ought to concern himself more about those diseases of the skin that occur mostly upon the face and which often leave marks or imprints? How well could he apply his knowledge of the anatomy of the skin in making operations upon the face for tumors and other growths, so as to avoid leaving cicatrices. Young men and women may be seen walking along the streets, who have their faces literally disfigured



by acne, which often leaves its variola-like scars. If any one takes the trouble of observing he can see numerous people who have naevi, warts and pigmentations, such as freckles, chloasmata and port-wine marks on their faces and necks. How often do we not notice people whose faces are disfigured by scars, due to wounds that have suppurated a long time ago and have healed by granulation? Does it not appear to every thoughtful physician that there is still a wide field open to him in facial dermatology, if he only would try to do something in the line of removing or concealing facial blemishes by cosmetics? Wrinkles, the companion of approaching age, ought to be amenable to treatment, more so if they occur in the young.

Criminals often resort to the skill of surgeons in having certain marks removed from their faces in such a manner that not a vestige of former stigma remains.

Among the plastic operations for the relief of hare-lip, cleft-palate, the operation of rhinoplasty, we realize the aim of surgery to establish the art of cosmetics. All those remedial procedures, that are employed in the form of hot or cold baths, in order to incite perspiration, as well as massage and gymnastics, are used for the sole purpose of adding beauty to the skin and complexion.

We have so many agents at our disposal that could be employed in removing all disfiguring marks of the face and other exposed portions of the body, as for instance, electrolysis, excision with the knife, skin-grafting, the application of acids and alkalies and many other methods that the discretion and inventiveness of the physician may contrive.

There is one most prevalent cutaneous disease which appears so often upon the faces of young people of both sexes. I refer to acne with accompanying comedones. This skin disease is curable and ought to be successfully treated in a few weeks if the attention be given to it as it deserves.

Another sub-specialty, advertised by non-professionals, namely "capillurgy," the art of destroying superfluous hair, should be practiced only by physicians.

In the field of facial dermatology very much can be improved upon, in view of the fact, that by applying ourselves to that branch assiduously and studying the true pathologic conditions found present in cutaneous diseases, we are enabled to treat them more intelligently and effect a cure in many cases.

## BLOOD-SERUM THERAPY IN DIPHTHERIA

Read before the Chicago Medical Society, Dec. 3, 1894.

BY G. E. KRIEGER, M.D.

SURGEON TO THE CHICAGO HOSPITAL.

The blood-serum therapy of Behring, Roux and others is based upon the fundamental fact, that the blood of an animal which has been rendered immune against a certain disease has the power, when injected into another individual of the same or other species, to immunize the latter also against that disease. Suppose, for instance, we have a guinea pig immunized against tetanus or diphtheria bacilli and injected some of its blood into a rabbit, the latter would be protected for a certain length of time against infection of the germs or their poisonous products. Such products are especially dangerous and deleterious to the organism in diphtheria. If

one intends to immunize an animal against the effect of diphtheria bacilli it will be necessary to increase its resistance against the toxic products of the germs, the toxins.

An increased resistance and finally an immunity is obtained by applying systematically such doses of the poison to the animal as are sufficient to make the latter ill without causing its death. As the tolerance of the animal increases, so does the immunizing power of the blood-serum increase, which has been proven by Ehrlich in reference to the vegetable poisons, and by Behring with bacterial toxins. The way of proceeding for the purpose of immunizing animals against diphtheria as advised by Behring, Ehrlich and Wasserman is by hypodermic injections of at first very small, and later, gradually increasing doses of diphtheria cultures and diphtheria toxins.

The latter, according to Roux and Yersin, is prepared by inoculation of beef-tea in large flasks with diphtheria bacilli. After the flasks have remained in an incubator for three to four weeks 0.5 per cent. carbolic acid or 0.33 per cent. trikresol is added, by which the germs are killed and precipitated to the bottom of the flasks. The liquid then contains the toxin in solution. From this solution the toxin can be prepared as a dry substance or it can be used while dissolved in the fluid. The effect of injections of the toxin, is fever, local swelling and the production of antitoxin. The latter is found in the blood of the animal after each injection and increases in quantity with the number of injections. This treatment is continued until the animal possesses a sufficient quantity of antitoxin. In order to estimate its efficacy, it is necessary to tap the animal, from time to time, for a small amount of blood with which experiments are made on others. Behring and Kitasato were the first who observed that such antitoxin is able to neutralize the effect of toxin, when mixed in a tube.

The mode of valuation of the diphtheria antitoxin, as advised by Ehrlich is this; of a toxin, the efficacy of which upon a guinea pig is known, a certain quantity ten times the minimum fatal dose, which may be 1 gramme is mixed with a number of different quantities of the blood to be examined, for instance 0.5, 0.25, 0.15, 0.10 gr., and with these four mixtures four guinea pigs are inoculated. The result will be that the one which received the largest dose of the blood together with the toxin shows no reaction; the one that received the second largest dose will suffer from an acute local inflammation, followed by necrosis, but otherwise be not much affected. The third will probably become quite sick and the one which got the smallest quantity of blood will die in forty-eight hours, from the same dose of toxin as the other received. Hereby we can find out which amount of blood of the first animal is sufficient to neutralize a certain quantity of toxin, and so the value of serum can be established. This is simplified if one has a material of a standard strength with which to compare others. Behring and Ehrlich therefore, prepared a serum of which 0.1 gr. is sufficient to neutralize ten times the fatal dose of toxin (for guinea pigs) and this they called "normal therapeutic serum." Of such normal serum one cubic centimeter was called the equivalent for one immunizing unit. According hereto a serum, of which 0.01 gr. is sufficient to neutralize ten times the fatal dose, would possess



ten immunizing units or would be a ten-fold normal serum, and so on. Ehrlich's experiments with normal serum in children, affected with diphtheria, showed that at least five hundred immunizing units are necessary to effect a cure, that is 50 gr. if the material is a ten-fold normal serum, or 5 gr. if it is a one hundred-fold normal serum.

Has the value of the serum once been established by a series of experiments as stated above, the animal is tapped for a larger quantity of blood which, being received in sterilized vessels, is placed on ice until coagulation has been completed and the serum been separated as a clean yellowish fluid. This with 0.5 per cent. carbolic acid now presents the material to be used for therapeutic purposes. The most suitable animals for which the serum may be prepared are horses and goats on account of their susceptibility, as well as because of the large quantity they are able to furnish.

Before speaking about the administration of the so obtained serum upon man, an item worth consideration may be mentioned. It is a matter of experience that in different individuals, even of the same family, diphtheria can produce symptoms materially different from each other. One child may at first present the common picture of angina, with white plaques on the tonsils, but will recover after a few days of discomfort. Another child may have laryngeal membranes which necessitate tracheotomy or intubation. A third one may show from the beginning on, a serious affection of the tonsils, throat and nose, with obstructions by thick membranes and suppuration, from the effect of which it can not be saved even by early tracheotomy.

These different symptoms have all originated from the same cause, the infection with diphtheria germs, but for reasons not fully explained apparently, however, depending upon individual disposition, the infection is followed by so different local and general effects. To establish the diagnosis under such different circumstances it would be necessary to make microscopic examinations. The question now is, In what cases will the administration of serum save the child? Starting from the fact, that the antitoxin must be given in certain proportions to the toxins present and that it works effectually only if the organism has not too long been preoccupied by the toxin it is evident that a curative effect can only be expected in an early stage or in a milder form of the disease. If the diphtheritic process already affects the bronchii and lungs, so that even tracheotomy is of no avail, the serum-therapy will do no better. Neither can recovery be secured if complications possibly due to infection with other germs have set in.

Equally doubtful is the prognosis if the toxins have circulated for a longer period, say three to four days because their paralyzing effect upon the nerves and ganglia of the heart can no more be eliminated. As, however, the application of the serum is an entirely harmless procedure it seems to be advisable to use it even in advanced cases, provided they are not perfectly hopeless. This has been made a principle in the antitoxin treatment in several hospitals of Berlin, with the effect that according to the latest report, the mortality of all cases has been reduced more than 20 per cent. Of 121 cases treated with serum, reported by Director Koerte, 81 or 67 per cent. recovered, while the average during the past four years was but 55 per cent. recovery. This sta-

tistic does not show as good a result as it would if the gravity of the present epidemic is taken into consideration. Of 106 cases not treated with serum on account of impossibility to obtain it, only 46 per cent. recovered which, compared with the 67 per cent. would give a reduction of 21 per cent. due to antitoxin. Much better even than this are the figures if the cases are classified according to their gravity:

Of forty-three very severe cases the result was 41.8 per cent. recovery, 58.2 deaths. Of forty-seven medium grave cases the result was 70.2 per cent. recovery, 29.8 deaths. Of thirty-one cases with but slight infection 97 per cent. recovery, 3 per cent. deaths. Of forty-two cases in which tracheotomy had to be performed 47.6 per cent. recovered, 52.4 per cent. died against but 25.5 per cent. recovery in former years. Equally good results have been reported from other experimenters in Berlin and Dr. Roux in Paris. In regard to the effect of the injections it may be emphasized that they are absolutely innocuous. After 5,000 injections but 3 abscesses have been observed. The temperature does not increase nor are other general disturbances noticed. Locally, a tenderness or a harmless skin eruption is sometimes observed which, however, disappears after a day or two. Concerning the effect upon the tonsils and throat, the white plaques at first seem to spread after the injections; on the second day, however, the mucous membranes discharge the infective material and the swelling of the glands is also reduced. Besides this local effect, a change in the general feeling takes place soon after the injection. Pulse and temperature return to normal condition in early cases within the first forty eight hours, dizziness and general weakness disappear, and the children soon become convalescents.

In case of a renewed increase of temperature, one would have to conclude that complications as a suppurative process or pneumonia are in progress. The effect of serum injections will not be pronounced, as mentioned, if either complications, for instance scarlet fever, are already present while the serum is applied, or the case is so far advanced that the toxins can not be neutralized. In such cases we have always to look for paralysis of the muscles usually affected, in spite of the antitoxin. The most preferable place for the injections is on the lateral part of the chest, below the axilla, where on account of the soft subcutaneous tissue even large quantities are absorbed. The application is made with the usual aseptic precautions.

The antitoxin prepared as advised by Behring in the chemic works in Höchst-am-Main is put in different flasks, hermetically sealed, which bear on the label a mark as to the efficacy of their contents.

No. 1 contains a serum with 600 immunizing units, to be applied only in fresh cases on the first or second day.

No. 2 possesses 1,000 immunizing units to be used in more serious cases on the first or second day or in less serious cases of longer standing.

No. 3. possesses 1,500 to 1,600 units, and is meant for adults or very severe cases of children. I have here the samples of antitoxin which are equal to No. 1 and No. 2 of the German preparation. As a rule, but one injection is given. If this, however, is found ineffective, another one should be applied the next day. It is usually unnecessary to give an additional treatment, either locally or internally; the only

thing advisable may be to cleanse the mouth with weak antiseptic solutions.

In case the serum is not intended as a curative, but as a prophylactic, the strength and quantity required is considerable smaller. In the average, 100 to 200 immunizing units are sufficient to protect a healthy child against the infection. How long such protection or immunity lasts has not been fully determined, and Dr. Kossel advises a re-vaccination, after three weeks, if the child is still exposed to conditions which allow the infection. Such small doses, however, would be sufficient only in case the child was not already in the period of intubation, which would place it under the class of an early stage. It sometimes may happen that children were infected, but for lack of visible symptoms do not get an adequate dose, in which case not the serum would have to be blamed but the mistake in sizing up the case.

In conclusion, I wish to say that these few practical remarks do not pretend to cover the subject of blood-serum therapy, and those who are more interested in this subject I take occasion to refer to a monograph on "Blood-serum Therapy and Antitoxins," issued January 1.

Everything considered, I believe we are on the eve of a revolution in treating infectious diseases, and perhaps other constitutional diseases, the nature of which was heretofore not understood, for lack of microscopic and bacterial evidence.

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## HYGIENE OF THE ANUS AND CONTIGUOUS PARTS.

BY J. RAWSON PENNINGTON, M.D.

CHICAGO.

My object in writing this paper is to call attention to some of the most important points of practical every-day hygiene, as applied to the anal region; which, if we observed more carefully, would materially reduce the number of cases of ano-rectal diseases.

Failing to heed nature's call to evacuate the bowels, or, when heeded to attempt, as soon as seated, to force or hurry defecation by bringing to bear all the power of the diaphragm and abdominal muscles and force the fecal mass, which frequently contains seeds and other substances, with sharp edges, against and through the sphincter without giving it sufficient time to become thoroughly dilated, is a very common and frequent source of these troubles.

Dr. Eastman says: "This inordinate *vis a tergo* as often retards as expedites the matter, for human muscle, like human character, resists force, and in the case of the muscle under consideration, if overwhelmed by violence many times yields, at last, at the expense of its elasticity, the destruction of the hemorrhoidal veins and the laceration of the mucous membrane."

Now, recalling the fact that, in addition to this violence, the mucous membrane is everted during the act of defecation and that printed paper, hard and rough substances are frequently used as detergents, is it any wonder, with such favorable conditions offered for infection, contraction and development, that these diseases are so prevalent?

The use of printed paper, which is so universally and promiscuously employed, should be condemned, and the pernicious effects which are liable to follow its continuous employment, thoroughly impressed upon the laity.

Many of these papers and inks are poisonous. Quite a number of the inks contain nigrosin, arsenic, Paris blue (ferrocyanic acid), and other irritants, and some of them, being charged so highly with these elements, are labeled "poison."

Who is not familiar with the fact, that fabrics dyed with anilin dyes frequently produce violent irritation when brought in contact with the unbroken cuticle, and in some instances are sufficiently virulent to induce constitutional effects? This being true, is there not more danger in bringing these dyes in direct contact with the delicate and oftentimes lacerated mucous membrane of the rectum and anus?

The use of the above articles for detergent purposes, the former by mechanical injury and the latter by depositing irritants upon the mucous membrane, or cutaneous surface near the verge of the anus, induces an inflammatory condition terminating in abrasions, fissures, ulcerations, or, as Mathews says, "may produce such a condition of the mucous membrane as will ultimately end in hemorrhoids, etc."

These pathologic conditions, plus the temporary constipation they produce, place extra duty upon the external sphincter, which causes it to become developed out of proportion to the muscles involved in expulsion, wherein we have a very common cause of chronic constipation, and this frequently induces ulceration of the rectum, or sigmoid flexure, or both; and, because of the peculiar nerve supply to these parts, this condition may exist for months or even years, without either physician or patient suspecting it, and the individual is constantly treating for mental and nervous troubles, dyspepsia, uterine, kidney, heart and many other affections, which are purely reflex and can be relieved only by detecting and curing the rectal or sigmoid affection.

To illustrate the effect of minor anal irritation, I will briefly append one case:

Mrs. D., age 28, was referred to me in May, last, by my friend, Dr. Pynchon, to be treated for piles. I elicited that her bowels moved every fourth or fifth day only, and then after having taken from three to five compound cathartic pills, which it was necessary to follow with a large dose of salts or an enema. Examination revealed a spasmodic sphincter, hemorrhoidal tendency and a few small abrasions around the anus. I prescribed an aperient, a local application and advised frequent bathing of the anus. In a few days her bowels became regular, moving daily, and have continued so without further medication. Suffice it to say, that her general health materially improved.

The writer wishes not to be understood as saying that all vague or reflex troubles are due to rectal disorders; at the same time, however, he insists that emphasis must be placed on the undeniable fact, that *in the rectum exists the pathologic condition for more diseases than credit is given.*

Paper to be used as a detergent should be of a firm, smooth, soft and pliable quality and free from ink and other poisonous ingredients. There is nothing better in this line than pure tissue. Competition and demand, however, have caused the manufacturers to place upon the market many cheap, hard, stiff and inferior papers which are not only more expensive, but are not fit for use and should not be employed.

Another point, which I consider of very great importance, and one that is almost totally ignored, is regular anal ablutions.

Mr. Allingham in referring to this subject, says: "Many people seem to forget that the anus requires quite as much washing as any other part of the body."

Mathews, in referring to patients with a predispo-

sition to hemorrhoids, says: "These patients should be instructed that any irritant to the parts, such as printed paper, as a detergent, should be avoided, and above all that a cold ablution of the parts should be made after every act of defecation."

Kelsey, in such cases, advises the free use of cold water to the parts at least once a day, and further says: "This is the best tonic, astringent and anodyne of which I have any knowledge, and its habitual use would prevent a very considerable portion of all hemorrhoidal difficulties."

The same general advice is also given by Cooper and Edwards. Hence, the consensus of opinion of eminent authorities is, that the anus should receive frequent and regular ablutions, and the Bidet, Fig. 1, to which I shall presently refer, is superior to all other devices for this purpose. Yet, notwithstanding the preponderance of evidence, very few of our water-closets are provided with any appliance for this important part of the toilet!

The Bidet, above referred to, made by J. L. Mott & Co., is readily attached to any water-closet, and is so constructed that the anus and contiguous parts may be thoroughly drenched with hot, cold or tepid water after each evacuation of the bowels; and by attaching a vaginal pipe, since the force of the jet and temperature of the water are easily controlled, it becomes a useful apparatus for vaginal injections.



PLATE 1098-G  
Copyright, 1894, by THE J. L. MOTT TOOL WORKS.

A simpler arrangement, however, and one that would answer most all purposes quite as well, is a miniature wash bowl fastened to the wall or otherwise, at the rear and on either side of the closet basin, near the seat. This basin is supplied with hot and cold water and has a waste connected with the closet bowl, that can be raised or lowered at will. From the tap, lint, fabric or tissue paper may be dampened for use, after defecation, or the waste closed and the bowl filled with water which may be medicated before using, if desired. No well appointed private water-closet is complete without some provision being made for this part of the toilet.

I find, upon inquiry, that many ingenious ways are devised for cleansing and bathing this portion of the human anatomy. Some soak a few pieces of toilet paper in the wash bowl of the bath-room; others flush the closet basin, then dampen some paper, for cleansing the part, in the water with which it refills. In both instances it is very inconvenient, and in the latter there is much danger of infection, and I should be inclined to look upon it as a rather unsavory procedure at best.

Heeding nature's call to evacuate the bowels, using paper of the quality above advised and keeping the anus and contiguous parts clean, by daily ablution, guards against chafing, filth, eczema, pruritus, fistula, piles, constipation and a host of other troubles, which are a frequent cause of many chronic constitutional diseases. It also prevents soiling of the linen, which to the sensitive and delicate-minded person is a source of great annoyance.

103 State Street.

## THE RIGHTS AND DUTIES OF MEDICAL WITNESSES.

Read before the Mississippi Valley Medical Association, Nov. 21, 1894

BY HON. W. S. KERR.

MANSFIELD, OHIO.

The scope of this paper carries us to the gate of medical jurisprudence, and a little beyond, but I do not enter far its inviting domain. I deal largely with the rights of physicians and surgeons when subpoenaed as expert witnesses, and with the duties incumbent upon them as members of a learned and honored profession when they are called upon to testify as medical experts.

Medical witnesses have been extravagantly eulogized and unmeasurably condemned by courts and law writers. They merit both the eulogium and the condemnation. When they traffic in their evidence and appear as hired advocates the condemnation is just; when they appear as members of a great and enlightened profession, to aid in the administration of the law, and testify conscientiously, no tribute is undeserved.

The weight of medical expert evidence depends upon two qualities: 1, the skill, learning and experience of the witness; and 2, his honesty. The latter quality can be and should be alike in all; the former, in the nature of things, must vary and differ in degrees almost infinite in number. A physician whose practice has been confined to the small towns or the country could not be an Ericsson, nor one of three years' experience an Agnew. But all are admitted to testify to those things which they have studied and practiced, and the cause of truth and justice demands that according to their lights they should testify the truth, the whole truth and nothing but the truth. It should be recollected that not only the spirit but the form of the oath covers an opinion as well as facts testified to by expert witnesses. I do not want to lecture or read a homily on duty to the medical profession, but the following extracts from court opinions and eminent law writers will not only justify the few observations I have made, but will also show how your high standard has been lowered here and there along the line, by testimony calling out these criticisms. But that you may see how well the line has been held at other points, I quote alternately censure and praise, or, as earlier suggested, condemnation and eulogium.

A Scotch judge of that rugged integrity characteristic of his people, once said to a jury, referring to the medical evidence submitted on the trial: "The evidence is as unsatisfactory as any I have ever seen. It leaves on the mind the distressing impression that the science of medicine is simply the science of guessing and experts. Different doctors with equal confidence and equal dogmatism, express contrary opinions upon the same condition of things. I advise

the jury to exercise their common sense, throw overboard the medical opinion and go by the facts."

A Texas court once said: "The opinions of medical men are received with great respect and consideration, and properly so."

Judge Redfield in his treatise on the law of wills says: "Medical experts are beginning to be regarded much in the light of hired advocates, and their testimony nothing more than a studied argument in favor of the side for which they have been called. So uniformly has this proved true, in our limited experience, that it would excite scarcely less surprise to find an expert called by one side, testifying in any particular in favor of the other side, than to find counsel on either side arguing against their clients, in favor of their antagonists."

The Supreme Court of Pennsylvania says: "It is well settled that the knowledge and experience of medical experts is of great value."

An Ohio court said in reference to evidence in a murder case: "It would be but a farce to try such a question upon the strength of medical opinions, and to regard the weight of evidence always on the side which produced the greatest number."

The Supreme Court of North Carolina says: "The opinion of a well-instructed and experienced medical man upon a matter within the scope of his profession, and based on personal observations and knowledge, is and ought to be carefully considered and weighed by the jury in rendering their verdict."

The Illinois Supreme Court says: "These doctors were summoned by the contestants as 'experts' for the purpose of invalidating a will deliberately made by a man quite as competent as either of them to do such an act. The testimony is worth but little, and should be received by courts and juries with great caution. . . . It must be apparent to every one, but few wills could stand the test of the fanciful theories of dogmatic witnesses. . . . In such cases the opinions of neighbors, of men of good common sense, would be worth more than all the experts in the country."

The Ohio Supreme Court says: "Medical testimony is of too much importance to be disregarded."

Mr. Justice Grier, of the United States Supreme Court, said in delivering an opinion: "Experience has shown that opposite opinions of persons professing to be experts may be obtained to any amount."

The Georgia Supreme Court in speaking of medical evidence says: "It is entitled to great weight and consideration."

Judge Campbell, of the Michigan Supreme Court said: "The experience of courts with the testimony of experts has not been such as to impress them with the conviction that the scope of such proofs should be extended."

Thus has the shuttle of criticism, favorable and adverse, gone to and fro, weaving in the warp and woof of jurisprudence, the history of the medical witness. In the court-room he has won laurels for his profession—in the court-room he has brought reproach upon its fair name and fame. But it should be remembered that the medical expert is not the only expert whose testimony has been the subject of unfavorable judicial comment. Other experts appear quite as frequently as do physicians and surgeons, and when their evidence has been afflicted with the same vice it has been similarly characterized.

To avoid this just censure, opinions should be re-

garded as facts stated under the solemnity of an oath, and not as arguments to be urged in behalf of the side calling the witness. Opinions can not be measured in reference to their soundness, as facts can be squared to accord with the truth; there must be more latitude to give room for the difference in mental processes and impressions, but they have boundaries, or else there is no exactness in medical science. Exactly opposite opinions upon the same hypothesis proves one of two things—either that the witness lacks veracity or knowledge, or that the science is too elastic to be the measure of important rights.

Courts have been called upon to unfavorably criticize medical witnesses in respects other than in reference to opinion evidence. An investigation involving the condition and position of organs which can be examined physically and ocularly, ought not to differ materially in the result. The evidence of such examination and result presents facts and not opinions. A case illustrating this point, and in which I was engaged as counsel, came under my own observation. A woman sued a municipality for damages. She claimed to have prolapsus of the uterus from a fall upon a sidewalk. During the trial eight physicians examined her—four at one time and four at another, but all within an hour or two. Four testified that her condition, in respect to the matter complained of, was entirely normal.

The other four, and their examination had been contemporaneous, testified as follows: One said he found the position of the organ abnormal in that it leaned too far back; the second that it leaned too far to the right; the third that it leaned too far to the left, and the fourth, a Nestor in the profession, said he found it too straight up.

Another case tried recently in an Ohio court illustrates how physicians may fall short in making the test which more than any other would measure the capacity, which is always the desideratum in such investigations. An application was made for the appointment of a guardian for a man who, in the meridian of his powers, was one of the most celebrated physicians and surgeons in Ohio, upon the ground that he had become an imbecile, and was incapable of managing his business. Three of the most celebrated and able mental alienists in the State testified to his soundness of mind and his capacity to do business. Their investigations, although made with ample opportunity, were limited to conversations upon subjects relating to events long past or about items of property which he had possessed for years.

An order of the court was made to examine the alleged imbecile and such examination was made. Two very simple tests did more to solve the question of incapacity than all the expert evidence. He was told to add a column of five figures. The first three were added correctly but he could add no farther. He was next given \$1.77 in change, consisting of seven or eight pieces and although he was able to designate the pieces, after considerable effort, he was unable to tell the aggregate. A man capacitated to do business should be able to add five figures and count a few pieces of money.

The cases in which the physician is called upon to aid the law are legion. If I were to undertake to enumerate them, the schedule itself would extend beyond the reasonable limits of a paper. Judicial



history shows that the physician as an expert witness, shines brightest or suffers the most serious discomfiture in cases of insanity and poisoning. Both of these afford a broad field for the exhibition of brilliant professional learning and acumen, and in legal investigations usually attracting large public interest and attention. They are fields worthy of any man's conquest even though he has to burnish his weapons by the light of a midnight lamp.

It should be recollected, also, that it is only in doubtful cases where the medical witness becomes an auxiliary to the law. He should not only be able to describe and classify the subject about which he testifies, according to the science of his profession, but he must bring his knowledge down to the comprehension of the twelve ordinary men who sit in the jury box. Because, however learned he is, if those whom he is to enlighten fail to comprehend him he has failed of the object and purpose of his being a witness. In measuring the duty of the medical witness it should be borne in mind that the majority of medico-legal questions are beyond the field, and lie far outside the every-day path, of most physicians. Nineteen-twentieths of their practice, medical and surgical, never relates to a matter which is the subject of litigation. It requires study, much study, to be a giant in any profession. Those who wait until the case presents itself, before fitting to try it or treat it, gather only withered leaves and faded flowers for their victor wreaths. That the daily practice of a doctor does not bring him into contact with the insane, is no reason why he should not possess, at least, the book learning of the subject. He may not be called once a year to treat a case of poisoning, yet he should know the various poisons, their peculiar effects and symptoms and be able to make the distinctions which science enables those to make who have tarried long enough at her fountains. It is to the advantage of a physician, if he never earned a dollar in this field, to be accomplished in legal medicine. It is a part of his profession and one who succeeds in a profession is one who explores with the lamp of industry its every branch and recess, and who comes to the discharge of its every duty with a mind capable of not alone comprehending, but of applying correctly its principles.

Necessity brought into requisition the medical expert. Frequently the courts would encounter questions of fact which all the knowledge of lawyers and judges and the common sense of juries could not solve satisfactorily. If those questions related to the human mind or body, who better could assist in making light that which was dark and mysterious, than the learned physician? So he was added as a spoke in the wheel of justice, or a wheel in the machinery of the law.

Mental alienation is a broad and inviting study. Men have spent their lives and become famous in the field and yet have not conquered half its difficulties nor solved half its mysteries. But this should not discourage the physician from devoting a little time, stolen from the daily grind, to its study. Like the bread cast upon the waters it will come back to bless him. Any doctor may be subpoenaed at any time to testify as a medical expert. Doctors as well as lawyers, and perhaps members of other professions, are judged by a standard fixed by a misconception and this misconception is deeply rooted in the common mind. In general under-

standing, both law and medicine are supposed to be made up of certain fixed and unvarying rules, which when applied will solve every question and dispute and determine every diagnosis and the treatment. It is further believed that every doctor and lawyer should be able at any moment to pick up one of these rules, as a carpenter would his measure, and settle the question or tell the disease at sight. We know that these are mistaken ideas. I am not competent to speak as to medicine, but as to law, it is not so much to know the law as to know where to find it. But in general estimation a doctor, when put on the stand, is expected to shed broad light upon any subject connected with medicine and if he is not able to do so or at least appears not to be able, not only his professional dignity but his professional standing and usefulness suffer.

Physicians are brought into court to testify as to the identity and ages of persons. The Tichborne case, as to the identity of the claimant, is one of the most interesting judicial records of the world. They are asked to give opinions as to probable survivorship where persons have died at near the same time and the course of inheritance depends upon the order of death. They are required to testify as to the age of puberty and to determine the most delicate and important questions in cases involving capacity to commit rape and paternity proceedings. In cases of criminal abortion, multitation, homicide, infanticide, defloration, wounds, impotency, sterility, pregnancy and in scores of other cases and upon scores of other questions, the physician is a valuable, an indispensable auxiliary in legal proceedings, civil and criminal.

A learned legal authority says: "The jury are to be enlightened in every possible way, and as they are not selected with a view to their qualifications to try the particular issues before them, but as men possessing the ordinary qualifications of mankind, when questions arise to be determined by them, involving an acquaintance with facts not coming within the ordinary range of human experience, skilled witnesses are permitted to enlighten them. The true rule is that when the subject to be investigated so far partakes of the nature of a science or trade as to require a previous course of study or habit in order to attain a knowledge of it, opinions of experts are admissible."

In legal controversies, turning upon, or involving the condition of mind as to soundness or unsoundness, the most important as well as the most difficult questions are largely determined by medical evidence. The physician is able, as no one else can, to physically and mentally measure the man. A man may not be able to manage his business affairs and still be responsible for crime. In criminal proceedings the supreme test is the ability to distinguish between right and wrong. This would seem a very simple and easy rule, but in its application to actual cases it calls into requisition all the acuteness and learning of both professions and in spite of all their acuteness and learning many an insane person has been executed for crime and many an offender has escaped just punishment upon the mistaken finding that he was insane. And it is no reflection upon law or medicine that this should be so. The most difficult problem with which courts and lawyers and doctors have to contend is that of real or alleged mental aberration in criminal cases and especially in capital cases. Many cases present the defense of

insane impulse. The person charged being concededly sane, immediately before and immediately after the commission of the act. Such was the shooting of Key by Sickles. Sickles was a Congressman and eminent in public life. Key had done him a great wrong. Upon sight of Key and under the impulse of his wrought up feelings the latter was shot dead in one of the public parks of the National Capital. The defense was that his condition of mind at the moment rendered him incapable of controlling the natural impulse to destroy the destroyer of his home. He was acquitted.

The Mary Harris case tried in Washington during the war was a celebrated case and presented clearly the difficulty, which medical experts encounter and, as well, the duty which they must discharge when a life, especially that of a woman, is at stake. The defendant shot a man to death in the Treasury Department and her defense was insane impulse. She was defended by most able counsel, among them being Senator Voorhees, then a Member of Congress. Eminent medical experts testified on both sides. While she was imprisoned, Mrs. Lincoln sent her a bouquet of rare flowers and within a year or two last past she was married to her senior counsel. She was acquitted upon the ground that at the moment of the shooting she was incapable of controlling the impulse under which she destroyed a human life.

A further illustration of this kind of evidence is in cases where, although the person charged with an offense is insane, it is claimed that either he still retained enough mental power to distinguish between right and wrong, or that the act was committed during a lucid interval. The question of responsibility may turn upon a brief interval of time.

Again, in civil cases, some of the most important, delicate and interesting questions, as to mental capacity, have arisen in contests of wills. The mental capacity is frequently complicated with undue or illegal influence and thus compounded make contests in which fame may be achieved by medical experts.

And still again, difficult questions as to mental capacity arise in proceedings to appoint guardians for persons alleged to be imbecile or insane. I believe medical authorities define an imbecile to be one idiotic but not born such. An old legal authority provided this test: "A person who has understanding enough to measure a yard of cloth, number twenty correctly or tell the days of the week is not an idiot in the eyes of the law." But in these days of asylums for the feeble-minded, institutions in which idiots are taught to do these things and many more, this test of responsibility or capacity would hardly be received as conclusive. And in all such cases judges, calling to their aid medical gentlemen as expert witnesses, must unravel the tangles.

Cases in criminal poisoning usually have about them the interest of mystery. In a great majority of these cases the evidence to convict or exculpate must come from the medical profession. The most important witness is usually the attending physician, and very much depends on how carefully he has noted and how clearly he can describe the symptoms. The chemist can analyze in search of the poison, but only the doctor can preserve the symptoms and appearance.

Doctors are frequently called into court, not simply as witnesses to give an opinion but to testify

to technical facts, the knowledge of which was acquired by them in the confidential capacity of attending as a family physician and in aid of or against persons thus employing them. Under the common law the communications made by patients to their physicians were not privileged. Most of the States by statute have provided that such communications shall not be given in evidence if the patient objects. The privilege is that of the patient and not of the doctor. But in order to exclude them they must be made about something necessary to be disclosed in order to prescribe the remedy or treatment.

I have reserved for the last, a brief reference to the law regarding the right of medical experts to receive or demand extra compensation before testifying. If they are subpoenaed to testify to facts which came under their personal observation, their rights are not different from those of any other witness. They are bound to obey the summons of the court and if they neglect to do so, they would be subject to punishment as for contempt of court. I think, as a general proposition and in the first instance, physicians are obliged to appear in court when subpoenaed and paid or offered the ordinary fee, and that their right to raise the question does not present itself until they are propounded questions calling for opinion or scientific evidence and then the question arises hereinafter discussed. This may seem to fall short of what an expert ought to be able to demand before going to court, but the reason of the proposition lies in the difficulty of determining beforehand the kind of evidence to be elicited. If it was conceded at the outset that opinion or expert evidence alone was to be sought, then I think the right to demand extra compensation would exist before answering the subpoena or at least before going upon the stand.

Some of the States by statutory provision, have settled this question. North Carolina as follows: "Experts when compelled to attend and testify shall be allowed such compensation and mileage as the court may, in its discretion, order."

Iowa as follows: "Witness called to testify only to an opinion founded on special study or experience in any branch of science or make scientific or professional examination, and state the result thereof, shall receive additional compensation, to be fixed by the court, with reference to the value of time employed and the degree of learning or skill required."

Rhode Island as follows: "In addition to the fees above provided, witnesses summoned and testifying as experts in behalf of the State before any justice of the Supreme Court, trial justice or coroner, may be allowed and paid such sum as such justice of the Supreme Court, trial justice, or coroner may deem just and reasonable; provided, that the allowance so made by any trial justice or coroner, shall be subject to the approval of a justice of the Supreme Court."

Indiana has settled the matter the other way and as follows: "A witness who is an expert in any art, science, trade, profession or mystery may be compelled to appear and testify to an opinion as such expert, in relation to any matter, whenever such opinion is material evidence relevant to any issue on trial before court or jury, without payment or tender of compensation other than the per diem and mileage allowed by law to witnesses, under the same rules and regulations by which he can be made to appear



and testify to his knowledge of facts relevant to the same issue."

In States where no express provision has been enacted the question is still an open one, unless some court of authority has fixed a rule. Some of them have, as hereinafter stated. No expert is required, whatever the rule is, to make examinations and prepare to testify in behalf to a party to a suit without such compensation as may be agreed upon. He might be required to do so if appointed by a court as a commission or committee in cases where the court had authority to make such appointment. He can not be compelled to attend the progress of a trial in order to enable him or qualify him to give opinions as to questions involved.

The reasons are all in favor of extra compensation. Authoritative writers on medical jurisprudence have set them forth as follows: I quote from Ordronaux: "It is evident that the skill and professional experience of a man are so far his individual capital and property that he can not be compelled to bestow it gratuitously upon any party. Neither the public, any more than a private person, have a right to extort services from him, in the line of his profession, without adequate compensation. On the witness stand, precisely as in his office, his opinion can be given or withheld at pleasure; for a skilled witness can not be compelled to give an opinion, nor committed for contempt, if he refuse to do so."

I quote next from Beck's "Medical Jurisprudence:—" "If the duties on which I have enlarged are important to the community, in promoting the proper administration of justice, ought not the individuals engaged in them to receive adequate compensation? I advert to this not only because it is just in principle, but because it would remove all imputation of volunteering in criminal cases; no one can refuse being a witness when legally summoned; every one, I presume, may decline to dissection of a dead body, or the chemic examination of a suspected fluid and yet there is not, I believe, an individual attending on any of our courts, who is not paid for his time and services, with the exception of such as are engaged in these investigations."

These authors are physicians and it may be reasonable to subtract a little from their enthusiasm, but notwithstanding, they state cogently reasons which ought to determine the rule. A good deal of learning has been expended in discussing whether the rule should rest upon the theory than the time of an expert was more valuable than that of an ordinary witness, or that upon the theory that his opinions, skill and experience are his property of which he can not be deprived without adequate compensation. The latter theory has prevailed universally where extra compensation has been authorized and it is the only tenable basis.

In a Massachusetts Federal Court in a criminal case, the district attorney moved to attach a witness as for contempt, who had failed to appear when subpoenaed as an interpreter. It is not an exact parallel but the reason is the same. The court declined to issue the writ and in the refusal is reported as saying: "A similar question has heretofore arisen and I have declined to issue process to assist in such cases. When a person has knowledge of any fact pertinent to the issue to be tried, he may be compelled to attend as a witness. . . . But to compel a person to attend because he is accomplished in a particular

science, art, or profession would subject the same individual to be called upon in every cause in which any question in his department of knowledge is to be solved. Thus the most eminent physician might be compelled, merely for the ordinary witness fee, to attend from the remotest part of the district, and give his opinion in every trial in which a medical question should arise. This is so unreasonable that nothing but necessity would justify it."

One of the Federal Circuit Courts of this State (Arkansas) has decided the question in favor of the right to demand extra compensation before testifying to matters of expert knowledge. The court said: "The skill and professional experience of a man are so far his individual capital and property that he can not be compelled to bestow them gratuitously upon any party."

The Court of Appeals of Texas held the opposite rule upon the peculiar facts of the case. A physician was placed upon the witness stand and testified without objection to the facts which had come under his personal observation; when it came to his opinion as to the cause of the man's death he declined to answer without other compensation than the ordinary witness fee. The trial court sustained the physician, but the Court of Appeals held that inasmuch as he had already made the *post-mortem* examination he should give his opinion.

The Supreme Court of Indiana, before the passage of the statute denying the right to extra compensation, decided the question the other way, and in the opinion used the following language: "When a physician testifies as an expert giving his opinion he is performing a strictly professional service. So does the lawyer, when he performs any services in a case. The position of a medical witness testifying as an expert, is much more like that of a lawyer than that of an ordinary witness testifying to facts. The purpose of his service is not to prove facts in the case, but to aid the court of jury in arriving at a proper conclusion from facts otherwise proved."

The English rule is well settled in favor of extra compensation. Justice Maule in one case saying: "There is a distinction between the case of a man who sees a fact, and is called to prove it in court of law, and a man who is selected by a party to give his opinion on a matter on which he is peculiarly conversant from the nature of his employment in life. The former is bound as a matter of public duty to speak to a fact which appears to have fallen within his own knowledge. The latter is under no such obligation; there is no such necessity for his evidence and the party who selects him must pay him."

Alabama has denied the right; other States may have done so, but the cases have not come under my observation. Upon the reason of the thing one wonders why courts have divided upon the question. An expert is one who by study and practice, skill and experience has acquired peculiar knowledge of a certain subject or matter. He arrives at his knowledge by a process akin to that through which property is accumulated, and it is as valuable as property. The latter receives the protection of constitutional provision, and is guarded as sacredly as life and liberty. Yet knowledge, by these adverse decisions, is treated as commons upon which judicial stock may graze at pleasure.

The evidence of an expert should be compensated for commensurate with its value. In criminal cases

the amount should be fixed by the court, in civil by agreement between the expert and the party calling him. The medical expert should never have his opinions for sale. Fidelity to his profession and its great principles should be his pole star. Medicine is the greatest of the worldly professions. It deals with life and health, the dearest possessions of this sphere. For years, if not in substantial honors yet in general estimation, it has been honored above all. Its members have ornamented the most exalted stations, and in its daily work, without herald or drum beat it modestly performs its great task in life. I am highly honored by being admitted, for this brief time, within the precincts of your order.

ORIGINAL INVESTIGATIONS ON THE  
NATURAL HISTORY, (SYMPTOMS  
AND PATHOLOGY) OF YELLOW  
FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.  
NEW ORLEANS, LA.

(Continued from page 10.)

CHAPTER III.

**Algid Form:**—"As a general rule, the vascular action was much below par in the algid form. I have observed cases in which the radial pulse was imperceptible for days; more commonly, however, the pulse at the worst, though excessively feeble, was not altogether obstructed, and by a delicate and practiced finger it could be felt and counted. Its rate was variable, more commonly below than above 100 per minute. I have noted it at 80, very fine, thready, weak and readily extinguishable, and at almost all intermediate rates to 120, with much the same character. The cardiac action was very feeble. I have not observed any diminution in the relative proportions of the first and second sounds of the heart; they were often diminished in tone and force, but preserved their relative characters of duration and intensity. I have not observed any want of accordance between the cardiac action and that of the arteries in the algid form, such as I shall have to speak of subsequently when treating of some of the other forms. In general, in this form the radial pulse could be taken as a measure of the cardiac action. When the pulse was feeble, the heart was likewise proportionately so. There was no exception to this rule, as my experience of the cases goes (p. 260).

**"Sthenic Form:**—This class of cases generally exhibits from the outset a remarkable elevation of temperature. It is common to find an increase of 3 degrees, 4 degrees or even 5 degrees Fah., and in some instances an increase of nearly 7 degrees has been observed. We have noted the thermometer in the axilla at 102 degrees, 103 degrees, 104 degrees, and in some instances it nearly touched 105 degrees Fah. This limit I have not actually seen reached in any case, though the mercury in some instances rose considerably above 104 degrees. (The instrument employed, an English one of the kind commonly used for hospital purposes, did not admit of more minute or accurate reading than by whole degrees (p. 266.)

**"Rate of the Pulse in the Sthenic Cases:**—The pulse, though often full and expanded, and occasionally hard and thrilling in this form, commonly ranges but little above 100 or 110 beats per minute. I have

noted it in some cases at 112, 114, and in very rare instances so high as 120. In general, when the pulse runs above 115, the case passes into a low and typhoid state; on the other hand, I have seen well-marked pyrexia with a pulse at 60. It has fallen to 100, 90, 80, and even 70, and in two instances to 60, without very well marked diminution of the other pyrexial symptoms; in these latter instances it has always retained its force and expansion. Thus we not unfrequently have the combination of a pulse at 70, 80 or 90, or in general terms, under 100, while the thermometer in the axilla shows a persistent temperature above 100 degrees Fah.

"The following combinations of pulse rate and temperature were observed in the course of my investigations into the Lisbon epidemic; they are selected to show the absence of harmony and the frequent contrasts presented by the two sets of phenomena:

TABLE OF PULSE RATE AND TEMPERATURE.  
(Thermometer in axilla.)

Case.	Pulse.	Temperature.
1. . . . .	113 per minute.	102.0° Fah.
2. . . . .	100 "	100.0 "
3. . . . .	112 full.	104.0 "
4. . . . .	104 "	103.0 "
5. . . . .	92 "	101.0 "
6. . . . .	100 "	103.5 "
7. . . . .	104 "	103.0 "
8. . . . .	100 "	104.5 "
9. . . . .	84 "	99.0 "
10. . . . .	70 "	100.5 "

"From this table it will be seen that the highest pulse rate and the highest temperature did not correspond. On the contrary, the highest pulse at 113 had only a moderate degree of elevation of the thermometer, 102 degrees, while the pulse at 100 gave the highest temperature, and the lowest pulse rate, that at 70 beats per minute, was attended by coloration and an elevation of the thermometer to 100.5 degrees. There was, therefore, no constant uniformity of relation between the two sets of phenomena (pp. 270, 271).

**Hemorrhagic Form:**—I can testify to the statement, that in this form the yellow coloration constantly appears during the primary pyrexial state and while it is at its height, with the pulse over 100, and the thermometer in the axilla registering 101 degrees, 102 degrees, or even 104 degrees, the thermometer indicates generally a less considerable elevation of temperature in the hemorrhagic than in the sthenic cases. I have observed the pulse at 92 degrees and the thermometer at 101 degrees Fah. in a most characteristic well-marked hemorrhagic case. The pulse subsequently rose to 100, and 104 degrees in the same case, with elevations of the thermometer to 103.5 degrees and 103 degrees respectively, coloration of the skin being present to a marked extent. I do not, however, think that the temperature is generally so high in this class of cases. I believe that as a general rule the temperature in the hemorrhagic cases is from 2 degrees Fah. under that in the sthenic form. The transition from the sthenic to the hemorrhagic form is sometimes marked by a diminution in the rate and volume of the pulse, and a lowering of the thermometer; the patient's strength sinks rapidly at the same time, and in some cases a clammy sweat bedews the face for one or two days. This state of things is followed by, as it were, an explosive and universal lesion in the vascular system, leading to profuse hemorrhages at all available points of the cutaneous and mucous surfaces (pp. 274, 275).

"State of the Pulse:—I have nothing to record of a characteristic or peculiar kind in reference to the pulse. It is commonly less frequent than in the sthenic form, but has perhaps more of fullness and expansion, while its force is less. I have carefully noted the condition of the pulse in numerous cases, and in no one instance have I met with anything approaching to the dicrotous character either before or during the height of the hemorrhagic invasion; and that it was a very rare condition in the Lisbon epidemic is evidenced by the circumstance that in the large experience of Dr. M. Figueira, and of the physicians to the Desturo Hospital, it was presented but once; this observer could call to mind but one single case in which the pulse presented a well-marked dicrotous beat.

"The rate of the pulse is variable; it is commonly over rather than under, 100 per minute. It is most generally full, soft and responsive, and wanting in force and rebound. These, it will be observed are not very positive characters; but in such were presented in the great majority of cases observed by me.

"The pyrexial state is evidenced more decidedly by the state of the thermometer, which is usually over 100 degrees Fah. There is much variety in this respect; but what is important, and what can be positively stated, is that the hemorrhages occur during the pyrexial period, and with elevation of the pulse, and the thermometer above the standard. Thus we have seen them presented with characteristic force and intensity, while the pulse was at 100, and the thermometer in the axilla stood at 103.5 degrees; but this latter is unquestionably an exceptional elevation for the form of the disease now under consideration (pp. 376-377)."

My own investigations on the variations of temperature in different animals and in man under the action of various poisons and conditions of health and disease, and of climate, starvation and repletion, were begun in 1854, and have been continued without interruption up to the present time. The opportunities of recording observations on the pulse, respiration and temperature in various diseases were greatly enlarged during the recent Civil War (1861-1865). In 1870, a special monograph relating to yellow fever was transmitted to the AMERICAN MEDICAL ASSOCIATION, and in 1873 I endeavored to excite various observers in those cities in which yellow fever was prevailing, as in New Orleans, Memphis, Shreveport and Pensacola, to record critical observations on the changes of the pulse, respiration and temperature of the disease. The results of the portion of these labors which relate more especially to yellow fever will be found in the present chapter.

The temperature according to Schmidlein,<sup>38</sup> is highest in the first few days of yellow fever, and very often reaches a height of from 40 to 41 degrees C., (104 to 105.8 degrees F.) Very frequently with slight evening exacerbations. From the fourth to the fifth day the temperature slowly falls, and sinks down to normal or even below this. In cases which end fatally, it rises again toward the end, some 2 degrees C. (3.6 degrees F.) or even more.

According to Dr. William N. Nixon,<sup>39</sup> during the recent fatal epidemic of yellow fever in Buenos Ayres, 1870-1871, a high range of temperature was rapidly attained, and maintained with the exception of dif-

ferences of portions of a degree between the night and morning temperature, the night returns being slightly higher than those of the preceding morning; the decline was quite gradual.

I have refrained from citing the general observations of numerous writers, as Rush, Louis and a host of others, as to the presence of heat of surface in yellow fever, for they possess but little value for purposes of critical diagnosis, and confer little or no power of distinguishing between this disease and several other forms of malarial fever. We have sought rather to record the actual observations with the thermometer. A similar course will be pursued with reference to the changes of the pulse in this disease.

The fullest and most reliable observations upon the pulse in yellow fever, with which we are acquainted, are those given by Daniel Blair, in his account of the last yellow fever epidemic of British Guiana, 3d edition, London, 1852. According to this accurate observer: "The pulse was rarely very quick during any period of the disease. It was highest in the first stage, and gradually declined in frequency. Before death it generally became quicker and smaller, and when much fluid ejection occurred, it became extinct at wrist many hours before death. During convalescence the pulse was uniformly slow when no complication existed. The pulse was quickest in the cerebral variety. In some cases when the disease determined to the intestines, the pulse became startlingly slow, even on the second day of the disease; thus in Mr. Mackae's case it was 48; he recovered. In Case 2,895 of Seaman's Hospital, the pulse on the sixth day of fever was 24. The insidious nature of some of the attacks (when the seat of the malady was the intestinal, urinary or pulmonary apparatus) the perfect care of the patient, the external air of good health, and the solemnity of the pulse in such cases, frequently inspired the practitioner with a kind of awe and horror of the new, treacherous and remorseless malady.

In some cases of yellow fever, it seemed as if the poison acted directly, and at once, as a sedative on the heart; and in some cases there seemed a sudden and temporary excitability of it, which must have been favorable to the production of fatal local congestions.

TABLE SHOWING THE AVERAGE PULSE ON DIFFERENT DAYS OF THE DISEASE WITH THE NUMBER OF OBSERVATIONS FROM WHICH EACH AVERAGE IS OBTAINED.

No. of Observations.	Day of Disease.	Average Pulse.
121	1	97.10
338	2	90.80
406	3	83.53
388	4	80.44
311	5	78.56
206	6	78.74
125	7	78.78
71	8	75.62
46	9	75.76
29	10	77.58
16	11	76.37
7	12	76.00
5	13	79.20

Remarkable differences in the pulse are sometimes observed at different periods of the day.

1. Examples of rising in frequency:

Case 5,211. Morning, pulse 84; afternoon, pulse 126.

Case 828. Morning, pulse 80; afternoon, pulse 108.

Case 1,318. Morning of fifth day, pulse 70; afternoon, pulse 100.

Case 986. Morning of third day, pulse 72; afternoon, pulse 120.

Case 1,506. Morning of third day, pulse 52; afternoon pulse 86.

<sup>38</sup>On the Temperature in Diseases, by Dr. C. A. Wunderlich, p. 405.

<sup>39</sup>London Medical Times and Gazetteer. 1871.

Case 2,053. Morning, pulse 100; afternoon of fourth day, pulse 150.

Case 2,215. Morning, pulse 112; afternoon of fourth day, pulse 156.

Case 2,215. Morning, pulse 92; afternoon of eighth day, pulse 134.

#### 2. Examples of falling in frequency:

Case 583. Morning, pulse 108; afternoon, pulse 54.

Case 985. Morning, pulse 100; afternoon, pulse 72.

Case 986. Morning of second day, pulse 120; afternoon, pulse 108.

Case 1,137. Morning, pulse 96; afternoon, pulse 64.

Case 1,277. Morning of second day, pulse 100; afternoon, pulse 64.

Case 1,278. Morning of fifth day, pulse 120; afternoon, pulse 80.

#### 3. Examples of the falling and rising suddenly:

Case 986. On second day falls from 120 to 108. On third day rises to 120 and again falls to 80.

Case 1,318. On fifth day rises from 70 to 100; falls to 80 on morning of sixth, and to 50 in evening.

Case 2,215. On fourth day rises from 112 to 156, and on eighth from 92 to 134.

The pulse is often observed to rise or fall suddenly in frequency shortly before death.

#### 1. Examples of its rising:

Case 381. On day of death, rises from 68 to 80.

Case 656. On day of death, rises from 58 to 72.

Case 2,080. On day of death, rises from 88 to 120.

Case 2,601. From 80 day before death to 110 on day of death.

Case 2,609. On day of death rises from 78 to 100.

Case 2,680. On day of death rises from 84 to 120.

Case 2,712. From 80 day before death to 124.

Case 2,775. From 100 day before death to 134. From 80 to 96 and 116 on day of death.

#### 2. Examples of its falling:

Case 367. From 130 to 98 day before death, and again rises to 120.

Case 656. From 84 to 54.

Comparison of adult pulses in convalescence from virulent yellow fever with adult pulses in cases convalescent from inflammatory diseases where no febrile action had existed. Made in Seaman's Hospital Sept. 10, 1843.

#### YELLOW FEVER.

Name.	Pulse.	
Fletcher. . . . .	50	Irregular
McLaren. . . . .	56	Regular
Wilson. . . . .	52	Regular
McTammany. . . . .	58	Irregular
Allen. . . . .	58	Regular
Total,	274	
Average pulse	54.4	

#### INFLAMMATORY CASES.

Name.	Pulse.	Previous Diseases.
Pease. . . . .	115	Bronchitis, emphysema
Harding. . . . .	102	Paracentitis
Hall. . . . .	102	Asthma, empyema
Power. . . . .	90	Paracentitis, cough
Tynas. . . . .	100	Suspected tubercular infiltration in right lung
Total,	509	
Average pulse	101.8	

#### ACCIDENTS AND AILMENTS WITHOUT FEVER.

Name.	Pulse.	Previous Ailments.
Purcell. . . . .	76	Muscular pain
Sinclair. . . . .	84	Eccentricity of conduct
Martin. . . . .	84	Paralysis
Bilan. . . . .	84	Ankylosis of knee joint
Johuson. . . . .	84	
Total,	412	
Average pulse	82.4	

NOTE.—It is to be observed that these remarkable differences in the frequency of the pulse are rarely accompanied by corresponding febrile exacerbations. Although the remarkable slowness of the pulse in convalescence from yellow fever was early observed, the following limited trial for comparison by me on the subject is believed the only one which has been made. The fact was observed before the experiment was instituted.

Dr. Davy remarks upon these observations in his notes to the work of Dr. Blair: "Slowness of pulse in connection with certain diseases of the abdominal viscera—not of an inflammatory kind, is worthy of remark. Jaundice is a striking instance of this kind; less marked ones are met with in cases of functional derangement of the primæ viæ, though not without exceptions." . . . "Unusual slowness of pulse was often observed in the yellow fever of Barbadoes, and commonly accompanied with undue coolness of skin, especially in the extremities; it was a remarkable feature of the disease after its first invasion,—the time varying in different cases. The author's private observations on this symptom appear to me to be very valuable (pp. 74-77). Recent observations in New Orleans have confirmed the accuracy of Dr. Blair's statement with reference to the slowness of the pulse in yellow fever—as will be seen by an examination of the following table—which includes the labor of several observers working wholly independent of each other.

Dr. Porcher of Charleston, Dr. Charles Faget,<sup>40</sup> Dr. Just Finaste, Thomas Layton,<sup>41</sup> Prof. Samuel Logan,<sup>42</sup> Dr. Miner,<sup>43</sup> of New Orleans, Drs. Saunders<sup>44</sup> and Mitchell<sup>45</sup> of Memphis, have recorded valuable observations on the changes of the temperature, pulse and respiration in yellow fever.

Dr. Charles Faget,<sup>46</sup> of New Orleans, who is well known to the profession in this country and in Europe, for the accuracy of his observations upon disease and for the depth and extent of his learning, has produced one of the most striking and valuable articles on the relations of the temperature and pulse in yellow fever.

Dr. Faget bases his conclusions on thirty-eight tables of cases, recorded during the yellow fever epidemic of 1870 in New Orleans, furnished as follows: Sixteen by Dr. Touatre, Physician to the French Asylum; some from the asylum, the rest from the city; seven by Professor Bemiss, all from the Charity Hospital, thermometer in the axilla; three by Dr. Layton, and twelve by himself; the last fifteen from the very focus of the disease. Drs. Layton, Touatre and Faget took the temperature in the patient's mouth, placing the thermometer between the gums and cheek. The main object of this article as announced by its author "is to prove that yellow fever is a fever of a *continuous* type, and that it takes its place as a *specific* fever, distinct from all other forms, and is especially to be distinguished from the *malarial species*."

Dr. Faget thus places himself in accord with a host of writers on yellow fever, from the time of Lining, of Charlestown, S. C., in 1754, to the present moment, including the names of Bally, Louis, Blair, Bennet

<sup>40</sup> New Orleans Medical and Surgical Journal, 1873.

<sup>41</sup> Reply to the Inquiries of Prof. Jos. Jones, of New Orleans, relating to the Temperature of Yellow Fever.—New Orleans Medical and Surgical Journal, March, 1874, p. 695.

<sup>42</sup> Bedside Notes on the Pulse, Temperature and Urine in Cases of Yellow Fever. Observed at Pensacola Navy-Yard, in the fall of 1874.—New Orleans Medical and Surgical Journal, May, 1875, p. 779.

<sup>43</sup> Yellow Fever Epidemic of Memphis, Tennessee, 1873, as observed by R. LeMennier, M.D., N. O. J. M., 1874, pp. 536, 656.

<sup>44</sup> Observations on the Yellow Fever Epidemic of 1873, at Memphis, Tenn. By D. D. Saunders, M.D. Prepared in response to the request and inquiries of Prof. Joseph Jones, M.D., of New Orleans.—New Orleans Medical and Surgical Journal, May, 1874, p. 791.

<sup>45</sup> Yellow Fever in Memphis in 1873. By R. W. Mitchell, M.D., of Memphis, Tenn.—Rich. and Louisville Med. Jour., May, 1874.

<sup>46</sup> Type and Specific Character of True Yellow Fever, as shown by Observations taken with the Assistance of the Thermometer, Science and Watch. By J. C. Faget, Member of the Société Médicale d'Observation. New Orleans Medical and Surgical Journal, 1873. The Type and Specificity of Yellow Fever, established with the aid of the Watch and Thermometer. By Dr. J. C. Faget of the Faculty of Paris. New Orleans and Paris, 1875.



Dowler and John Harrison, of New Orleans; and in opposition to the school founded by Bancroft and ably supported by Chervin and his latter day followers who confounded true yellow fever with certain forms of malarial fever.

(To be continued.)

## THE DISEASE OF INEBRIETY.

ITS STUDY FROM THE STANDPOINT OF THE EXPERIENCE  
OF AMERICAN PHYSICIANS OF EMINENCE WHO HAVE  
WORKED IN THIS FIELD OF RESEARCH.

BY EDWARD C. MANN, M.D.

NEW YORK CITY.

(Continued from page 21.)

ALCOHOLIC IDIOSYNCRASY.

Another class possesses an organization which may be termed an alcoholic idiosyncrasy; with them the latent desire for stimulants, if indulged, soon leads to habits of intemperance and eventually to a morbid appetite, which has all the characteristics of a diseased condition of the system, which the patient, unassisted, is powerless to relieve—since the weakness of will that led to the disease obstructs its removal. It might be well to divide inebriates into two other classes; the constant or daily, and the periodical drinkers. Of these two classes the constant drinkers are the most susceptible of treatment and cure. We find by a reference to the annual reports of the New York State Inebriate Asylum for the years, 1870, 1871 and 1872 the whole number of patients admitted during that time was 713. Of this number 402 were constant, and 311 periodical drinkers. Out of the whole number the hereditary taint, immediate or remote, existed in 347 cases, being nearly 50 per cent. As the two diseases, inebriety and insanity are closely connected in both their manifestations and results, nearly the same remedies, restraint and discipline are applicable to both conditions. Although inebriety is temporary insanity, those suffering from mania for drink should not be confined with the actually insane, for it would have an injurious effect, nor on medical and dietetic grounds is it advisable.

Prof. Austin Flint says: "Dipsomania is to be treated as a form of mental derangement." Dr. Joseph Parrish says: "Medical observations and diagnosis have determined that the diseased portion of the mind in cases of intemperance is the will, not the intellect. The inebriate knows, but is impotent to perform. For a better understanding of the requisite discipline demanded in the way of remedial restraint of inebriates, we notice some of the results of chronic inebriation, affecting more particularly the brain and nervous system—which in addition to the necessary medical treatment, necessitates strict discipline for the successful management of these cases. We have alcoholic epilepsy, alcoholic mania, delirium tremens, tremors, hallucinations, insomnia, vertigo, mental and muscular debility, impairment of vision, mental depression, paralysis, a partial or total loss of self-respect and a departure of the power of self-control."

We are warranted in repeating, even with more emphasis, the principles formulated by this Association (the American Association for the Study and Cure of Inebriety) at their first meeting in 1870, substantially as follows:

1. Intemperance is a disease.

2. Its primary cause is a constitutional susceptibility to the alcoholic impression.

3. The constitutional tendency may be inherited or acquired.

4. It is curable in the same sense that other diseases are.

It is now well established that inebriety is a formidable disease that may be inherited or acquired; and a disease that is closely connected with insanity in its manifestations and results, and to a certain extent in the means to be used for its removal and cure.

### MEDICAL TREATMENT.

The peculiar medical treatment to be pursued must be left wholly in the hands of the officer in charge, who should be an experienced physician, especially adapted for the position. He should be well informed in all matters pertaining to the disease, the treatment of which should be based upon a correct pathologic condition of the poisoning effects of alcohol on the different tissues and organs of the body, with a proper knowledge of the peculiar method to be pursued in individual cases, as well as a thorough understanding of the general practice essential for the cure of all inebriates. The practice in some institutions of letting down patients by degrees in the use of stimulants is decidedly impolitic, unless the patient is in a much debilitated condition and likely to sink. The general rule should be, cut off at once and altogether the use of alcohol in every form—more can be done by diet and medicine than can be obtained by a compromise in the moderate use of stimulants for a limited period. It is a mistake to suppose that any special danger arises from stopping the accustomed stimulus. Alcohol is a poison and we should discontinue its use at once as it can be done with safety and perfect impunity, except in very rare cases.

To secure all the benefits to be derived from medical treatment, we should have institutions for the reception of inebriates where total abstinence can be rigidly, but judiciously enforced for a sufficient length of time to test the curative powers of absolute restraint from all intoxicating drinks. When the craving for stimulants is irresistible, it is useless to make an attempt to reclaim and cure the drunkard unless the detention is compulsory, and there is complete restraint from all spirituous or alcoholic stimulus.

Dr. Francis Edward Anstie says: "There is very little chance except forced abstinence, tonics, nutritive treatment and the regulation of the diet." Prof. Austin Flint in speaking of the treatment says: "The successful treatment is rarely practicable except by means of institutions, in which the patient is under the same restrictions as in insane asylums." The restraint imposed by the institution and the self-restraint accepted on the part of the patient, are remedial agents from the moment he enters, growing stronger and more effective day by day, until finally he finds total abstinence not only possible but permanent. The hygienic and sanitary measures consist in total abstinence from all alcoholic beverages; good nourishing diet; well ventilated rooms; pure bracing air; mental rest and proper bodily exercise. The patient should be required to be prompt at his attendance at meals, and to observe regular hours for rising and retiring and to obey with military regularity and promptness all requirements that may be



conducive to health, and the formation of new and better habits.

#### LENGTH OF TIME NECESSARY TO A CURE.

"The length of time necessary to cure inebriation is a very important consideration. A habit covering five, ten or fifteen years can not be expected to be permanently eradicated in a week or a month. The fact that the excessive use of stimulants for a long period of time has caused a radical change, physically, mentally and morally, is not only the strongest proof that its entire absence is necessary, but also that it requires a liberal allowance of time to effect a return to a normal condition. The length of time necessary to the cure of inebriation will depend upon the duration of the disease and the amount of organic lesion which exists. The shortest period of continuous restraint, as a general rule, should not be less than six months in the most hopeful cases; and extending from one to two years with the less hopeful and more especially for the class of periodical drinkers, and those with an hereditary tendency."

Dr. Geo. M. Beard in a paper entitled, "Are Inebriates Automaton?" said: "As an illustration of the involuntary life in disease, inebriety is one of the most interesting, as well as most difficult to comprehend. So long as a man is merely a drunkard, or a victim of the vice of drinking to excess, he has it in his power to reform if he has a good endowment of will and can keep out of temptation. But in the disease of inebriety the sufferer has little or no more volitional control over his drinking symptoms than has a sufferer from malaria, or from sick headache or from hay-fever. All the influence he can exert over himself in the way of reform must be *indirect*—through the avoidance of the exciting causes whatever they may be; and in order to do this, it is oftentimes necessary for him to have the aid of outside parties. When his environment is bad, when temptation is before him, he has, practically, no will in this special relation, but is as truly an automaton as a patient in the horrors of tic-douloureux or smallpox, subject to the varying influence of weather, of wind, of diet, of medication, of mental influence in every form; the inebriate is, indeed, not himself but somebody else. In perfect health, man is a bundle of reflex actions, with a very small margin of volitional life, but in a disease of the nervous system, like inebriety, this small margin of what we call volition is swept away, and the man is an automaton so long as he is in the face of environment that excites the morbid desire and has no other method of exhibiting his manhood than by changing his environment, which he is oftentimes powerless to do without external aid; for the very effect of the environment is to take away the power of changing it, which is the very thing desired. Periodical inebriates, in the interval of their attacks, often put themselves under the charge of some friend, or enter an asylum, or leave the vicinity of temptation and this infinitesimal fraction is all that is left of their volition."

Dr. T. D. Crothers in writing on the "Etiology of Inebriety," says: "In discussing the causes of inebriety, we start from the broadest theory of cerebral defect as manifest in perversions of the nutritive functions and enfeebled will-power. Facts and experience clearly indicate that inebriety, from whatever cause, is a disease or stage of disease, either primary or secondary, as well marked as fever and

chills in malaria, or anesthesia and immobility in paralysis. The craving for liquor and the morbid impulse to commit crime are the same; the act is repelling to the higher reason in both, but the perverted will-power and function assumes control, and maintains it through the weakened organism. The degenerative processes often remain dormant for a long time, then on the application of its peculiar stimuli suddenly spring into activity. The brain and physical system may give no evidence of defect or derangement, or if any, only momentary, and yet the malady be far advanced. In general terms, this disease is always dependent on the dynamic and physical changes in the molecular neurine of the nerve centers. It may arise from causes acting on the functional energy, or from general systemic conditions which may be exciting or predisposing. The exciting causes produce changes of structure or function which constitute disease, or awaken latent tendencies to it. The predisposing causes induce such a state of the system or some part of it as shall dispose to certain kinds of malady and weaken the power of resisting morbid agencies. Inebriety can always be referred back to some special condition, circumstance, event or alteration of structure or function which, although it may not be clearly understood, constitutes the starting point of the disorder.

"In an examination of a large number of confirmed inebriates at the Albany Penitentiary, this statement was confirmed in nearly every case. A study of the particular causes indicate three classes or groups:

"1. Inherited causes, direct or indirect, including the diathesis or cachexia.

"2. Such general causes as produce inebriety in common with other insanities.

"3. Conditions and circumstances which particularly favor the development of inebriety. The strumous diathesis and cachexia, a syphilitic diathesis and cachexia, an arthritic diathesis and cachexia all tend to produce inebriety.

"The second group, called general causes, are those which frequently produce inebriety in common with other insanities. Of these, mechanical injuries seem prominent, such as injuries or concussions of the brain and the spinal cord and consequent alterations of nutrition. Blows on the head are not infrequently followed by violent paroxysmal drunkenness; railroad accidents, where the concussion and surprise are sudden and overwhelming, causing intense reaction on the nervous system (producing insignificant physical lesions), often develop inebriety and mania. A chaplain in the late war, injured in the leg by a shell (unexpectedly) although but a simple flesh wound, was several months in the hospital before recovery. From this time he became an uncontrollable drunkard and eventually died. A prominent physician was precipitated from his carriage falling on the head, and received a flesh wound of a minor character. Very soon after, inebriety was developed and he ended his life a raving maniac in an asylum. This rule in many cases indicates that injuries of the brain, spinal cord or any part involving numerous nerve trunks may end in cerebral disturbance of which drunkenness is a very common stage of the lesion. The injury being small in comparison to the mental disturbance which follows.

"Peripheral irritation or reflex excitability has been noticed as a common cause in many cases. A

London physician describes two cases where tape-worms excited inebriety and mental hallucinations, which disappeared on their expulsion. Several instances are on record where the use of pessaries in prolapsus uteri, and the prolapsus alone, has been the cause of mental disturbances of which drunkenness was the most prominent symptom. The irritation from prolonged lactation, or in dysmenorrhea, amenorrhea, nymphomania and fundamental disturbances of the genital organs, are frequently the beginnings, and in many cases the active causes of the disease. Numerous cases of puerperal insanity, preceded or followed by inebriety, are recorded in the English obstetrical journals. Cases of drunkenness during pregnancy, ending at delivery, are not uncommon. A remarkable case was noted at the Dublin Lying-in-Hospital some years ago, of a woman who, during the period of lactation drank gin to excess. This craving for stimulus began when the child was born and continued until the death or weaning of the child, the former being the most common termination. When lactation ceased the desire died away. Another case of equal interest is reported in a Western journal. A soldier wounded at Pittsburg Landing, previously temperate, became a paroxysmal drunkard. A portion of the shaft of the femur was injured, and continued to exfoliate dead bone until 1873, when it was removed by an operation. From the healing of the wound his drunkenness disappeared, and he is now one of the most enthusiastic of temperance men.

"Previous diseases are also active causes. Cerebral epilepsy, with its disordered fancies, auras and impulses ending in apparent recovery, only to be followed in time by a repetition, closely simulating the impulsive drunkard. The connection between inebriety and epilepsy is far more intimate than we are aware.

"Dietetic diseases—indigestion, inflammation of the stomach and liver often leave a train of predisposing causes. Exhaustive intellectual and physical exertion, by breaking up healthy cerebral action develops insane longings. Over-stimulation of the brain ends in changes and perverted tastes for alcohol or narcotics of some kind. Scholars and those who use the mind to excess, and laborers who only exert the physical system, when exhausted from overwork, have unnatural longings for something to restore the lost balance of mind and body. A prominent Senator spent thirty hours continuously in the preparation and delivery of a speech, and became an inebriate from that time. The sudden loss of property, disappointment, trouble, unrequited affections, may so depress the vital powers and disturb the circulation that drunkenness or insanity or both will follow. Ambition to lead, where it becomes a dominant passion, filling up every moment of thought, lowers the nutritive functions and leads directly to perversion of taste. Religious activity where the mind overflows with sentiment and emotion, may react into violent gluttonness or inebriety. No class of men are so thoroughly dyspeptic as clergymen and lawyers; simply the reaction of the mind to restore the equilibrium broken up by exhaustive labor. In every community large numbers of this class are on the verge of inebriety; all they need is the exciting cause; the fertile field is prepared to receive it.

"The perpetuity of the race depends upon the education received from both school and parent. If the

child grows up surrounded with unnatural morbid influences, ignorant indulgences and worse school education its ruin is inevitable.

"Under the third group are included all those conditions and circumstances which seem to particularly favor the development of inebriety. Of these, age has a controlling influence. Inebriety occurs at a time when the brain has reached its period of fullest activity. The brain power of infancy and youth can not bear much irritation without peril, its circulation is more rapid and susceptible to sudden fluctuations which are intense in their influence. This is apparent in the cases of permanent injury which follow from fear, anger or sudden emotions that profoundly impress the organism. At this time of life, organic changes take place which have a correlative mental transformation, the active degree of enervation existing makes the entire body extremely susceptible to commotions, in both the organic and mental development. I believe that future observations will indicate that inebriety begins here, although its development may be delayed for years. Sex, social condition, the season, weather, barometrical changes, unhealthy mental, physical and social surroundings, continuous excitement, and dark, damp, low places of residence are all causes of inebriety. The temperature and conditions of surroundings are evidently active causes. High degrees of heat and cold may so far impair the nutrition of the nerves, or produce paresis of the vasomotor centers as to result in inebriety. Sunstroke, inflammations, congestions and similar disorders of the brain cells coming from extremes of heat and cold are often followed by drunkenness.

"The captain of a South American steamer informed me that the firemen and most of the men employed (for any length of time) in this service became drunkards; this he attributed to the extremes of climate, and the heat to which they were constantly exposed. Leaving New York in midwinter, within a few days they are in a tropical temperature, then back again from the literal summer of the equator to the frequent polar temperature of New York. Inquiry among the furnace-men of Albany and Troy indicates the same facts; men exposed to a high heat after a time (to a large extent), become inebriates.

"Mental diseases are found to be largely controlled by cosmical influences, such as electrical phenomena, lunar attractions, velocities and directions of winds, geological formations, elevation above the sea level, etc. A professional man of great intelligence who is an inebriate becomes restless, depressed, and has headache and irregularity of temper when the wind blows from the south, and a storm is impending, also before a thunder storm. If he can resist the craving for liquor until the storm is over he is safe, but if the moon be at a change and the storm is delayed, he loses all control and has a paroxysm of drinking.

"In this very general review of the numerous causes, we have only indicated some of the great landmarks, leaving the wide field of hill and valley untouched.

"A brief summary may be indicated as follows:

"1. Inebriety or dipsomania, as a mental and physical disease, always is preceded by some special condition, circumstance or event, or alteration of structure.

"2. As in other diseases, the causes are numerous

and complex, either acting alone or together, increasing or diminishing, depending upon conditions not well understood.

"3. Its hereditary character and diathesis present many positive indications, which forecast its progress, and render its study a practical necessity to every student of science.

"4. As a stage or symptom of other disease, or a sequence, its causes and progress may be more obscure, but they have certain definite beginnings and endings, which a more accurate study will reveal.

"5. As a disease of accident or coincident, and circumstances or surroundings, its history and growth may be anticipated at every stage, and its result prognosed with certainty.

"6. Inebriety affecting the nutritive functions first, and after that the mind or *vice versa*, offers the widest field for research, and its pathologic and therapeutic relations extend over the entire realm of social and mental science."

Dr. Lewis D. Mason says: "It is our duty, then, when patients are sent to us or are sent to an asylum, to investigate the exciting cause of their inebriety. If it is some painful disorder and the patient tells us that he uses alcohol to relieve his pain, our course is at once apparent; to cure his disease or find some substitute for the alcohol. If we can not remove the cause, or find some efficient substitute for the alcohol, the patient passes to the incurable class of inebriates, a class that needs medical care as much as the incurable insane, requiring the treatment and restraint which only an asylum can give, for their constant or irregular resort to stimulants places them among the irresponsible classes of society. So whether curable or incurable, these persons who demand our heartiest sympathy will certainly present themselves. How we shall be enabled to recognize the possible exciting cause of their inebriety and perhaps forecast their future, is the object of this paper to point out."

#### Medical Students in Attendance on the Sessions of 1894-95 in the United States and Canada.

[Compiled for the JOURNAL by F. W. Reilly, M.D.]

In order to preserve the sequence of the Reports on Medical Education in the United States, and Canada, inaugurated and for many years so usefully carried on, by the late Dr. John H. Rauch, and subsequently continued by his assistant and successor, Dr. F. W. Reilly, the following circular letter was addressed last fall to the Deans, Registrars or Secretaries of 117 medical colleges which conducted lecture courses in 1893.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,  
86 FIFTH AVENUE.

CHICAGO, ILL., Oct. 29, 1894.

*My Dear Doctor:*—The JOURNAL desires "to take an account of stock" of the medical students in attendance at the current sessions of American Medical Colleges, and, to this end, forwards you the inclosed form which, it is hoped, will require from you a minimum outlay of time and trouble in filling up.

If not convenient to give the figures for all of the five sessions, it is desired that the numbers for 1893-94 and 1894-95 at least be furnished.

It is not now foreseen that mention of individual Colleges will be necessary or useful in the compilation, but no names of Colleges will be so used without express consent.

Inclosed please find stamped envelope for return of filled-out blank.

Faithfully yours,

JOHN B. HAMILTON, M.D., EDITOR.

The "inclosed form" provided for the name of the college, the name, address and official title of the respondent, returns of the numbers of students in attendance, by grades, at the sessions of 1890-91 to 1894-95 inclusive and a statement of the views of the respondent as to the cause or causes of any unusual increase or any decrease in the attendance at the present session.

This request was addressed to the following named institutions:\*

- \*Medical College of Alabama (1859) Mobile, Ala.
- \*Medical Department, Arkansas Industrial University (1879) Little Rock, Ark.
- \*Cooper Medical College (1859) San Francisco, Cal.
- \*Medical Department, University of California (1863) San Francisco, Cal.
- \*College of Medicine, University of Southern California (1885) Los Angeles, Cal.
- \*Denver Medical College (1881) Denver, Col.
- \*Medical Department University of Colorado (1883) Denver, Col.
- \*Gross Medical College (1887) Denver, Col.
- \*Medical Department, Yale University (1810) New Haven, Conn.
- \*National Medical College (1821) Washington, D. C.
- \*Medical Department, University of Georgetown (1850) Washington, D. C.
- \*Medical Department, Howard University (1867) Washington, D. C.
- \*Medical College of Georgia (1828) Augusta, Ga.
- \*Atlanta Medical College (1854) Atlanta, Ga.
- \*Southern Medical College (1879) Atlanta, Ga.
- \*Rush Medical College (1842) Chicago, Ill.
- \*Northwestern University Medical School (1859) Chicago, Ill.
- \*Northwestern University Woman's Medical School (1870) Chicago, Ill.
- \*College of Physicians and Surgeons of Chicago (1882) Chicago, Ill.
- \*Medical College of Indiana (1878) Indianapolis, Ind.
- \*Central College of Physicians and Surgeons (1879) Indianapolis, Ind.
- \*Fort Wayne College of Medicine (1889) Fort Wayne, Ind.
- \*College of Physicians and Surgeons of Keokuk (1850) Keokuk, Iowa.
- \*Medical Department, State University of Iowa (1870) Iowa City, Iowa.
- \*Iowa College of Physicians and Surgeons (1882) Des Moines, Iowa.
- \*Keokuk Medical College (1890) Keokuk, Iowa.
- \*Council Bluffs Medical College (1893) Council Bluffs, Iowa.
- \*Kansas Medical College (1889) Topeka, Kan.
- \*University of Louisville, Medical Department (1837) Louisville, Ky.
- \*Kentucky School of Medicine (1850) Louisville, Ky.
- \*Louisville Medical College (1869) Louisville, Ky.
- \*Hospital College of Medicine (1873) Louisville, Ky.
- \*Medical Department, Tulane University of Louisiana (1834) New Orleans, La.
- \*Medical Department, New Orleans University (1889) New Orleans, La.
- \*Medical School of Maine at Bowdoin College (1820) Brunswick, Me.
- \*University of Maryland School of Medicine (1807) Baltimore, Md.
- \*College of Physicians and Surgeons of Baltimore (1872) Baltimore, Md.
- \*Baltimore Medical College (1881) Baltimore, Md.
- \*Woman's Medical College of Baltimore (1882) Baltimore, Md.
- \*Baltimore University School of Medicine (1884) Baltimore, Md.
- \*Johns Hopkins Medical College (1893) Baltimore, Md.
- \*Harvard University Medical School (1782) Boston, Mass.
- \*College of Physicians and Surgeons (1880) Boston, Mass.
- \*Tufts College Medical School (1893) Boston, Mass.
- \*Michigan University, Department of Medicine and Surgery (1850) Ann Arbor, Mich.
- \*Detroit College of Medicine (1885) Detroit, Mich.
- \*Michigan College of Medicine and Surgery, (1888) Detroit, Mich.

\*The colleges are here named in the alphabetical order of States and in the chronological order of dates of organization in each State group; the figures inclosed in parentheses indicate the year of organization.

\*College of Medicine and Surgery, University of Minnesota (1883) Minneapolis, Minn.  
 \*Minneapolis College of Physicians and Surgeons (1883) Minneapolis, Minn.  
 \*Missouri Medical College (1840) St. Louis, Mo.  
 \*St. Louis Medical College (1841) St. Louis, Mo.  
 Medical Department, University of the State of Missouri (1845) Columbia, Mo.  
 Kansas City Medical College (1869) Kansas City, Mo.  
 \*St. Louis College of Physicians and Surgeons (1869) St. Louis, Mo.  
 Northwestern Medical College of St. Joseph (1880) St. Joseph, Mo.  
 University Medical College of Kansas City (1881) Kansas City, Mo.  
 \*Ensworth Medical College and Hospital (1882) St. Joseph, Mo.  
 Beaumont Hospital Medical College (1886) St. Louis, Mo.  
 Marion-Sims Medical College (1890) St. Louis, Mo.  
 \*Barnes' Medical College (1891) St. Louis, Mo.  
 \*Woman's Medical College and Hospital Association (1891) St. Louis, Mo.  
 \*Omaha Medical College (1881) Omaha, Neb.  
 John A. Creighton Medical College (1892) Omaha, Neb.  
 \*Dartmouth Medical College (1797) Hanover, N. H.  
 \*College of Physicians and Surgeons of Columbia College in the City of New York (1807) New York City.  
 \*Albany Medical College (1838) Albany, N. Y.  
 University Medical College (1841) New York City.  
 \*Medical Department, University of Buffalo (1846) Buffalo, New York.  
 \*Long Island College Hospital (1861) Brooklyn, N. Y.  
 Bellevue Hospital Medical College (1861) New York City.  
 Woman's Medical College of the New York Infirmary (1865) New York City.  
 \*Syracuse University College of Medicine (1872) Syracuse, New York.  
 \*Medical Department of Niagara University (1883) Buffalo, New York.  
 Leonard Medical School (1882) Raleigh, N. C.  
 North Carolina Medical College (1893) Davidson, N. C.  
 Medical College of Ohio (1819) Cincinnati, Ohio.  
 \*Medical Department, Western Reserve University (1843) Cleveland, Ohio.  
 \*Starling Medical College (1847) Columbus, Ohio.  
 Cincinnati College of Medicine and Surgery (1849) Cincinnati, Ohio.  
 Miami Medical College (1852) Cincinnati, Ohio.  
 \*Medical Department, University of Wooster (1863) Cleveland, Ohio.  
 \*Toledo Medical College (1883) Toledo, Ohio.  
 Woman's Medical College of Cincinnati (1887) Cincinnati, Ohio.  
 Ohio Medical University (1890) Columbus, Ohio.  
 \*Presbyterian Hospital Woman's Medical College (1891) Cincinnati, Ohio.  
 \*Medical Department of Willamette University (1864) Portland, Oregon.  
 \*Medical Department, University of Oregon (1887) Portland, Oregon.  
 \*University of Pennsylvania Medical Department (1765) Philadelphia, Pa.  
 \*Jefferson Medical College (1826) Philadelphia, Pa.  
 Woman's Medical College of Pennsylvania (1850) Philadelphia, Pa.  
 Medico-Chirurgical College of Philadelphia (1881) Philadelphia, Pa.  
 \*Medical Department, University of Western Pennsylvania (1886) Pittsburgh, Pa.  
 \*Medical College of the State of South Carolina (1832) Charleston, South Carolina.  
 Medical Department of the University of Nashville and Vanderbilt (1850) Nashville, Tenn.  
 Nashville Medical College (1876) Nashville, Tenn.  
 Meharry Medical Department of Central Tennessee College (1876) Nashville, Tenn.  
 Memphis Hospital Medical College (1880) Memphis, Tenn.  
 \*Tennessee Medical College (1889) Knoxville, Tenn.  
 Chattanooga Medical College (1889) Chattanooga, Tenn.  
 Sewanee Medical College (1891) Sewanee, Tenn.  
 \*Medical Department, University of Texas (1891) Galveston, Texas.  
 Medical Department University of Vermont (1823) Burlington, Vt.  
 \*University of Virginia (1825) Charlottesville, Va.  
 \*Medical College of Virginia (1838) Richmond, Va.

University College of Medicine (1893) Richmond, Va.  
 Wisconsin College of Physicians and Surgeons (1893) Milwaukee, Wis.  
 McGill University Faculty of Medicine (1824) Montreal, Quebec.  
 \*University of Toronto Medical College (1843) Toronto, Ontario.  
 \*Faculty of Medicine Laval University (1843) Montreal, Quebec.  
 \*Trinity Medical College (1850) Toronto, Ontario.  
 Laval University at Quebec, Medical Department (1852) Quebec.  
 Royal College of Physicians and Surgeons (1854) Kingston, Ontario.  
 Halifax Medical College (1867) Halifax, N. S.  
 University of Bishop's College, Faculty of Medicine (1870) Montreal, Quebec.  
 Medical Department, Western University (1882) London, Ontario.  
 \*Ontario Medical College for Women (1883) Toronto, Ontario.  
 Women's Medical College of Kingston (1883) Kingston, Ontario.  
 Manitoba Medical College (1883) Winnipeg, Ma.

Within three weeks of the date of the first circular, forty-nine colleges had responded, and on November 19 another circular letter was addressed to the sixty-eight from which no returns had then been received. It seems proper to make this statement because most of the colleges which first replied did so before their classes were fully made up for the session and there is, consequently, a shortage in the total actual attendance; the forty-nine colleges which first responded are indicated in the above list by \*—this for the purpose of securing proper allowance for their incomplete returns.

The addition of three colleges which reported subsequent to the tabulation which formed the basis of the editorial on the "Increase of the Medical Student Class," in the JOURNAL of Dec. 29, 1894, somewhat reduces the estimated total attendance therein given. In 1892 the 101 colleges whose returns are above given reported a total attendance of 15,695 out of a grand total of 18,340—or 85.5 per cent. of the aggregate attendance at 117 colleges. For 1893 they report, as above, an attendance of 15,865, which is 85.5 per cent. of 18,500; for 1894 they report an attendance of 17,784, which is 85.5 per cent. of 20,800—the aggregate attendance of the sessions of 1894-95.

These figures show a very slight increase in the classes of 1893 over those of 1892—only 160, or a fraction less than 1 per cent.; while for the current sessions the increase is 12.4 per cent. over the sessions of 1893. This great gain in the student class seems to be at the expense of higher medical education; in 1893 there were 803 four-year students in attendance; this year there are only 781—a loss of 2.7 per cent.

The following figures furnish some interesting comparisons:

United Kingdom (Great Britain and Ireland), 8,696 total registered medical students between 1889 and 1893; for the year 1893, based on yearly accretions, 7,000; \* population, 37,000,000.

France, total number medical students inscribed on the books of the Paris Faculty of Medicine for 1894, 5,144; † population, 40,000,000.

Germany, total number medical students registered for 1894, 8,684; † population, 50,000,000.

United States and Canada, total number medical students in attendance sessions of 1894, 20,800; population, 70,000,000.

Proportions: In the United Kingdom, 1 medical student to 5,286 of population; in France, 1 to 7,776 of population; in Germany, 1 to 5,757 of population; in the United States and Canada, 1 to 3,365 of population.

From the replies received and authorized for publication the accompanying table has been compiled.

\* Correcting the statement of "an American contemporary"—that "England has but 552 medical students"—the British Medical Journal of Dec. 22, 1894, says: "In 1893 the number of freshmen in the medical schools of England, Scotland and Ireland was 1,742, and by adding up the entries of the last four years it is clear that at present there must be over seven thousand students in the medical schools of the United Kingdom." This is more than four times as many as estimated in the JOURNAL editorial based upon Sir Richard Quain's figures.

† Brouardel. † Ascherson.

TABLE SHOWING NUMBER OF STUDENTS IN ATTENDANCE AT ONE HUNDRED AND ONE COLLEGES IN THE UNITED STATES AND

CANADA: SESSIONS OF 1894-95, 1893-94, AND AVERAGE YEARLY ATTENDANCE OF PREVIOUS YEARS.

COLLEGES.	STUDENTS IN ATTENDANCE, BY GRADES: 1894-5.				TOTAL ATTEND- ANCE: 1894-5.	TOTAL ATTEND- ANCE: 1893-4.	AVERAGE YEARLY ATTEND- ANCE: 1889-90, 1893-94.	PER CENT. OF IN- CREASE OR DECREASE.	
	1st.	2d.	3d.	4th.				1894-95 compared with 1893-94.	1894-95 compared with prev. 5 yrs.
Medical College of Alabama.	53	32	16		101	102	128	-.98	-21.
1 Medical Department Arkansas Industrial University.	50	22	3		75	74	85	1.3+	-11.7
2 Cooper Medical College.	75	78	75		228	228	160		42.5
Medical Department University of California.	33	46	66		145	109	89	33.+	63.+
College of Medicine, University of Southern California.	18	16	10		44	37	30	18.9+	46.6+
3 Denver Medical College.	10	15	13		38	38	43		-11.6
4 Medical Department University of Colorado.	20	15	15		50	35	23	42.8+	117.4+
Gross Medical College.					72	18	51	-10.	41.1
5 Medical Department Yale University.	60	20	14		94	73	65	28.7+	44.6
6 National Medical College.	75	40		55	170	151	151	12.5+	12.5
7 Medical Department University of Georgetown.	39	36	35	11	121	136	116	-11.	4.3
8 Medical Department Howard University.	48	36	10	25	119		107		11.2
Atlanta Medical College.	50	160			210	173	163	21.4+	28.8
9 Southern Medical College.	52	15	14		82	81	87	1.2	-5.7
Rush Medical College.	330	300	170		800	767	613	4.2	30.5
Northwestern University Medical College.	96	76	93	8	265	252	259	5.1+	2.3
10 College of Physicians and Surgeons of Chicago.	67	53	40	86	246	288	222	-14.5	10.8
11 Central College of Physicians and Surgeons.					52	38	36	36.8+	44.4
12 College of Physicians and Surgeons of Keokuk.	122	78	33	5	238	176	141	35.2	68.8
Medical Department State University of Iowa.	85	65	43		193	162	145	19.1+	33.1+
Iowa College of Physicians and Surgeons.	35	15	13		63	48	39	31.2	61.5
Keokuk Medical College.	61	42	40		143	143	145		-1.3
Council Bluffs Medical College.	5	9			14	12		16.6+	
Kansas Medical College.	29	18	8		55	45	44	22.2+	25.+
Kentucky School of Medicine.					426	504	440	-15.4	-3.2
Hospital College of Medicine.					210	123	127	70.7+	65.3+
13 Medical Department New Orleans University.	11	12	5		28	36	19	-23.2	47.3
Medical School of Maine.	53	30	30	3	116	97	95	19.6+	21.5
College of Physicians and Surgeons of Baltimore.	167	168	119	8	462	461	470	.2	-1.7
14 Baltimore Medical College.	140	106	116	8	409	308	219	35.1+	86.7+
Woman's Medical College of Baltimore.	28	8	4	2	42	20	22	110.+	90.9+
15 Johns Hopkins University.	32	19			51	18		183.3+	
Harvard University Medical School.	182	124	96	34	436	420	282	3.9+	14.1+
College of Physicians and Surgeons of Boston.	43	77	10		120	137	87	-12.4	37.9+
Tufts College Medical School.	41	23	21		85	72		18.+	
16 Michigan Univ., Department of Medicine and Surgery.	116	101	66	65	348	380	364	-8.4	-4.3
Detroit College of Medicine.	111	95	78		284	285	218	-35	30.2
Michigan College of Medicine and Surgery.	53	41	22	5	121	118	115	2.5+	5.2
College of Medicine and Surgery, Univ. of Minnesota.	102	66	53		221	181	141	22.+	56.7+
17 Minneapolis College of Physicians and Surgeons.	22	17	18		57	13			
Missouri Medical College.	76	64	74	2	216	182	190	18.6+	13.6+
St. Louis Medical College.	43	41	26		110	95	121	15.7+	-9
Medical Department, University of the State of Missouri.	22	12	5		39	39	37	5.4+	5.4+
Kansas City Medical College.	34	48	31		113	109	88	3.6+	28.4+
18 St. Louis College of Physicians and Surgeons.	106	94	42	14	256	140	183	82.8+	40.+
19 University Medical College Kansas City.	65	52	39		156	119	100	31.+	56.+
20 Ensworth Medical College and Hospital.					38	56			
Barnes Medical College.	108	92	92	23	315	236	249	33.4+	26.5+
21 Woman's Medical College of St. Louis.	18	9	4		31	43	26	-28.	19.2+
Omaha Medical College.	38	25	24		87	75	49	16.+	77.5
John A. Creighton Medical College.	11	25	15		51	33		54.5+	
22 Dartmouth Medical College.					139	114	100	21.9+	39.+
23 College of Physicians and Surgeons of Columbia College.	222	241	231	83	777	786	630	-1.1	23.3+
24 Albany Medical College.	76	53	58		187	173	165	8.+	13.3+
25 University Medical College, New York City.	152	111	114		377	365	531	3.3+	-29.
Medical Department, University of Buffalo.	93	84	64		241	188	184	28.+	31.+
26 Long Island College Hospital.	95	63	59	24	241	255	231	-5.8	4.3+
27 Bellevue Hospital Medical College.	120	110	115		405	407	419	-.6	-3.4
28 Woman's Medical College of the New York Infirmary.	33	19	34		86	82	86	4.8+	
Syracuse University College of Medicine.	34	30	17		81	61	54	32.8	50.+
Medical Department of Niagara University.	21	23	19	3	66	57	48	19.8+	37.5+
Leonard Medical College, Shaw University.	13	9	15	11	48	57	49	-15.8	-2.
North Carolina Medical College.		24			24	16		50.+	
Medical College of Ohio.					296	242	237	22.3+	24.8+
29 Medical Department, Western Reserve University.	42	32	32		106	93	130	14.+	-13.4
Starling Medical College.	122	99	86		287	223	165	28.7+	73.9+
30 Miami Medical College.	21	20	9		50	92	89	3.2	6.7+
31 Toledo Medical College.	15	10	9		30	38	38	31.5+	31.5+
Woman's Medical College of Cincinnati.	15	10	9	1	35	26	26	34.6+	
32 Ohio Medical University.	56	29	26		111	79	80	73.5+	73.4+
Medical Department of Willamette University.	14	15	7		34	36	31	-5.5	9.7+
33 Medical Department, University of Oregon.	23	12	7		42	29	23	45.+	82.6+
34 University of Pennsylvania, Medical Department.	244	196	352		792	787	671	.6+	18.+
35 Jefferson Medical College.	220	251	225		726	640	591	17.8+	25.4+
36 Woman's Medical College of Pennsylvania.					168	192	192	-12.5	-12.5
Medico-Chirurgical College.	74	54	81		209	184	140	13.+	49.3+
37 Medical Department, Univ. of Western Pennsylvania.	115	94	72		281	262	184	7.2+	52.6+
38 Medical College of the State of South Carolina.	25	30	25		80	70	60	14.3+	33.8
Nashville Medical College.					180	234	251	-23.	-24.2
39 Meharry Medical College.	37	32	31		101	107	90	-5.6	12.2+
40 Tennessee Medical College.	32	22	12		66	79	68	-16.4	-12.9
41 Sewanee Medical College.					47	25		67.8+	
Medical Department, University of Texas.	85	55	8		148	116	55	27.6+	169.1+
Medical Department, University of Vermont.					202	192	190	4.9+	6.3+
University of Virginia.	86	82		15	168	143	130	17.4+	29.2+
42 Medical College of Virginia.	53	57	7		132	96	67	37.5+	97.+
Wisconsin College of Physicians and Surgeons.	16	15	3		34	31		9.7+	
43 McGill University, Faculty of Medicine.	111	120	95	70	398	350	237	13.7+	67.9+
Faculty of Medicine, Laval University.	45	45	55	59	247	286	280	-13.6	-16.
Trinity Medical College.					306		292		4.8+
Halifax Medical College.	26	7	8	6	43		33		30.3+
University of Bishop's College, Faculty of Medicine.					61	54	52	11.1	15.4+
44 Manitoba Medical College.	45	36	23	26	130	101	76	28.7+	71.+
Ontario Medical College for Women.	9	10	7	11	37	34	34	8.8+	8.8+
Anonymous Schools.	356	322	221	118	*1057	1057	910		16.1+

1 A number preceding a college title refers to a note or comment bearing the same number in the Notes and Comments column following this Table. \* Including 40 specials.



The foregoing table gives the following aggregates for the 101 reporting Colleges, including 7 not specified by name, but whose totals are given under the title "Anonymous Schools."

First year students. . . . .	6,198
Second year students. . . . .	5,248
Third year students. . . . .	3,998
Fourth year students. . . . .	781
Special and irregulars. . . . .	2,359

Aggregate attendance, 1894. . . . .	17,784
Aggregate attendance, 1893. . . . .	15,865
Aggregate average previous years. . . . .	14,559

Percentages of Increase:

1893 over average of previous years. . . . .	8.9
1894 over 1893. . . . .	12.4
1894 over average of previous years. . . . .	22.1

NOTES AND COMMENTS.

<sup>1</sup> Estimated; return made "first day of regular winter term; students not all in. Decrease in numbers since 1891-92 due to adoption of three years' compulsory course."

<sup>2</sup> "We have just adopted a four-year curriculum. In the first year of the table, seventy-five includes students of the first and second years of the four-year course, i.e., first year thirty-seven, second year thirty-eight; total, seventy-five. I may say in addition that these figures include from two to five physicians each year—as well as a number each year who do not 'stick,' but as the same occurs at other colleges I presume these figures will afford basis for comparison."

<sup>3</sup> "The decrease in our attendance can be directly traced to the unequal competition of a State school removing to Denver and taking any student who applies, at no cost to the student whatever. It also means that our standard has been maintained."

<sup>4</sup> "Four-years' course begins with the session of 1895-96. A large increase occurred in sessions of 1893-94, owing to second and third years being taught in Denver, instead of Boulder, giving good clinical advantages. The increase seems likely to continue."

<sup>5</sup> "You will note that there has uniformly been a larger number of students in the first year than in the second or third. This has been due to the fact that a very considerable number of students fail at the end of the first year, and therefore have to repeat their work. Our entrance requirements are placed at the high school grade in the subjects in which we require examinations, and these requirements are well enforced, yet we have this large percentage of failures of men who can not stand the work of our first year. I do not know whether this is the experience elsewhere, but certainly our matriculation requirements are higher than the average of the country, and the whole thing seems to me to be a strong argument for the necessity of a higher grade of matriculation. I have felt for some time that this increase in the matriculation requirement was more needed in this country than the increase of time of study; that is, that three years with well prepared students would be better for the profession than a larger number of students kept at their professional work for a year longer. This opinion, however, does not seem to be the one which has prevailed. We have delayed starting the four years' course, hoping that there would be a general increase in matriculation requirements first, and while we do not altogether give up the hope of increasing matriculation examinations, we are about to adopt the four years' course in conformity with the other schools of the better class. I wish you might have included in your examination, the question of the proportion of medical students who are college graduates, and whether this is increasing or diminishing."

<sup>6</sup> "In this list the third and fourth years are given together, as last year was the beginning of the four year system."

<sup>7</sup> "A large number of students who matriculated last year withdrew and went to schools with a three-year course. The four-year course was made obligatory last year. This probably reduced the number of matriculates this year."

<sup>8</sup> "Four years' course began with the session of 1892-93."

<sup>9</sup> "The scholastic year has just been changed to a three-year term, and this is the first year of such change."

<sup>10</sup> "Small attendance in our second course is attributed to the fact that those who attended with us in 1893-94 can graduate in ——— Medical College at end of this term, while we would require them to attend until end of 1895-96. Those seeking early graduation have thus left us. The large increase in our first-year course is due to the school having adopted a three-year graded course and having by hard work for fifteen years established a very good reputation for giving thorough instruction." Total attendance 1894-95 (82) includes "one fourth year." The college, however, is not a four-year school.

<sup>11</sup> "The reason of decrease is on account of the grade being raised and examination more difficult; also our course being four years instead of three."

<sup>12</sup> "There is a larger percentage of students who have attended literary colleges than in any former year."

<sup>13</sup> "Faculty reorganized in 1890-91, with resulting steady improvement in size of the class."

<sup>14</sup> "Our school two years ago adopted a four years' course of study."

<sup>15</sup> Total 409 includes "two fifth year, one eighth year and thirty-six" not graded at date of making report.

<sup>16</sup> Attendance 1893-94 includes three women; first year, 1894-95 includes eight women; second year 1894-95 includes two women. "Our medical school is now in its second year. A noteworthy fact is that all of the fifty-two persons admitted in the two years are graduates of a reputable college, holding baccalaureate degrees, and several of them have pursued graduate studies in the sciences after completing their college work. In addition to these undergraduates in medicine, a large number of physicians are attending special courses in the Johns Hopkins Hospital, given by University professors: 1893-94—65; 1894-95 (to November 21)—44."

<sup>17</sup> "The large senior classes in 1891 and 1892 were due to the fact that in 1890 we changed from a three to a four years' course. This change, which was announced some years beforehand, brought us large classes in 1888 and 1889, students realizing that if they entered later than 1889, they would have to spend four years here. The small senior class in 1893 is explained in the same way. It appears from the figures that we have fewer medical students than we had last year. This is not true. The number is about the same as it was this time last year. There are always students coming here in the fall, who are unprepared to enter the medical course and have to do some work in the literary department or in the high school before they can enter. Some of these will enter the medical department at the beginning of the second semester. They will not be able to graduate with those who entered this last October, but it will increase the number of students appearing on our register when it is published next spring."

<sup>18</sup> "This college was reorganized last year, so members for past years would not be of value for statistical purposes."

<sup>19</sup> Causes of increased attendance: "Faculty thoroughly reorganized and prominent teachers from numerous Western schools having been selected. Also refusal to admit inferior students—no candidate being accepted unless presenting diploma of college or high school. College has no entrance examinations; they are farces!"

<sup>20</sup> "There has been an increase, due to the fact that the school has offered unusual clinical advantages, which have attracted students, in spite of the business depression. This increase is so marked, as evidenced by the fact that more than one-third more actual attendants are present, so that the capacity of the college is strained to accommodate the students. Matriculation list is twenty-five higher than attendance."

<sup>21</sup> "There was a marked falling off last session. The chief cause was, I think, that no one could graduate on two terms and such sought other schools. One of these now finds that his two-term diploma will not register him and he proposes to take another course. Another cause was that some of them thought they could more certainly graduate in another school. The hard times was another cause."

<sup>22</sup> "We had forty-three students in attendance last session; this year thirty-one—decrease the result of the scarcity of money."

<sup>23</sup> "The present is the ninety-eighth annual course of lectures at this college, and the number of students is the largest in its history. Causes: A hospital has just been opened in town. Possibly the depression in general business may have some influence."

<sup>24</sup> "There is a decrease in the first year, due to the establishment of the four-years' course."

<sup>25</sup> Not complete; return made November 1.

<sup>26</sup> "The junior class of session of 1891 was the first under the graded system."

<sup>27</sup> "Our collegiate year does not close until June, 1895, and we always have a considerable number entering our reading term in March—these will bring our number for 1894-95 up to 280 or more. This is the largest class we have ever had, and is undoubtedly due to the clinical advantages we offer."

<sup>28</sup> "1890-91 was the last year of the two-years' system; 1891-92 was the first year of the obligatory three-years' system. The unusually large class of 1890-91 was due to the fact that many students intend to take advantage of the

two-years' system. In 1891-92 three courses of lectures were made obligatory. Students were required to pay for each course attended and the fees on lectures were raised from \$140 to \$150. *Unclassified* includes those who did not attend the full regular course." In the total 409 for 1894-95 are included 60 "unclassified," and in the total 407 for 1893-94 are included 85.

<sup>29</sup> "Our four-years' course began with the session of 1893-94 and there are consequently no fourth year students as yet." The total third year students (thirty-four) include eight who are in the third year of the four-years' course.

<sup>30</sup> "With the session of 1896-97 we will require a fourth year. It is now optional."

<sup>31</sup> The increase seems to affect all schools, more or less, and is probably due to prospective enforcement of the four-years' course next year.

<sup>32</sup> "Increased facilities for instruction over years gone by have increased our class from thirty-eight the past season to fifty for the present."

<sup>33</sup> "The increase is due largely to the reputation of the school among college-trained students and school teachers. Our school is conducted on the normal methods of teaching. The students are enthusiastic and spread the good news to their friends seeking a medical education."

<sup>34</sup> "Increasing good reputation of the school and perhaps because of lack of opportunities for employment on account of times has driven more persons than usual to professional study."

<sup>35</sup> "The total number in attendance this year (session of 1894-95) may be increased by about thirty when students at present under conditions are permitted to matriculate after their conditions are passed."

<sup>36</sup> "Partly due to the fact that we begin our compulsory four years' course next year. Any progressive movement like this increases the popularity of the school as it indicates a determination to take a higher stand among the medical colleges."

<sup>37</sup> "The recent reduction in the number of students was probably due to the lengthening of the course of study to four years and the advance in the standard of entrance requirements adopted by the college."

<sup>38</sup> "The great clinical advantages by reason of its proximity to a large general hospital, viz.: The Western Pennsylvania Hospital. This and the fact that we have adopted the three-years' graded course explains the increased attendance."

<sup>39</sup> "Our facilities for teaching are being yearly increased and an increasing number of students are in attendance."

<sup>40</sup> "We now have a four-years' course of study."

<sup>41</sup> "The decrease is owing to the stringency in money matters all over the country."

<sup>42</sup> Heretofore conducted as a spring and summer school, not graded. "The school has now withdrawn from the Southern Medical College Association and will teach annual terms of ten months, from first of March to latter part of December, and permit students to apply for graduation after attendance upon two such annual terms and three years of study."

<sup>43</sup> "We have no required third year, but some students do distribute their study over three years." Two annual sessions of nine continuous months each are required for graduation. "The increase of students is due to the establishment of the graded course."

<sup>44</sup> "We have ten State scholarships, given in consideration of the fact that we receive aid annually from the State. We have no other scholarship feature, as is so often found in other medical institutions, or our number of matriculates would have been greatly increased. We have no dental or pharmacal department connected with our school. It is proper to state that the number of students above for session 1894-95 is incomplete, as we expect a number more to come in soon."

<sup>45</sup> "During the last session the qualifications for degree were increased from four six months' sessions and two compulsory summer sessions of three months each, to four sessions of nine months each. The increase in students was unexpectedly large this year which we attribute chiefly to the increased clinical advantages afforded from the opening of the new Royal Victoria Hospital."

<sup>46</sup> "The increase during the present session is probably due: 1, to the fact that the enlargement of the building last summer, increasing it to double its former size, was well advertised throughout the Province; 2, the work of the college is becoming favorably known; 3, the proportion of young men entering the profession in this section of the country, as shown by increasing attendance, is rapidly (too much so, possibly,) on the increase; 4, it has become gener-

ally known that it is the intention of the college to lengthen the term. This has had the effect of bringing a few students in earlier than they would otherwise have come."

Replies were finally received from all but the following:

Medical College of Georgia.

Medical College of Indiana.

Fort Wayne College of Medicine.

University of Louisville, Medical Department.

Louisville Medical College.

University of Maryland School of Medicine.

Baltimore Medical College.

Northwestern Medical College of St. Joseph.

Beaumont Hospital Medical College.

Marion-Sims Medical College.

Cincinnati College of Medicine and Surgery.

Medical Department, University of Nashville and Vanderbilt.

Memphis Medical College.

Royal College of Physicians and Surgeons.

Medical Department, Western University.

Women's Medical College of Kingston.

Laval University at Quebec, Medical Department.

Seven other colleges—two in Ohio, and one each in Illinois, Louisiana, Tennessee, Virginia and Canada—failed to give consent to the use of their names and these are consequently omitted in the preceding table; the figures furnished by them are, however, used in the aggregates—entered as "Anonymous Schools."

NOTE.—The JOURNAL will be pleased to make additions to the foregoing from colleges that have not heretofore responded and any proper revisions of the statements as published.—ED.

## ASSOCIATION NEWS.

**The Journal is Now Copyrighted.**—At the last meeting of the Committee on Management of the Board of Trustees, President Garcelon presiding, a resolution was passed directing the editor hereafter to have the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION copyrighted each week. The Trustees directed that all journals should have full and complete permission to reprint any article appearing in the JOURNAL, or part thereof, provided due credit is given to this journal when the article or item is reproduced.—JOURNAL AMERICAN MEDICAL ASSOCIATION.

[Good work well done.]—*Southern Practitioner.*

## SOCIETY NEWS.

**Marion County (Ohio) Medical Society.**—At the annual meeting of the Marion County Medical Society held in Marion, the following officers were elected for the ensuing year: Dana O. Webb, President; D. S. Maddox, Vice-President; A. M. Crane, Secretary; H. L. Uhler, Treasurer; O. W. Weeks, W. C. Denman and F. W. Thomas, Standing Committee. A new constitution and by-laws were adopted and signed by the members. The report of the committee on the revision of the fee-bill was made the special order of business at the next regular meeting in February, at which time the newly elected President will deliver his inaugural address.

**Lancaster (Pa.) City and County Medical Society.**—The regular monthly meeting of the Lancaster City and County Medical Society was held January 2. The attendance was large. The election of officers, which was the most important business of the meeting, resulted as follows: President, T. J. Wentz, New Providence; Vice-Presidents, J. A. E. Reed and J. F. Trexler; Recording Secretary, William Blackwood; Corresponding Secretary, Walter Boardman; Treasurer, G. R. Rohrer; Censors, A. M. Miller, Bird-in Hand, William Compton and M. L. Davis.

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,  
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.  
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, JANUARY 12, 1895.

THE BOOK REVIEW BUSINESS.

"As good almost kill a man as kill a good book; who kills a man kills a reasonable creature, God's image; but he who destroys a good book kills reason itself."—MILTON'S *Areopagitica*.

It is with genuine regret that we invite the attention of the American medical profession to an abuse which has arisen in the matter of reviewing books by some otherwise excellent medical journals. For some years we have been watching the review columns of certain of our contemporaries to see if they showed the secret influence of the publisher. Facts which have come to our ears in the past year or two prove the suspicion to be more or less well founded that in reviewing or in *not* reviewing the publications of rival houses, the publisher's financial interest is frequently more plainly manifest than the reviewer's scientific interest. In other words, the editor-reviewer instead of speaking solely from the standpoint of the scientific or literary critic, becomes the mouth-piece of the publisher, and his opinion is accordingly vitiated as a medical guide.

The guiding principle of a dignified medical journal is that the reviewer and editor shall tell his readers the truth about a book sent for review, as he himself thinks and believes. He does not assume infallibility, but simply gives his opinion. But when the publisher of the journal is also the publisher of a competing book, and by some invisible method makes the editor speak according to the dictates of mercantile rivalry, we then have the abuse of which we complain.

Far worse, however, than misrepresentation of a book and manifest hypocrisy, is to ignore it altogether. Not to review the competing book of a rival firm

is worse than to review it through the counting-house spectacles. It is worse because it is mean, and because it is not likely to escape attention except by the rival publisher or author. Such a height has this editorial subserviency and publisher's dictation attained, that publishing houses often do not send certain new books to certain journals, because they fear that they can not get a fair review, or because they can get no review whatsoever.

The moral of the whole matter is the discreditable-ness of editorial subserviency, and the wrongfulness of the publisher in using for commercial purposes the columns of a journal supposed to be devoted solely to medical and scientific matters. There are, to be sure, all grades or degrees of this subserviency from that of the man who copies the eulogistic printed notices sent in advance by the publishers of the vilest trash, up to that of the "Olympian" editor smothered in respectability, and who, obedient to the wink of the publication office, damns with very faint praise or entirely ignores a great book, the merest mention of which might lessen the sales of a rival volume. And still another and important moral should not be omitted—the duty of the medical profession to own and govern the conduct of its journals. It is only in journals of the profession, for the profession and by the profession, that physicians will always be certain to find "the truth, the whole truth and nothing but the truth." In its review department, for instance, the readers of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION may rest assured that no secret influence governs the criticisms given of current literature. We have no interest in misrepresentation, in exaggerated fault finding, or in exaggerated praise, and more than all we have no interest in silently ignoring good books sent us for review. The progress of medical science depends largely on the dissemination of the best books, and the recommendation or criticism of books by medical journals should be carried on conscientiously and in the interest of medicine and not of the publication office. In fact it was for this reason, as much as for any other, that the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION was founded.

THE MAYBRICK CASE.

This celebrated case continues to attract attention in this country and in England. There is a well founded belief that Mrs. MAYBRICK is innocent, but thus far public sentiment has not been strong enough to move the Home Secretary to grant a pardon to this most unfortunate woman.

Perhaps there has never been a more flagrant example of jury incompetency than was shown in this trial. Of late there has been an increasing distrust in juries, and we would by no means join in a sweeping condemnation of jury trials, but believe

that surrounded by proper safeguards it has an abiding place in our jurisprudence. It is, however, in cases of involved circumstantial evidence such as the MAYBRICK case, that the ordinary jury fails. The average jury is able to judge of the credibility of witnesses and the general trend of testimony, but when it comes to weighing a complicated set of circumstances, the highly trained and educated mind can alone deal successfully with them. The jury which tried MRS. MAYBRICK, if we are to believe the statements concerning it, was rather below average intelligence. The judge who presided and is supposed to guide the jury in just such difficult cases was shown to have been suffering from parietic dementia at the time of the trial. He made a most intemperate charge which bore strongly against the prisoner and belittled every circumstance that pointed towards her innocence.

The chief points relied on by the Crown in this case were that MRS. MAYBRICK purchased arsenical fly paper, and shortly after her husband was taken with a severe gastro-intestinal inflammation. Arsenic was found in a medicine bottle and in some luncheon put up by her for her husband. Supplies of arsenic were found in places about the house to which the prisoner had access. The accused had been unfaithful to her husband who had beaten her and she had written to her lover stating that MR. MAYBRICK was dangerously ill. Arsenic was found in a bottle of glycerin which she gave the nurse to cleanse MR. MAYBRICK'S mouth. There were arsenical stains on her dressing gown. Her husband said: "Don't give me the wrong medicine again," and "Oh, Bunny, how could you do it? I did not think this of you."

On behalf of the prisoner it was shown that she had used arsenical fly papers in making a face wash. The purchase was openly made and she bought other ingredients at the same time. Her husband had been ailing for a long time with a severe gastro-intestinal disorder. He was a confirmed arsenic eater, and used to take it in his food at luncheon. The arsenic found about the house could not have been derived from the fly paper, and the purchase of the latter showed that she was not aware that arsenic was in the house, and since the trial this arsenic has been traced to the husband. The prisoner summoned the physicians and the nurse. The letter to the lover contained other exaggerations than that regarding the illness of her husband and was written for the purpose of inducing him to remain in the country. After their quarrel, husband and wife had become reconciled, and the illness began a month later. Arsenic in quantity as large as that found in the mouth wash is a common impurity in glycerin. The spots on the dressing gown are easily accounted for by the use of the face wash. The husband never referred in any way to poison or arsenic, though he

knew there was a supply in the house, and felt certain that his wife was unfaithful to him. The change for the worse in MR. MAYBRICK took place the day he forgot to take the luncheon which his wife had prepared, and in no case did it appear that the illness was aggravated soon after anything administered by the accused. The amount of arsenic found *post-mortem* was far less than a fatal dose and was consistent with its medicinal administration. This opinion was given by the late CHARLES MEYMAT TIDY, an authority in legal medicine and one of the best toxicologists in England.

It may be that MRS. MAYBRICK is guilty of the murder of her husband, but if so there is a deplorable lack of evidence of the fact. As for the ordinary legal rule, that reasonable doubt shall acquit, it becomes an utter absurdity when applied to such evidence as was adduced in her case.

#### THE MEDICAL COLLEGES OF THE UNITED STATES.

Some weeks ago the JOURNAL sent out a circular to all the Medical Colleges in the United States and Canada, and the returns which are now all in, were handed to DR. FRANK W. REILLY, well known as an authority on the subject of medical education, for tabulation and summary. The results are this week spread before our readers, and will doubtless surprise many whose knowledge on the subject is not based on intimate acquaintance with the schools themselves. The advance that has been made in the last decade is not so apparent as to be very gratifying to the friends of higher medical education generally, or to the medical profession. The report may well serve as a convenient basis for comparison, in the year 1905, and the JOURNAL of that year, we trust may be able to show a progress equally marked.

#### SELECTIONS.

**A Department of Public Health.**—The country is to be congratulated upon the fact that the President's message to Congress recommends a Public Health Department. Through the whole message, there is no more important subject considered than this one. Indeed, for the benefit of the people at large it outweighs in importance all other subjects considered in his message. The people may differ as to free iron and coal, and as to the repeal of the differential duty on sugar; it may be doubted, too, whether the Army should be increased in numbers or not, and some might doubt the propriety of extending the coast defenses, but if the health of the nation is to be preserved, no one can doubt that a Department of Public Health should be established. The following is the pointed way in which the President states his opinion on this matter:

"I am entirely convinced that we ought not to be longer without a National Board of Health or National Health Officer charged with no other duties than such as pertain to the protection of our country from the invasion of pestilence and disease. This would involve the establishment, by such board or officer, of proper quarantine precautions or the necessary aid and counsel to local authorities on the



subject, prompt advice and assistance to local boards of health or health officers in the suppression of contagious diseases, and, in cases where there are no such local boards or officers, the immediate direction by the National Board or Officer, of measures of suppression, constant and authentic information concerning the health of foreign countries and all parts of our own country as related to contagious diseases, and consideration of regulations to be enforced in foreign ports to prevent the introduction of contagion into our cities and the measures which should be adopted to secure their enforcement.

"There seems to be at this time a decided inclination to discuss measures of protection against contagious diseases in international conference, with a view of adopting means of mutual assistance. The creation of such a National Health establishment would greatly aid our standing in such conferences and improve our opportunities to avail ourselves of their benefits. I earnestly recommend the inauguration of a National Board of Health or similar National instrumentality, believing the same to be a needed precaution against contagious disease and in the interest of the safety and health of our people."

The farming element of the country was clamorous for a long time that a Department of Agriculture should be established, and it was only within the last few years that recognition was accorded it. That it was a wise move the whole country now agrees. How much more important is it that a Public Health Department be established. When one reads in the daily press of the existence of great epidemics prevailing across the water, the danger is made very apparent and we call for assistance and protection from every hand. In times past, such scourges as cholera and yellow fever were left alone to devastate our country with no recognized power to stop their onward progress. With a Department of Public Health established, and a Secretary of the same in the Cabinet, the country would feel safe, in that a power existed that would enable us to grapple with such terrible monsters. It is well enough to look after the finances, and have an able Secretary of the Treasury; it is important that the Army should be looked after by the Secretary of War; that the Navy should be made a pride to the country, and its head should be, as it is, represented by a great mind. Each and all of these departments that have at their head honored and distinguished men deserve to be controlled with the greatest accuracy and precision. To this proposition no one would dissent, and yet, strange to say, the Congress of the United States in the past has hesitated to establish a Department of Public Health. To keep abreast of the times and to be equal to other nations, the time has now come when such action is imperative. We find other nations are continually appointing commissions for the investigations of contagious diseases. Their people must and shall be protected from all such. Money is expended freely and lavishly for the investigation of scientific medical problems, and the result is that thousands upon thousands of lives are saved annually. We do not want to fall behind others in this line of duty, but in every international conference of this kind the United States should be represented and backed by the strong hand of the Government. In the name, then, of science, of mercy, and of justice to the people at large, let a Public Health Department be established. The medical profession of America will unite as one man in thanking the President for his recommendation in this matter. Let every medical journal in the land publish and indorse his views. Quoting the able editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, we would say: "*Let there be created a Department of Public Health.*"—*Mathews' Medical Quarterly*,

**Must be Recognized.**—Medicine must be recognized in the Presidential Cabinet, and also in the official family of every governor and mayor of large municipalities.—*Cincinnati Lancet-Clinic*.

## CORRESPONDENCE.

### Medical Education and the Colleges.

Boston, Mass., Jan. 2, 1895.

*To the Editor:*—The numerous addresses, editorials and letters which have appeared recently, not only in your own valued JOURNAL, but in many others, show how much the medical profession is thinking and talking about its own condition and how anxious it is to set its own house in order. They have inspired me also, who have had something to do with the manufacture of doctors in more than one State, and who have had many opportunities to inspect the finished product, to make a few remarks on the same subject.

It is said that the medical profession in the United States is overcrowded. It can not be denied. The sick among 450 people do not need a whole doctor, and unless they include a liberal proportion of the 400 or their imitators, or unless very vigorously cultivated, do not support one. Hence the multiplication of specialties. But is it the only profession which is crowded? Ask any young man just out of college what he intends to study next, and see if he thinks there is any walk of life which he can enter without pushing. It is simply bearing a part in the general tendency of the times.

There are, however, certain causes for a special overcrowding of this profession, for a part of which it is itself to blame and another part which has its roots far deeper in the weaknesses of human nature. A young man generally chooses his profession more or less consciously, from one of three motives, or perhaps two of them combined: 1, the attractiveness of its study or practice to his intellectual and moral tastes; 2, the probability of its giving him a comfortable subsistence; or, 3, the possibility of its making him very rich or very famous. The first of these motives brings the best and a very large class of material to the medical profession. The men who choose the study of medicine for their love of science and who practice it because it brings them nearer to science and to humanity are the solid standbys of the profession, the steady line of brave and disciplined men without whom it would become an incoherent mob of self-seeking, vainglorious, boasting, turbulent quacks. Happily they are in the majority. Unfortunately it is not rare to meet those who have persuaded themselves that they have an overmastering love for science or for medicine merely because they have so intense a dislike for the other alternatives, which are apt to be some of the humbler walks of life in which they might, if they would, walk, less conspicuously indeed, but with much greater benefit to the community. I remember the surgeon in a military hospital showing me a case where the first surgeon had sewed up a scalp wound very neatly over a fracture of the cranium, with the remark that he had "spoiled a good tailor to make a poor surgeon."

This brings me to the second class, who choose medicine simply as a means to a comfortable livelihood and perhaps to an improvement in social position. Here, too, a normal and proper desire if backed by good sense and industry, send into the profession many, not usually its brightest ornaments, but excellent practitioners and highly useful men in the community.

The third class attack the profession and the public at its weakest point. The gambling instinct, the desire to "go a-fishing," to "take a flyer," to get something for little or nothing, or to play heavy stakes for great prizes is an exceedingly common if not universal one.

In many professions the candidate knows that if he is to have any chance of winning great prizes he must put in great stakes in talents and in industry. If he realizes that he has not the former he does not try to come into that game.



But in medicine he can not help seeing that, in this country at least, the most money does not go to the profoundest pathologist, the most acute diagnostician, or even the really best practitioner. He has constantly before him the example of men who have won fortune with a very moderate proportion of professional attainment, but an excellent capacity for displaying all that they know and a very great deal of shrewdness in concealing what they do not know. It is not strange, then, that a youth with a certain quality of brain and a certain appearance of brainpan should conclude that the medical profession is the best market to which he can carry it.

Add to these three classes the few who drift into medicine as they might have drifted into anything else, and whose chances of success may be as good there as anywhere, and we certainly have an overcrowded profession. The medical schools until recently encouraged them all. Some do so still. Overcrowding means treading on each other's toes, scrambling, pushing, more or less decorous, certainly not tending to the dignity of the profession, going far beyond the bounds of generous rivalry and approaching dangerously near the manners and morals of advertising trades.

For remedies we have to place before the entrances to the profession, sieves coarse and fine, at least an entrance examination for admission to the schools and a State examination or a rigid inspection by the government of degrees and methods; the one of which, by its actual presence, and the other by the fear of its approach, would keep out the least competent. The first I would demand not only because certain subjects, like chemistry, physics, and elementary biology ought to be preliminaries to a medical education but because the student ought to know how to study. He cannot afford to spend his precious first year, which ought to be given to profitable work in dissecting room and laboratory, in learning how to make use of his opportunities.

The State examination should not deprive any American citizen of his inalienable right to be humbugged. If he wants it he should have it, but under its own name. But since the rights of the man of common sense and those of the community in general deserve to be protected as much as those of the seeker after miracles, the State has a right to say that those who publicly profess to be physicians in the ordinary sense of the word should have some preparation therefor. The process of waiting for the survival of the fittest is too tedious and too disastrous.

Between these two comes medical education, which is rapidly getting into a very healthy shape. The general recognition of the paramount importance of laboratory instruction in all branches of physical science, in other words making the student work himself instead of merely watching the results attained by the professor's experienced hand, is one of the important changes which is going on more rapidly now than ever before. In medicine this means clinical work, and especially clinical work in small classes. The small hospitals so rapidly springing up all over the country are a most important means to this end, and both they and the older and larger ones should be made to give such instruction to the largest possible number of students. The number of internes and externes should be increased to the widest limits consistent with the proper working of the institution. Much good material now goes to waste for want of orderly record and careful sifting which might be done by the aid of students to their own great advantage as well as to that of science.

No one can look over a series of French and German inauguration theses or the voluntary papers of many of our own young men, without recognizing how immense is the value in mental training of taking up some special subject under the guidance of an instructor and following it care-

fully and thoroughly. Every hospital in this country, large and small, should be a center of education for the profession and for the laity.

Medical education is advancing in the right direction, and that rapidly, but the end is not yet. It is only four or five years since a friend told me that he had met (I think in a so-called "consultation") a recent graduate who confessed that he had never felt a patient's pulse. A medical school without abundant laboratory facilities I would, if it were in my power, remorselessly stamp out. One without adequate clinical opportunities not only offered but with their careful use rigidly enforced I would treat with as little respect, unless it were willing to recognize distinctly and formally its position merely as a feeder.

But until sentiment changes, the pressure upon our sieves will be strong and some bad material will get through. For this change we and our children and children's children, will have to wait. When the community can be made to see that a humble place well filled is more honorable than a conspicuous one badly filled; that no profession carries with it respect and dignity except to him who has worthily won it, then and not before will medicine like the other professions cease to be overcrowded. I am very truly yours.

E.

#### Civil Service in State Institutions.

CHICAGO, ILL., Jan. 8, 1895.

To the Editor:—The readers of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION will no doubt be interested to learn that an attempt will be made to introduce into our State institutions a system of civil service reform in the formation of the medical staff. The affixed circular letter was recently sent to the trustees of the four insane asylums. The matter will be thoroughly discussed at an approaching meeting of the superintendents of the insane hospitals and the President of the State Board of Charities. The competitive examination will be impartial and no doubt patterned after that at the Cook County Hospital.

Yours truly,

BOERNE BETTMAN.

STATE OF ILLINOIS, THE BOARD OF STATE COMMISSIONERS OF PUBLIC CHARITIES.

SPRINGFIELD, ILL., Dec. 20, 1894.

TO THE TRUSTEES OF THE ILLINOIS HOSPITALS FOR THE INSANE:

Gentlemen:—It is generally acknowledged by those who have had an opportunity to become familiar with the routine of our hospitals for the insane that the medical staff in all of them is numerically insufficient. In large institutions at least one medical attendant should be allotted to every 200 insane patients. In most of our hospitals a far greater number of insane are cared for by one physician.

The desire to better care for the insane and to stimulate scientific research induces us to recommend a system in use in most of the general hospitals of the world, viz.: The employment of internes. We suggest the appointment of one interne for every 400 patients cared for in each of the four insane asylums of the State. The appointments should be given to those who have obtained the highest mark in a competitive examination. The time of service of these internes is to be one year and a salary of \$20 per month besides board and lodging.

All senior students of medical colleges in good repute with the State Board of Health, and those general practitioners of this State who have not practiced more than five years, are eligible to the examination. Vacancies in the staff of the regular assistant physicians should be filled from the ranks of these internes. We suggest that all further rules and regulations governing the appointment and employment of these internes be definitely settled at a meeting of the superintendents of the four State Hospitals and the chairman of this Board, to be hereafter called.

We also desire to impress upon the administrative officers of the various hospitals, that a well qualified pathologist is needed at each institution. The pathologist will be expected to organize staff meetings and to deliver regular courses of lectures on mental diseases and their allied branches. To

this end a laboratory should be equipped at each hospital.  
By order of the Board.

BOERNE BETTMAN, M.D., President.  
GEO. F. MINER, Secretary.

Approved by the Governor.

### Jefferson Medical College.

*To the Editor:*—Many members of the Class of 1879 Jefferson Medical College, of Philadelphia, are desirous of having a class reunion on the occasion of the fifteenth anniversary of their graduation. Owing to changes, comparatively few addresses are known and therefore this means is resorted to, with the hope that every member of the Class of 1879 who reads this notice will communicate at once with their Class President, Dr. Philip R. Koons, Mechanicsburg, Cumberland County, Pa.

### NECROLOGY.

**DR. A. B. COOK.**—Dr. Archibald B. Cook, of Louisville, Ky., died on the 2d inst. His death was caused by pleuropneumonia, but he has been in ill health for some time, not giving up until the very last, in fact making his rounds one day with a temperature of 105 degrees. Dr. Cook was born in Nobletown, Pa., sixty-six years ago. His father, John Cook, was a native of County Derry, Ireland. He received a liberal education in Wheeling, W. Va., and at Jefferson College in Allegheny County, Pa., and was a prominent member of the Franklin Literary Society of that College. In 1845 he received the degree of A.B., and in 1851 the degree of A.M. was conferred upon him. He studied medicine and graduated from the Medical College at Sharpsburg, Pa., from the College of Physicians and Surgeons, New York, and from the Kentucky School of Medicine in this city, and began the practice of medicine in this city in 1855. He was a member of the AMERICAN MEDICAL ASSOCIATION, Kentucky State Medical Society, and was a vice-President of the College of Physicians and Surgeons, this city, now defunct. For years he was Professor of Surgery in the Kentucky School of Medicine, and for twenty years a surgeon of the Marine Hospital. He was a member of the local Board of Health and of the Board of Commissioners of Public Charities. On Feb. 12, 1872, Dr. Cook married Mrs. Fannie M. Roberts who died on Nov. 29, 1886. Six years ago he was again married, and his wife and one child survive him. In 1860 Dr. Cook was appointed on Gen. S. B. Buckner's staff with the rank of major.

**DR. F. L. HARROD.**—This bright and talented young physician was, so far as we can learn, shot down in cold blood at his home in Harrodsburg, Ky., and mortally wounded by Sheriff John T. Vanarsdell January 4. The shooting took place in front of Dr. Harrod's office. Vanarsdell approached and without any other words than an oath, fired at the Doctor, the bullet taking effect in his chest, and after he had fallen was shot again in the stomach. The wounded man expired without regaining consciousness. Dr. Harrod was 33 years of age and was a lineal descendant of the pioneer John Harrod, the founder of the town which bears his name. He was graduated from the Louisville Medical College in 1891, and began the practice of medicine in Harrodsburg. He was local pension examiner, and local observer of the Kentucky State Weather Service. The remains were buried in Lexington, Ky., with military honors, as the deceased was assistant surgeon to the Second Regiment, K. S. G.

**DR. ADAM HARTHILL.**—Dr. Adam Harthill, one of the leading veterinary surgeons of Louisville, died at his residence on the 30th ult., aged 39 years. He was born in England but came to this country when young and settled in Louisville soon after.

**JAMES F. RHODES, M.D.,** of Philadelphia, January 2.—**Wm. A. Elder, M.D.,** of Bloomington, Ill., January 3, aged 69.—**William Osgood, M.D.,** of North Yarmouth, Me., December 25, aged 69.—**Homer Campbell, M.D.,** of Racine, December 25, aged 69.—**John S. Robertson M.D.,** of Whiteville, Tenn., December 26, aged 75.—**A. S. Huston, M.D.,** of Anderson, Ind., December 28.—**G. W. Jones, M.D.,** formerly of Covington, Ind., at the Bermuda Islands, January 7, aged 50.

### PUBLIC HEALTH.

**Diphtheria Antitoxin.**—Surgeon-General Sternberg, U. S. A., has detailed Assistant Surgeon Charles B. Ewing to establish a diphtheria antitoxin "plant" at Jefferson Barracks, Mo., and Dr. Ewing has already procured a number of horses which after being subjected to the mallein and tuberculin tests and otherwise proved healthy, will be utilized for this purpose.

**New York's Lowest Death Rate.**—Calculated on an estimated population of 1,957,452 the death rate of New York city for 1894 was 21.05 per thousand—the lowest in the history of the city. There were 41,212 deaths during the year, of which 4,752 were from pneumonia, 4,687 from phthisis, 2,492 from Bright's disease, 2,371 from diphtheria, 2,177 from heart disease, 541 from scarlet fever and 156 from smallpox. Following are the death rates for the preceding six years:

1888 . . . . .	25.23	1891 . . . . .	24.73
1889 . . . . .	24.07	1892 . . . . .	24.26
1890 . . . . .	23.51	1893 . . . . .	23.52

**Epidemic Diseases.**—Influenza or "grip," which seems to have been lurking in the country since its epidemic prevalence in 1891-92, is assuming formidable proportions in New York and Brooklyn. In the former city 7 deaths were reported from the disease last week, with 3,000 cases under treatment. In Brooklyn, Dr. R. M. Wyckoff, Deputy Health Commissioner and Dr. Ezra M. Wilson, bacteriologist of the Board of Health, were reported suffering from severe attacks. The Board is having more than its share of sickness, Dr. L. C. Ager, sanitary inspector, and Dr. Jerome B. Thomas, assistant bacteriologist, also being disabled, the former with typhoid fever and the latter with diphtheria contracted in the laboratory.

Dr. Wingate, Secretary Wisconsin State Board of Health, reports, January 7, smallpox at Chippewa Falls, Manitowoc Rapids Tp., Mishicott and Milwaukee—sixty-eight cases in the latter city, twenty-seven in hospital and forty-one in homes. From another correspondent it is learned that the outbreak at Manitowoc Rapids is due to infected goods stolen from the smallpox hospital occupied at that place in the summer of 1894. Dr. Probst, Secretary of the Ohio State Board of Health, reports January 4, smallpox at Mansfield, Toledo and Millersport. Dr. Scott, Secretary Illinois State Board of Health, reports, January 7, an outbreak of smallpox at Kirkland, DeKalb County, which it is feared may be serious owing to the fact that the first case was treated as measles and an unknown number of persons exposed. The Detroit City Board of Health discovered January 4, that a carpenter, who had been employed on the new smallpox hospital, had contracted the disease and had been under treatment for ten days by a "Christian scientist;" the scientist has been arrested and will be prosecuted. On the 9th inst., there were eighty-six cases in the Chicago smallpox hospital; none in homes so far as known to the Health Department.

A cable dispatch of the 9th inst., confirms the reports of Dr. Cleary, Sanitary Inspector U. S. M. H. S., at Rio de Janeiro, as to the existence of Asiatic cholera in the Argentine Confederacy. The dispatch announces that it has been proclaimed epidemic in the provinces of Rosario and Santa Fe. Dr. Cleary had previously reported its extension along the line of the Sao Paulo Railway to a number of towns and railway stations in the Brazilian States of Sao Paulo and Rio de Janeiro, in consequence of which railway travel had been suspended and communication between the infected district and the port of Rio cut off. The comma bacillus of Koch had been discovered in most of the cases and the pretext of "choleraform diarrhea" had been abandoned; isola-

tion, disinfection and quarantine measures are rigidly enforced and it is hoped to prevent the infection of the port, although one case had appeared which Dr. Cleary believes to have been cholera.

## MISCELLANY.

**Medical Examiners in Georgia.**—We are informed that Georgia now has three Medical Examining Boards, one Regular, one "Homeopathic" and one "Eclectic."

**Personal.**—John L. White, M.D. of Bloomington, Ill., who was recently elected a member of the Legislature has resigned his position as a surgeon of the Chicago and Alton Railroad. He is an old and valued member of the AMERICAN MEDICAL ASSOCIATION.

**Medical College of Indiana.**—The Faculty of the Medical College of Indiana held a meeting December 14. It was decided to erect a new building at a cost of not less than \$50,000.

**New Health Officer.**—Governor Levi P. Morton, of New York, has recognized the general voice of the New York profession, by appointing Dr. Doty, of the City Board of Health, to be Health Officer of that port, *vice* Wm. T. Jenkins, M.D. No one could read the report of the New York Academy of Medicine on the conduct of quarantine in 1892, without realizing that the quarantine has, to say the least, been in very unsafe hands during the Jenkins regime.

**Cancer of the Breast, Operation Without Suture.**—M. Berrut reported a case of a woman in whom he made, twenty years ago, ablation of cancer of the breast. The wound was left open and healed by granulation. The cure was definite and has been maintained, until now when it was seen twenty years after the operation.—*Revue de Chirurgie*, November, 1894.

**Army Medical School.**—There are only two Assistant Surgeons in attendance at the current session of the Army Medical School as against seven in 1893-94. The Secretary of the Faculty, Walter Reed, Major and Surgeon, U. S. A. writes: "Decreased attendance at the session of 1894-95 is due to reduction of number of Assistant Surgeons, U. S. A., by recent act of Congress; otherwise our class would have numbered twelve. Our session only extends from November 1 to March 1 (four months) and is intended to give to recently appointed Assistant Surgeons careful instruction in bacteriology (especially the study of pathogenic organisms) in pathology of tumors, blood, urine, etc., and work in the chemic laboratory, embracing examinations of water, air, urine, adulteration of foods, etc."

**The Index Medicus.**—The following circular has been issued:

CHICAGO, Jan. 1, 1895.

*Dear Doctor:*—Since 1885 the Index Medicus has been carried on at a loss to the publisher, and without compensation to the editor, and within the last year the subscription list has so far diminished that the journal will cease to appear unless very substantial support is given by the profession.

The undersigned, committees of the Chicago Medical Society and Chicago Academy of Medicine, deplore the loss to American medicine that will accrue from the discontinuance of this valuable publication. It is the most complete bibliography of medicine that has ever been published, and the only one in the English language. The physicians of Chicago ought to feel a strong interest in maintaining this publication, as it is the only index to the vast accumulations that are added yearly to the Newberry Library. Will you not lend your support to the Index by sending a subscription to Dr. H. N. Moyer, 910, 103 State Street, or to the publisher, Geo. S. Davis, Detroit, Mich?

Very truly yours,  
NICHOLAS SENN, M.D. JAS. G. KIERNAN, M.D.  
J. C. HOAG, M.D. H. N. MOYER, M.D.  
W. H. WILDER, M.D.

**Thoracotomy in Sarcoma of the Breast.**—M. Vautrin, of Nancy, at the Congrès Français de Chirurgie, (*Revue de Chirurgie*, November, 1894) said that the indication for thoracotomy presented itself more often than is commonly thought, in cases of malignant tumors of the chest wall. These tumors give a grave prognosis and but little hope of survival, and in their evolution they arrive rapidly at invasion of the lung. This invasion is a contra-indication to operation, and it is a delicate point of diagnosis to determine this point with precision. Superficial tumors of the female breast, rarely invade the deeper structures but sarcoma constitutes an occasional exception. The deep tumors are generally recurrences of carcinomata. The contest is generally abandoned at this stage, although thorough intervention may give results. M. Vautrin has twice practiced thoracotomy under the following conditions:

1. A young woman of 19 years was attacked with a large sarcoma of the breast. In the course of the operation for removal it was seen that the ribs were invaded, and they were removed; it was then found that the pleura was also affected, and it was also resected. The air entered the thoracic cavity and caused syncope. After five minutes the pulse returned and he was able to complete the operation. This patient was cured and remained well.

2. This case was a recurring carcinoma of the breast, having invaded three ribs and seven centimeters of the pleura. These were excised, the sequelæ were simple and the wound was healing by granulation.—*Revue de Chirurgie*, November, 1894.

**Statue of Charcot.**—The pupils and former associates of Charcot in Paris and throughout France are engaged in raising a fund for the erection of a bronze statue of him in the Salpêtrière. This movement is now receiving cordial and material support in Germany, in England and in Italy. It has therefore seemed desirable to the neurologic societies of New York and Philadelphia that the profession in America join in this testimonial as an evidence of the eminent services of Charcot in neurology and medicine. For this purpose the undersigned have been appointed a committee to bring the matter to the attention of the profession and to receive contributions, which will be duly acknowledged and forwarded to the Central Committee in Paris. It is requested that all who desire to contribute to the success of this undertaking send their subscriptions to the members of the committee nearest them or direct to the treasurer, Dr. C. A. Herter, 819 Madison Avenue, New York, before the first day of February, 1895.

For New York.—E. D. Fischer, E. C. Seguin, M. A. Starr, C. L. Dana, C. A. Herter.

For Philadelphia.—S. Weir Mitchell, Wharton Sinkler, Chas. K. Mills.

For Boston.—J. J. Putnam, P. C. Knapp.

For Baltimore.—William Osler.

For Chicago.—Archibald Church.

For St. Louis.—C. H. Hughes, F. R. Fry, L. Bremer.

For Montreal, Canada.—James Stewart.

For Rochester.—E. B. Angell.

For Buffalo.—J. W. Putnam.

For Pittsburg.—Theodore Diller.

For Denver.—Howell T. Pershing.

For San Francisco.—J. D. Hirschfelder.

December 22, 1894.

**Abandonment of Fort McKinney, Wyoming.**—This military post was situated on Clear Creek, a branch of Powder River, about fifteen miles east of the main range of the Big Horn Mountains, two miles west of the settlement of Buffalo and thirty-three miles south of Clearmont, the nearest station of the Burlington and Missouri River Railroad. Its site was a table land elevated about forty feet above the level of the stream and composed of smooth boulders and gravel overlaid by clay. The climate was regarded as pleasant, most of the winter weather being clear and bright; and although the temperature sometimes dropped four below zero these cold spells were of short duration. The average annual

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, JANUARY 19, 1895.

No. 3.

## ORIGINAL ARTICLES.

### LITHOTOMY AFTER PARTIALLY SUCCESSFUL CLOSURE OF EXSTROPHY OF THE BLADDER—SUBSEQUENT CONSTRUCTION OF A PERINEAL URETHRA FROM SCROTAL TISSUE.

Read before the Philadelphia Academy of Surgery, Nov. 5, 1894.

BY JOHN B. ROBERTS, M.D.

PHILADELPHIA, PA.

In March, 1893, a child, aged 8 years, with exstrophy of the bladder, was brought to me at the Polyclinic Hospital for treatment. The mother told me that when 3 or 4 years old he had been operated on at the Children's Hospital. It was evident that some improvement in the condition had been made by this early operation, because the posterior wall of the bladder did not protrude, as is often the case, but formed a rather shallow cup at the base of the rudimentary penis. The flaps had evidently been taken from the surface above the congenital defect and at its two sides, as in Wood's operation, for the cicatrices in these regions were apparent. The urine ran from the bladder over the penis and scrotum, and also escaped from linear sinuses along the top and sides of the thickened tissue which closed the upper portion of the cleft in the bladder.

As a first step in the operation I endeavored to produce a perineal fistule by thrusting a curved needle from the base of the bladder through the perineum, behind the scrotum, and conducting a drainage through the opening so made. The tube was increased in size at various intervals until at the end of two months there was a canal which would contain a rubber urethral bougie of moderate size. I then etherized the patient a second time, and made a circular denudation around the edge of the open bladder. The rudimentary penis, consisting of the spongy body, the cleft glans and cleft prepuce was entirely removed. Cylindrical masses on each side of the opening in the bladder, which appeared to be the representatives of the cavernous bodies, were also dissected away. A piece of soft rubber catheter was then introduced through the perineal opening established by the first operation, and its end allowed to reach the floor of the bladder. The purpose of this procedure was to secure downward drainage of the urine after the edges of the bladder were brought together. Seven deep sutures were next inserted in a manner to bring the denuded edges of the bladder wall into apposition in a vertical direction. The wound was then sealed with iodoform and collodion. The perineal tube, however, soon became blocked with mucus and pus, which was continually flowing from the irritated mucous membrane of the bladder

and was not satisfactory as a drain. I finally passed a drainage tube from one of the upper sinuses directly through the bladder and out of the perineal opening, in order to prevent the sutures in the middle line from yielding. These middle sutures, however, finally gave way, and when the patient passed from observation there was a large opening in the middle of the attempted closure. Some union had, however, been obtained. The perineal opening showed a marked tendency to close.

I did not see the patient again until October, 1894, sixteen months later. At this time the perineal opening had entirely closed and its scar was inconspicuous, but the exstrophy of the bladder was completely covered by the new anterior wall. At about the middle of this wall, which had been constructed in the manner described, was a small opening of sufficient size to admit the end of a large probe. At the upper and right-hand side of the portion of the wall which had been constructed in infancy was a linear sinus about an inch in length. This was situated at one of the points which, when I first saw the child, allowed the urine to escape. There was a little oozing of urine from the small central fistula, but the major portion escaped from the sinus at the upper right-hand border.

The mother said that the patient suffered severe pain, which was evident by his crying at the least touch of the skin in the neighborhood of the central sinus. The insertion of a probe made it evident that the new bladder contained calculi. The child's general condition was poor, and it was evident that he had been suffering greatly. The offensive character of the urine and difficulty of keeping him free from its odor caused me to give him small doses of turpentine, which, as is well known, imparts a peculiarly agreeable odor to the urine. This device seemed to render the patient less offensive to the others in the ward. A few days later I enlarged the opening in the middle of the bladder wall in front and found the cavity filled with calculi. They were ten in number and varied from five-sixteenths to five-eighths of an inch in diameter. Their combined weight when not dried was 195 grains. It seemed to me that the establishment of a perineal urethra lined with skin would afford efficient drainage to the new bladder, and would remain patulous. I therefore determined to cut a channel between the perineum and the floor of the bladder, and turn in flaps of skin taken from the scrotum. As a first step, I incised the scrotum in the middle line and removed both testicles. I then made a puncture downward from the base of the bladder to this scrotal incision. This permitted me to utilize the scrotal tissue for lining the new channel. By two horizontal incisions on each side of the opening, I obtained strips of scrotal skin and superficial fascia half an inch wide and an inch and a half long. To the inner end of these, ligatures



were fastened and the threads carried upward through the new urethra. The cutaneous flaps were then drawn up along the canal into the bladder, and were then sutured on each side of the incision in the middle line of the anterior bladder wall. This maneuver lined both sides of the perineal opening with skin from the perineum to the anterior bladder wall. A drainage tube was inserted to keep the channel patulous, and the bladder and tube were washed out.

No attempt was made to close the opening in the middle line or that at the upper and right-hand side. I deemed it better to leave these open for convenience in flushing the foul bladder cavity. It was my intention to close these at a later period. The edges of the wound in the perineum left by the plastic operation were brought together with sutures, and healed promptly. Antiseptic solutions were used for washing out the bladder and tube, and the patient did well for several days. His temperature was not high, and the drainage through the perineal tubes was quite satisfactory, though not always perfect.



At the end of three or four days he began to lose his appetite and vomited occasionally. He died on the fifth day, apparently from exhaustion.

An autopsy showed disease of the left kidney, which was riddled with small abscesses. The ureter on this side was double, and showed great enlargement of the caliber and thickening of the walls. The pelvis of the kidney and double ureter were filled with pus. Just before the two ureters of this kidney reached the bladder, they united and opened into the bladder by a single orifice. The right kidney and ureter appeared to be normal.

The specimens presented will make the description of the case clear, since Dr. Bannister, the resident physician, removed the whole bladder and scrotum with the attached ureters and kidneys.

I believe this method of constructing a perineal urethra and lining it with skin from the scrotum will be found an efficient device in dealing with these unfortunate cases. It is very probable that the child would have lived if I had taken this step originally,

instead of making an opening into the perineum without cutaneous lining.

#### DISCUSSION.

DR. H. R. WHARTON—I would ask Dr. Roberts if it is not possible that these stones might not have had some connection with the growth of hair on the inverted flap. In Wood's operation the inverted flap often contains hairs, and these may continue to grow as the patient increases in age, and become the seat of calcareous depositions from the urine.

DR. L. W. STEINBACH—I would ask Dr. Roberts what is his theory in regard to the formation of these calculi? What is their nucleus? I recall a case of vaginal hysterectomy where a portion of the posterior wall of the bladder was removed. Within a week the stitches closing the bladder opening were covered with deposits of considerable size, and it was not an easy matter to remove the sutures, incrustated as they were.

### OPERATIVE TREATMENT OF THE DISEASES OF THE GALL BLADDER.

Read at the Meeting of the Military Tract Medical Association held at Quincy, Ill., Oct. 18 and 19, 1894.

BY ALEX. HUGH FERGUSON, M.D.

CHICAGO.

Since the days of Petit (1733) till our own time, very little or no progress was made in the surgery of the gall bladder. To Dr. Bobbs, of Indianapolis, (1867) belongs the credit of being the first to deliberately open the gall bladder for the removal of gall stones; to Marion-Sims (1868) the honor of giving the procedure a scientific name—cholecystotomy; and to Lawson Tait the praise of perfecting its technique as we perform it to-day. It was found that a permanent fistula followed in a certain proportion of the cases operated upon, much to their discomfort, exhaustion, and sometimes even death from the loss of bile. There are certain abnormal conditions which render life loathsome to one's self, and this may be said to be one of them. While it is true that nature had in some cases made an opening into the bowel for the passage of the gall stones and bile, and this resulted in perfect cures, still not until cholecystotomy allowed the escape of bile from the economy, proving a nuisance and a danger to life, did an indication for a new operation—cholecystenterostomy forcibly impress itself upon the surgical world. It was suggested by Nussbaum (1880), performed by Winiwarter (1881), and followed by Monastyrski, Kappeler, Gaston, Harley, Mayo Robson, Colzi, DePage, Terrier, Courvoisier, Frische, Bardenheuer, Czerny, Helfreich, Réclus and others. Some used caustics, others sutures or the elastic ligature, which attempts were all tedious and dangerous. On June 11, 1892, Dr. J. B. Murphy, of Chicago, by a stroke of genius applied with success an invention of his own—the anastomosis button—to establish a bile route between the gall bladder and duodenum, and closed the abdominal wall at the same time. The selection of a particular portion of the alimentary canal—the duodenum, led me on August 3, 1893, when I first used this button to give the name of cholecyst-duodenostomy to Dr. Murphy's operation. *The total extirpation of the gall bladder*—cholecystectomy—suggested itself to Dr. Langenbech, not for malignancy as one would suppose, but for gall stones. In spite of the bitter opposition he received from 1884 to 1889, a fair proportion of surgeons have followed his advice. With this short introduction I shall now proceed to discuss the indications which induce us to perform the above mentioned three principal operations upon the gall bladder, viz.:



1. Cholecystotomy.
2. Cholecyst-duodenostomy. (Cholecystenterostomy.)
3. Cholecystectomy.

Puncture of the gall bladder and crushing of gall stones in the gall bladder could only be mentioned but to be condemned. The crushing or removal through incision of gall stones obstructing the biliary ducts are procedures worthy of our attention. It appears to be inevitable to the progressive development of medicine and surgery, for the scientific pendulum to swing forward or back, responsive to laudations or adverse criticisms, be they just or unjust. By trying, sifting, selecting and carefully studying our own work, and that of others' do we eventually arrive at an approximate value of an operation, and the main indications for recommending it. Be the function of the gall bladder a storer of bile, or the controller of the tension of the bile circulation (Murphy) or both, we know it constantly contains more or less bile; that cholesteroline concretions—the so-called gall stones—frequently accumulate within it, pass down the ducts, causing severe pain and result in grave constitutional disturbances, jaundice, etc., from obstruction; that the gall bladder is subject to diseased conditions; that compression of the common duct by neoplasms, or its occlusion by parasites and pancreatic calculi affect it indirectly; and, finally, we know that this organ may be dispensed with altogether without deleteriously affecting the system. Nearly all these call for surgical aid. *Cholelithiasis* is by far the most common of them. Let us, for a moment, glance at the many dangers of this disease:

1. Colic.
2. Obstruction of the cystic duct.
3. Obstruction of the common duct.
4. Obstruction of the bowels.
5. Dropsy of the gall bladder.
6. Inflammation of the gall bladder.
7. Empyema of the gall bladder.
8. Contraction of the gall bladder.
9. Ulceration into the peritoneal cavity.
10. Cicatricial obstruction of the ducts.
11. The irritation and low inflammation predisposing to cancer.
12. Jaundice and cholemia.

Let the physician who is in the habit of saying to his patients, suffering attack upon attack: "Oh, its only gall stone colic," study these dangers, and then apply the postponement of seeking surgical relief to his own person. The Golden Rule is aptly befitting. Can the milder forms of cholelithiasis be cured without the knife? Why not? Why does this excrementitious substance—cholesterine—not go on to its stercoraceous transformation, and not form stones in the biliary system of ducts? Is it a conservative act, on the part of nature, to prevent absorption of the constituents of the bile in catarrhal and obstructive conditions of these ducts? What is the relationship of a frequent companionship of cholelithiasis and the gouty and uric acid diathesis? What local or blood changes predispose to their formation? What diet, medicine, or hygienic surroundings might prevent them? Solve that question and the surgeon's knife, needle or button will happily be less in demand. Experimental researches in these directions are very enticing and should bring forth most beneficial results. At present,

however, we must content ourselves with the frequent recommendation of an operation—the opprobrium of the healing art.

*When should the gall bladder be explored by opening the abdomen?*

1. For attacks of biliary colic, where the gall bladder has become enlarged, and then suddenly subsided with instant relief to the patient, but no stones found in the stools, and the region of the gall bladder remains tender for several days. This most likely means that a stone in the gall bladder entered the cystic duct, but was too large to pass through it. The gall bladder became more and more filled with secretions from its mucous lining, gradually distending it until the stone was liberated and fell back into the cavity of the gall bladder again, and the mucus and bile found free escape through the ducts. Small stones may pass through and a large one obstruct the cystic duct, giving rise to a similar colic, but if at all slow in descending the common duct signs of the absorption of bile become manifest.

2. For jaundice following one or more attacks of colic. It may be caused by a stone urged on from the gall bladder by repeated attacks, and becoming lodged at the commencement of the common duct. In this instance the gall bladder enlarges steadily for a time, becomes more tense and tender, before any diminution is noticed, and this decrease in size, when it does occur, is very gradual indeed, the jaundice deepening all the time. A stone lodged in any part of the common duct will produce a similar condition.

The following case is a clinical picture of this indication:

In November, 1891, Mrs. Van C., aged 37, came from Dakota to Winnipeg for treatment. She had suffered for twelve years with biliary colic, the attacks became more and more frequent, until she had only two or three weeks' respite. The region of the gall bladder was always more or less tender for years; has had inflammation there several times; the last attack came on six weeks previously, and jaundice has been present since the first few days of its onset. On presenting herself at the Winnipeg General Hospital, after riding on the train over one hundred miles, the first indication was to relieve the pain and inflammatory symptoms which had become aggravated by the journey. She was rather emaciated and profoundly poisoned from the absorption of bile. Her whole trouble was caused by a small stone which, after opening the gall bladder, I removed with forceps from the origin of the common duct. The walls of the gall bladder were fully half an inch thick, friable, and bound down with extensive adhesions. The cavity of the gall bladder was washed out and its walls stitched with the parietal peritoneum and skin, in the usual way. It closed rapidly and she has enjoyed excellent health ever since.

3. For persistent tenderness over the gall bladder. The interpretation of this sign is that subacute inflammation is going on, due to the presence of gall stones. So tender is this region that in some cases even the pressure of the necessary clothing is intolerable. Upon looking into the history of such cases it is found to be that of biliary colic. The condition is likely to be a contracted and thickened gall bladder reduced to the size of the stone or stones within it. There may be points of ulceration or even gangrene. It must be remembered that persistent pain is also characteristic of cancer of the gall bladder. If cancerous, an irregular tumor, slowly increasing in size and accompanied by the subjective and objective symptoms and signs of malignancy makes its appearance.

4. For enlargement. In all cases of persistent and marked enlargement of the gall bladder, an ex-

ploratory incision should be advised. It means that it may contain: 1, an enormous number of stones; 2, clear mucus; 3, pus or mucus-pus and some bile; 4, nothing but bile; and 5, that a new growth is invading it or the ducts, usually cancer. Should the tumor be due to stones, mucus or pus, a history of cholelithiasis is almost invariably elicited but not always. Dropsy of the gall bladder not infrequently occurs without any history of colic, and it becomes enormously enlarged reaching down to the brim of the pelvis. I can recall two such cases:

*Case 1.*—A half-breed woman, 60 years of age, presented herself at my clinic at St. Boniface Hospital, Manitoba, with a movable tumor in the right abdomen, so closely simulating a floating kidney that I could not to my own satisfaction make a differential diagnosis. It could be moved to the region of the kidney, but it could not be felt to slip into its bed as a kidney does; there was no bowel in front of it, and an area of some dullness could be traced to the edge of the liver; three facts which pointed to the enlargement being a gall bladder. On Oct. 21, 1893, an exploratory incision revealed a dropsy of the gall bladder with one enormous calculus which was removed, and the cholecystotomy completed.

*Case 2.*—Mrs. H., aged 45, on whom I performed a cholecystotomy, before the post-graduate class, at the Chicago Charity Hospital on August 21, 1894, assisted by Dr. Burdick, in which a dropsical gall bladder contained four large stones and one small stone. There was a history of chronic constipation and clay-colored stools for twenty years, but no other disturbance until a tumor was noticed nine weeks before entering the hospital, when local tenderness and an uneasiness ensued.

Empyema of the gall bladder is caused by the irritation of gall stones, plus infection. There may be quiescent gall stones, (no symptoms of disturbance) until the person is taken ill with some infectious disease, as typhoid fever, etc., when at some stage of its course or during convalescence, rigors come on suddenly and a tumor appears. In November, 1893, I was called to Morden, eighty miles from Winnipeg, to see such a case. A woman aged about 37 years was down nine weeks with typhoid and convalescing, when pain in her right hypochondriac region came on, followed by repeated rigors, high temperature 104.2 degrees, etc., and the appearance of a tumor. The case was so severe that we dared not venture an anesthetic. Her pulse was 130, temperature 102, greatly emaciated, and had not slept for two or three nights. *I performed a cholecystotomy with the aid of cocaine.* It was interesting to notice that the skin and parietal peritoneum were the only two structures that required anesthesia. The surface of the gall bladder was insensitive to the needle and knife. In this operation I was assisted by Drs. McConnell and Boyle. We found pus, bile and thirty-two gall stones; some large, others small; washed out the gall bladder, and stitched it to the skin. She made an uninterrupted recovery, but there is still a small fistulous track which is troublesome, although not affecting her general health. I have advised her to come to me, to Chicago to have it treated. It may close itself. Should the enlarged bladder contain nothing but bile, the obstruction in the common duct is not infrequently caused by cancer at the head of the pancreas or sometimes by a pancreatic calculus.

These are the clinical features of some of the cases which call for opening the abdomen for diseases of the gall bladder and obstruction of the ducts. The question now arises which operation to select: Cholecystotomy, cholecyst-duodenostomy or cholecystectomy? The necessity of performing either of them must be on pathologic grounds, and the diseased conditions can not to a certainty be known before the abdomen is opened. We have not had the results of a sufficient number of these operations to make a comparison. From a surgical standpoint, cholecystotomy, in suitable cases, is the most rational, the simplest and safest operation, and if it is capable of rectifying the pathologic conditions it should be the one selected. I should choose it:

1. When the cystic and ductus communis choledo-

chus are normally patulous. The gall bladder may have been enlarged with stones, bile, mucus or pus, which should be cleaned out and the permeability of the ducts tested.

2. When the obstruction can be easily removed from the cystic or common duct through the incised gall bladder.

3. When there is temporary obstruction of the ducts with inspissated mucus, parasites, liver flukes, worms, etc. I met with one case of obstruction of the whole hepatic and the commencement of the common duct with hydatid cysts, which could have been removed by opening the gall bladder and rupturing the little cysts with a probe. The man died on the eighth day, of jaundice. The history of the case was obscure. I did not then (1889) feel justified in making an exploratory incision, which I have since regretted.

4. For the temporary relief of distress and jaundice in obstruction of the common duct by a cancer of the pancreas when the patient can stand but little surgical interference without collapsing on the table. The first indication includes the majority of gall stone cases. The operation can be done in one or two sittings. The condition of the ducts can best be ascertained when the gall bladder is opened in one sitting. I think, therefore, that this should be done with but few exceptions.

Cholecyst-duodenostomy is without doubt Murphy's operation, and it is a valuable addition to the surgery of the gall bladder. His ingenious and useful anastomosis button is to my mind the best and safest device that has yet been produced, to establish a new route for the bile into its natural receptacle—the duodenum. Up to the present there has been reported but one death and that one from hemorrhage from torn liver, out of thirty-six cases operated on for cholelithiasis. The button in this situation is constantly bathed with an antiseptic fluid—the bile—and the duodenum is comparatively free from germs, which adds to its safety. For the fulfillment of the following indications it is the most ideal operation that has yet been offered to the profession:

1. When the cystic and common ducts are permanently obstructed, and the gall stones can not be removed through the opening in the gall bladder.

2. When the common duct is obstructed by cicatricial tissue.

3. In cases of biliary fistulæ and chronic recurrent cholelithiasis vesicularis.

4. In cases of perforation of the choledochus into the abdominal cavity.

5. In all cases of cancer of the head of the pancreas obstructing the bile duct, unless too weak to stand it.

I have successfully used Murphy's button in the following cases:

*Case 1.*—On Aug. 3, 1893, at St. Boniface Hospital, I operated on Mrs. McK., assisted by Drs. Hutton, Todd and McArthur. The patient was 58 years of age. There was constant tenderness over the gall bladder, so that the patient could not even bear the clothing; history of biliary colic for four years. Had several attacks in one day. No jaundice. The gall bladder was opened, and I removed one stone. Could feel another in the cystic duct which I could have extracted with forceps, but left it *in situ*. Could feel no irregularities along the course of the common duct. The small sized button was applied and the wound closed. Upon opening the duodenum I could see its mucous rugæ bathed with bile, and I reproached myself for doing that which seemed unnecessary, for the common duct was patulous. She did ex-

cellently, passed the button the eleventh day, and ever since has enjoyed excellent health.

*Case 2.*—Mrs. J. B., aged 56, troubled for six years with gall stones; jaundiced; found stones in gall bladder, cystic and common ducts; removed stones from gall bladder and cystic duct, but not from common duct. Applied the medium-sized button Oct. 16, 1893, which passed on the eleventh day. Her convalescence was uninterrupted and now enjoys the best of health.

*Case 3.*—Mrs. K., aged 58; referred to me by Dr. Flemming, of Brandon; suffered for years; became jaundiced. Operated on Feb. 22, 1894; found contracted gall bladder, bound down by adhesions; removed stones from it and the cystic duct; could not pass a probe, nor water down the common duct. Applied a small Murphy button with some difficulty. Had to dislodge the duodenum from its bed. Button passed on the tenth day. She has been restored to perfect health.

*Case 4.*—Mrs. —, aged 32, had several attacks of colic; became jaundiced from a severe attack. Had inflammation over the gall bladder. Was the patient of my friend, Dr. Knill, of Detroit, Mich. On my way South I called on my old college mate. Went to see his patient and urged operation, which he had already advised. The next day, March 23, 1894, he cut down to the gall bladder and upon removal of a great number of small stones from the enlarged bladder, the ductus choledochus was found obstructed about its middle and low down. I then inserted the small Murphy button and closed the abdomen. Dr. Knill writes me that she passed the button on the twelfth day and now enjoys perfect health.

*Cholecystectomy.*—Total extirpation of the gall bladder has been done upward of seventy times with a mortality of about 20 per cent. It has been removed far too often. Its execution is neither simple nor safe, except in those cases where it should not be done. The fact that the gall bladder contains stones, mucus or pus does not call for its removal. The indications which suggest themselves to me are:

1. Cancer of the gall bladder when it has not yet invaded surrounding tissues, and constitutional dyscrasia not marked.

2. Gangrene of the gall bladder.

3. Possibly it may be safer to the patient to remove a small contracted gall bladder, than to incise it or leave it alone, and this only when the common duct is open and transmitting bile. My experience of this operation is limited to one case:

A Mrs. F., aged 50, admitted to Chicago Charity Hospital on Sept. 1, 1894. Referred to me by Professor Waugh. Three years ago she had two or three attacks of colic; was then free from pain till three months before her admission, when a pain which persisted and increased in severity became established. Six weeks before her admission a tender nodular tumor appeared and was enlarging.

Diagnosis: Gall stones with probable cancer. Operation, assisted by Dr. Burdick, on Sept. 3, 1894, verified the diagnosis. Had to remove a V-shape of liver with it. Died three hours afterwards from shock. It was ascertained that there was no hemorrhage. I should not have removed it, for it was too extensive, and she was much weaker than I had anticipated.

What is best to be done to the stones in a contracted gall bladder and to those impacted in the cystic and common ducts? This is an open question. The gall bladder may be removed when the common duct is free. I fancy no exact lines of procedure can be laid down that would cover all cases. A stone in the common duct that is easily crushed should be dealt with in this way, and they are not always hard to break, as shown by Tait. Should they be easily reached and prominent, in a situation where stitching can be accurately done they may be cut out. Should, however, stones obstruct a contracted gall bladder, the cystic duct, and the common duct all in the one case, there is nothing left but to incise the gall bladder, make an effort to crush or remove those in the ducts, establish an omental tract for a drainage

tube to the skin, and trust to nature to do the rest. If nothing is done, death from jaundice is certain.

I have performed ten operations on the gall bladder, all successful except the one for cancer of the gall bladder.

There is an operation—cholecystocolostomy—in which the gall bladder is communicated with the colon. For the cure of biliary fistulae, emitting but a small amount of bile, it may be safely done. It is not suitable for any other conditions. I have noticed the report of three successful cases:

1. By Mayo Robson for biliary fistula in a woman about 40 years of age, whom he exhibited before the British Medical Association at Leeds in 1889. He did the fastening with sutures.

2. Case by Chevasse in October, 1891, using Senn's plates. The indication was for bile fistula.

3. By Mayo Robson, Sept. 20, 1893, used his modified Senn's plates. Case of biliary fistula.

## ORAL MANIFESTATIONS IN ARTHRITIC AND GOUTY CONDITIONS.

Read in the Section on Dental and Oral Surgery, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY L. L. DUNBAR, M.D.

SAN FRANCISCO, CAL.

When I promised to write upon the above subject I did not know that so much investigation of the gouty diathesis was in progress, or I should have hesitated to add my views to those already published, and although the promise was made prior to the publication of Dr. Pierce's paper, what I have to say has been written upon so much since then by able investigators that my statements can only be viewed in the light of added testimony, instead of original matter. From the mass of evidence presented, I am of the opinion that we have erred as a profession in confounding a series of alveolar manifestations under one head. Ever since Dr. Riggs, of Hartford, Conn., called professional attention to that condition of the dental alveoli known as "pyorrhea alveolaris," and variously by other names as "phagedenic pericementitis," etc., the conditions of the oral cavity have been industriously studied by both dental and medical practitioners, with the result that an entirely new classification of its diseases is impending. For nearly two decades it has been the custom of dental practitioners to ascribe every pathologic manifestation in the alveolar region attended by elongation of the tooth, recession of the gums and wasting away of the periodontal membrane, to irritation occasioned by calculus deposits. Almost every practitioner who has been identified with the treatment of so-called pyorrhea alveolaris has assumed the position that the condition was purely local in character, of undoubted calcic origin; differing only in degree of inflammatory and destructive action as the individual constitution is weak or strong.

It is true that mercurial poisoning and scurvy were recognized in their effects upon the alveolar articulation, but these conditions were so rarely brought under the care of dental practitioners that they cut no figure in the study of oral conditions. The influence of heredity was also recognized, but just how this operated was not clearly understood, so calcic it was deemed to be, and as such it has been treated; usually by instrumentation accompanied by local

medication. That such treatment would suffice to remove some of the manifestations where due to calcific deposits at the gingival we all know, particularly when the habits of the individual have been changed by professional direction. But how many cases have been presented with no apparent cause for the condition; which have baffled every effort to relieve when treated as a calcic lesion. In fact, how little is really known by the mass of practitioners of both medicine and dentistry, of the phases of true calcific deposits, or their significance. As is well known, by far the greatest proportion of calculus deposits are harmless, and their precipitation a perfectly natural process. How many realize, however, that there are forms pathognomonic of serious constitutional impairment, presenting in their manifestation diagnostic signs of great value.

The systemic connection in pyorrhea has not been long recognized. The early writers on the subject in most cases adopted the views of Dr. Riggs and his treatment. As this involved asepsis added to the alterative effect of the surgical treatment of the pockets and subsequent medication (usually a mild cautery), much good was done in the early stages of any alveolar lesion of whatever origin. Clinical evidence has not been wanting, however, of its prompt recurrence. In fact, such has been the experience of most practitioners, and many otherwise good men have openly declared that extraction was the only real cure. This has been used as an argument in support of the claim that the disease is local in character, its systemic connection being negated by the fact that disorganization ceased when the tooth was lost.

I do not now expect to add anything new to professional knowledge in the views I shall advance, and shall premise that I have held the opinions here presented for several years, meeting with success enough in dealing with cases coming under my notice to warrant a closer study of those conditions of the dental alveoli that have been combined under the one title of "alveolar pyorrhea," which simply expresses a phase in the progress of some manifestations, as all are not necessarily accompanied by pus; hence the inadequacy of the nomenclature.

Recent investigations will bring us to a full conception of its systemic connection as a local expression of a disturbance in the intercellular fluids. Modern investigation has illumined the domain of cellular morphology, and diseases of all kinds are being traced to their beginnings in the embryonic area. Closely allied to such investigation is a study of nutrition and function.

The "theory of the connective tissue channels" advanced by Moleschott in his "*Krieslauf des Lebens*," which was indorsed by Virchow, is of interest in this connection. Moleschott says: "It is one of the grandest achievements of modern times, to the knowledge of which V. Recklinghausen and Virchow have paved the way, that the connective tissue has been raised from the secondary part which at first was allotted to it, to one of productive activity such as was never anticipated; what appeared formerly only designed as a protecting covering or padding appears now as the bed of the most minute and secret streamlets of juices or sap from the blood to the tissues and back from these into the blood vessels; and at the same time as one of the most important nidi or breeding-place of new cells, which developed from

the embryonic early shapes can rise to form the most peculiar and special structures of the body."

We lose sight of the fact that in the implantation of the teeth in their alveoli we have an articulation in most of its connective tissue relations the analogue of any other articulation in the body. The same influences are at work here as in other members of the same group, and when we consider the nervous relations of this tissue we are prepared for the statement that the vaguely understood effects of arthritis deformans or rheumatoid arthritis may produce their peculiar destructive effect in a degeneration of the periodontal membrane and the alveolar periosteum, as it does in the connective tissues of other articulations.

Drs. Garrod and Weber both ascribe the manifestation of arthritis to trophic influence, which may account for its appearance in one locality, to the exclusion of all other articular surfaces in their immediate neighborhood; as, for instance, in the joints of the plantar and palmar regions and in the maxillary articulations. I submit, therefore, that in view of tissue relations such manifestation may occur in the dental-alveolar articulation. I have seen such cases, and while presenting clinically much the same appearance that we have recognized as alveolar pyorrhea, still an analysis of the animal fluids did not disclose the presence of uric acid. "In all cases of arthritis deformans the serum of the blood has the ordinary properties of the serum of healthy blood, and an analysis of the urine likewise gives negative results, while nodosity is a pathogenic feature in arthritic cases; no deposits of urate of soda are found in any stage of the disease."

Dr. Garrod says that "he is persuaded that statements to the contrary are erroneous," admitting, however, "that it is not impossible that a patient may have had gout in a joint with its accompanying deposits, and that afterwards the same articulation may become the seat of arthritis but this, if indeed it ever occurs is most rare, and would not in any way favor the idea that deposition of urate of soda is a phenomenon of this form of inflammation."

It is not my purpose to enter into a detailed description of the disease known as arthritis deformans, which is the accepted name for the condition, but only to point out a possible source of an oral lesion. Dr. Garrod called the disease rheumatoid arthritis, and gives many reasons for the adoption of this title, but does not lay as much stress upon its tropho-neurotic origin as Weber, who has had excellent results with tonics and the application of the galvanic current to the spine and cervical ganglia.

The morbid anatomy of this disease has been carefully studied by Volkmann and Adams, (see Garrod), and their observations show that from the very commencement of the inflammatory action the articular cartilage begins to suffer, a slow process of absorption seems to take place, the cartilage splits up into fibers vertical to the surface of the bone, little depressions occur which at length coalesce and the bone is left in part uncovered. As the disease progresses the whole surface may be thus denuded, the osseous surfaces brought in contact with each other and in the movements of the articulations they become polished by friction and an ivory-like condition called eburnation is produced. This is the cause of the crepitation in joints so affected, and enables the practitioner to verify his diagnosis in



differentiation with gouty or rheumatic affections. In the earlier stages the disease may be and often is confounded with these two last named inflammations; an examination of the fluids and the progressive character of arthritis, if not arrested, will make diagnosis easy.

Where the manifestation is in the alveolar-dental articulation it probably has its origin in the trophic center in the spinal cord corresponding to the part affected, and I see no reason why this inflammation may not make its first appearance in the dental articulation, as in any other articular surface. To the pocket once formed there is added those septic complications, varying with the habits of the individuals affected, that produce a likeness and make the difficulty of diagnosis greater.

When a better knowledge of the nervous relations of the teeth has been acquired, I feel quite certain that many doubtful oral conditions will be better understood and properly classified. In this connection I am impressed with the necessity for instruction in neurology as a part of the curriculum of our modern dental schools, where scientific training is paramount to purely constructive work.

In reference to gouty manifestations in the oral cavity, the recently published results of the investigations of Drs. Pierce, Kirk, Burchard, Faught and others furnish such a fund of information upon the subject as to leave no doubt in regard to the effects of retained uric acid in the circulating fluids.

In the light of the before mentioned theory of Moleschott, we can understand how the peridental membrane may become the seat of such deposits as urates of lime and soda. The office of the membranous groups represented by the periosteum and pericementum is the deposition of lime salts. In mild inflammatory conditions, not accompanied by perversion of the circulating fluids, there is developed an activity in the pericementum that results in an increased deposition of cement beyond the typical limits of the root in similar inflammations of this membrane, caused by or accompanied with an excess of urates in solution in the circulating fluids. We can understand how a deposition of salts of calcium may be made that would show upon analysis the presence of urates; indeed, we have no assurance that the presence of morbid materials in the blood would not cause the specific inflammation that induces the deposit with its inflammatory coloring.

In my experience, the deposit known as serumal calculus is not removable by any means at our command that would not be equally destructive to the surrounding tissues. In pockets of long standing freely accessible to the fluids of the mouth and to oral *débris*, there may be an added deposit on the surface of a root in granular form that is removable. This, however, is only manifested in the last stages of the disease when re-attachment is doubtful.

Where the pocket is manifested on but one side, and all removable deposit has been carefully taken away, I do not think that the loss of that limited area of peridental membrane offers any barrier to return to health of the surrounding tissue and entire attachment of the tooth.

It was my intention to have presented something more upon the gouty diathesis, but as the ground has been so well covered in recent publications in our professional journals, I shall not hope to bring you anything new, and trust the discussion may more

fully develop a subject fraught with so much of interest.

How much the uric acid diathesis has to do with other destructive oral manifestations has not been determined, but I am convinced that some specific acid condition of the circulating fluids is the cause of that mysterious wasting away of the enamel so frequently met with, and which in description of what really occurs, we denominate erosion. What we now recognize as alveolar pyorrhea in its several manifestations, I have shown, or endeavored to show to be due to any one of two or three systemic conditions requiring a different classification and a nomenclature suggesting in part its origin. When this has come to be scientifically developed, an entirely new system of treatment for each will be evolved. Already the study of this subject by dental practitioners has been the means of introducing an entirely new salt of lithium, as an addition to the materia medica. I refer to the preparation known as tartarlithin or lithium bi-tartrate, first made by Dr. E. C. Kirk, of Philadelphia, a practicing dentist and an expert medical chemist. In fact all the information we have up to this time upon the oral manifestations of the uric acid diathesis is due to dental investigation. What the dentist can do for these conditions will depend upon his preparation for practice and his conception of its scope; certainly instrumentation is not to be entirely relied upon. Primarily this was designed to be only a process of cleansing and not instrumentation in its surgical sense. To be entirely successful therefore means a wider knowledge of systematic conditions and also the ability to recognize the pathologic significance of oral lesion. Are dentists properly prepared for such work? Or does the purely constructive or prosthetic secure the largest share of attention in our technical schools? We think that the curricula of our modern schools of the best class comprise all that is essential for such a training. Where they do not, the instruction in physiology, pathology, and histology can be strengthened; if not, the schools of medicine are open for post-graduate instruction with liberal allowances for work already done, thus enabling the dental graduate to complete his preparation for practice upon its highest plane.

## DOUBLE NASAL ATRESIA DUE TO SMALLPOX.

Read before the Mississippi Valley Medical Association, at Hot Springs, Nov. 20, 1894.

BY HANAU W. LOEB, A.M., M.D.

ST. LOUIS, MO.

One-sided nasal atresia due to smallpox is uncommon enough in rhinologic literature, and as double nasal atresia caused by smallpox must be all the rarer, I am prompted to present the details of this most interesting case to the Association. It is all the more desirable for presentation on account of the success of the treatment, and the great relief which the patient has experienced, for we all know the difficulty of maintaining an opening which nature once has closed.

We read, with remarkable monotony, of failure after failure in the treatment of webbed fingers and conditions due to the deposit of scar tissue; we realize quite readily the almost futility of the treatment for the permanent relief of cicatricial contractions and adhesions, resulting from syphilitic lesions of



the pharynx, palate and larynx, so that while no great skill is claimed in the management of the case in point, yet the patient's condition after a year and a half of observation certainly merits attention:

Miss E. T., age 30 years, consulted me first on April 6, 1893, with the following history: Twenty-nine years ago she was subjected to a severe attack of smallpox, which very seriously affected her health. The disease was of the confluent type, and exhibited itself more upon her face than any other portion of her body. There had evidently been a coalescence of a number of pustules over the alae of the nose, and the portion of the lip which is in immediate relation with the nose. Considerable scarring naturally resulted, mainly exhibited on the face, especially in the region of the nose and lips. She had several scars upon her body, arms and lower extremities, but none manifest the degree of cicatrization that is to be found in those upon the face. The result of this loss of tissue was a very decided contraction of the nasal orifices, so that they were no larger than a broom straw.

Five years afterward, an attempt was made by a prominent surgeon to enlarge the openings of the nostrils. For some reason the only effect was to completely obliterate the openings, so that for the past twenty years she has been absolutely unable to breathe through her nose.

Since that time the patient has been in fairly good health,



with the exception that she has been suffering from a dry throat which was especially severe early in the morning; so severe in fact, that she was prevented from partaking of an early morning meal. She suffered very frequently from headaches, which were localized to no particular part of the head. Strangely enough she was not subject to acute pharyngitis though her throat, she said, was a source of continual trouble. She has not been subject to bronchitis, and she has never had pneumonia or any serious illness since her attack of small-pox. During the two years previous to the time she consulted me, her symptoms were somewhat aggravated, and the dryness about her throat had increased. The hawking and clearing of her throat which were almost continually a source of annoyance to her were decidedly increased, and, as she expressed it, she was much sicker during this time than before. She fails to relish her food from a lack of taste.

Examination revealed very plainly the effect of the attack of smallpox. Numerous scars were to be found like the ordinary marks resulting from the disease but, as has been stated before, they were larger and more prominent on the face. Examination of the pharynx showed a chronic inflamed pharynx of a mild type, and with numerous spots of folliculous inflammation. The naso-pharynx was also affected with a chronic inflammation, but the larynx did not exhibit any evidence of disease. It was made very man-

ifest that behind the point of atresia the nasal cavities were open and free, for the patient could easily balloon out the soft parts by forcing air from the pharynx into the nose. In this way too, it could be shown that the overgrowing tissue was perfectly impervious, for the swelling produced by blowing was not reduced until the patient ceased her efforts. The voice was quite clear, and indeed it was only by close attention that an obstruction would be expected.

The patient, having consented to an operation, was sent to the Rebekah Hospital, and upon April 27, Dr. H. C. Dalton operated in the following manner: After aseptic preliminaries, an incision about half an inch long was made through the cicatricial tissue, somewhat larger on the left side than upon the right. It was necessary to make a larger incision upon the left side, from the fact that the left ala had collapsed considerably on account of a greater destruction of the alar cartilage upon that side. The skin and mucous membrane were then stitched together, around the improvised openings, leaving on each side a fairly normal looking orifice. Into each nostril was introduced a rubber tube, devised by myself after the plan of Simrock's speculum, being, however, about one-third larger, and having a larger rim or flange. Into this flange four small openings were made for the purpose of inserting threads. The two tubes were sutured to the adjacent skin, so as to be certain that they would be held in place. The whole was covered with



gauze, and the patient put to bed. She suffered from very slight inconvenience, and after four days the sutures holding the tubes in position were removed, and the whole nose subjected to a thorough cleansing, after which the tubes were re-introduced.

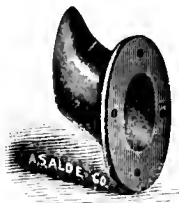
They were now held in position in a somewhat different manner. The thread was placed in the two inner openings, holding them close together, and another thread into each of the two outer openings in the flange and these were carried behind the head and held firmly by a hairpin. This method was found to be eminently satisfactory, very slight displacement being possible. The tubes were easily kept in place, and from their form were not at all inconvenient or uncomfortable to the patient. She left the hospital after three weeks, the wound being entirely healed, and the margin of the new nostrils being smooth and normal. She continued to wear these tubes constantly for three months, being warned of the danger of a reunion of the two sides of the nostrils. In three months she was permitted to leave the tubes out for an hour at a time; later this time was extended. Meanwhile the patient was looking very much better, and as a matter of course, she suffered from no dryness of the throat, and from none of the other symptoms which were so unpleasant to her. Her headaches entirely disappeared, and her sense of smell returned. She was able to

appreciate the odor of flowers three days after the operation.

On March 31, 1894, a second operation was performed upon the left side, as it was evidently not so satisfactory as the right nostril, a fact easily explained when it is remembered that so much of the alar cartilage was destroyed. The incision was carried somewhat higher up toward the tip of the nostril than it had been, and a slightly larger tube was inserted. This operation has had a decidedly good effect, and now the left nostril is almost as perfect as the right. Since July 1, she has not worn the tubes during the day, now four months. Examination on September 15 revealed no evidence of any return whatever to the original condition. It was suggested to her that she might leave the tubes out altogether, but since she is rather fearful lest her old condition might return, she prefers, at least for the time, to wear them every night.



The illustrations which are presented, exhibit the appearance of the case with the tubes inserted, and the appearance of the nostril a year and a half after treatment. The picture showing the condition of the nose before the operation is not a very satisfactory one, being taken from an old photograph, of some ten years ago.



I am quite certain that the good result in the present case has been due to two circumstances: In the first place the mucous membrane and the skin were united, the skin being rather redundant, and therefore capable of forming a good protection for the margin of the nostrils. If there had been less skin, I am quite certain that the result would not have been quite so pleasing, but with the redundant tissue it was reasonable to expect so good a result. In the second place, the tubes which she wore subjected the nose to no pressure, and maintained their position without

any degree of irritation. They fulfilled their function so nicely, that I would commend a similar tube in any case of a like nature.

321 North Grand Avenue.

## CASE OF FRACTURE OF ANATOMIC NECK OF THE HUMERUS.

BY E. L. GIBSON, M.D.

STAUNTON, VA.

A 16-year-old boy, of good build, fell about twenty feet into some ladders. I saw him about two hours after the injury; he complained of great pain at the shoulder joint. A slight contusion was seen on the front of the arm at the shoulder joint; I was unable to find any other contusion.

On superficial examination, I thought I had a sub-spinous dislocation; but the protrusion did not look as large as would be expected. To isolate fracture, I placed the fingers of one hand on the bicipital tuberosities and rotated the humerus; they were felt to move under my fingers; no crepitation was elicited in this way. Dr. J. St. P. Gibson saw him at this time and confirmed my diagnosis. He was given chloroform; reduction was effected by Koker's method after several trials. Rotation was now made and crepitation was very perceptible.

Treatment: Gibson's wire splint, which was described in the Transactions of the Ninth International Medical Congress, Vol. I., page 585, was applied.

By this means, extension was continued for four weeks, at which time the wire splint was removed and a pasteboard crown splint was applied and allowed to remain two weeks. Upon its removal the deltoid muscle was found much atrophied; allowing the head of the humerus to be examined thoroughly. A line of callus could be felt. The joint admitted of all motions without pain and a perfect shoulder is the result. The crown splint will be retained for a couple of weeks longer, allowing slight motion.

## SANITARY LEGISLATION.

Abstract of Remarks before the Auxiliary Health Association, Springfield, Ill.

BY CLARKE GAPEN, M.D., LL.B.

KANKAKEE, ILL.

As I look back over the twenty years of my life and work in medicine, I find that nothing has grown upon me more steadily or forcibly than the belief that the future of medicine is to be largely in the field of sanitation. The medical man who has kept himself abreast with the times has seen one line of treatment and one theory after another give way. My worthy preceptor who presides here, twenty years ago taught me many things that to-day he would declare worthless. All of our teachers have taught us much with regard to medical treatment which has since vanished into thin air like the baseless fabric of a vision, but in all this time sanitation has steadily grown in importance until to-day in practical significance it is not secondary to any other thing, even in medical instruction.

The fact that my experience in the line of sanitary work has been somewhat extended and peculiar, is my only excuse for offering ideas of so positive a character as those which I now present. Beginning with an almost absolute sanitary chaos, in a city of

150,000 people, I passed through the experience of the organization of a sanitary department which in the end was practically complete. My first step was to familiarize myself, as far as possible, with what had been done in sanitary work throughout the civilized portion of the world. After doing this and formulating a definite plan, we went directly to the Legislature for the basic law upon which to construct our sanitary organization; and looking back over that work after five years, I now think that that was the wisest thing we could have done under the circumstances. This, you will see, is diametrically opposed to a view which has been expressed here to the effect that the work should be begun with the education of the masses.

In my opinion it is far better to begin work at the other end of the scale. Ideas of sanitation, like all other advanced ideas, must begin at the top and work downward. There is no such effectual educator as law. By that, I do not mean that we should go to the Legislature and get a vast number of statutory laws enacted. Such a proceeding would break down the whole organization which would fall, as it were, of its own weight; but there should be formulated and enacted by the highest legislative authority in the land, laws containing the basic principles of sanitation. This done, you have a foundation on which you can proceed to educate the masses. In all sanitary work the greatest obstacle to be met is the ignorance of the people in reference to sanitation. There is opposition to sanitary work to be found everywhere that it is attempted. It is, however, not malicious. As an illustration, comes to my mind the conditions now prevalent in Milwaukee. The intelligent people of Milwaukee are not opposing the enforcement of the sanitary laws. It is the ignorance of Milwaukee that is opposing and even antagonizing the State law itself. If the authorities there had no surer foundation than the excited state of public opinion that prevails there, the Department could not exist. Such existence as it has is based upon the enactments of the State Legislature. In our work in Omaha, we first formulated the law which was passed by the State Legislature. This law created in all cities of a given class, sanitary departments, and fixed the character of the organizations which should control and operate them. Upon this law the local organization was founded. This local organization then proceeded to enact a sanitary code, which was to be the law of the territory controlled by this sanitary organization. I think that you will find that these three steps will have to be taken in just the order named.

So far as the work of this organization is concerned, I feel that it has not been begun a moment too soon. It should meet again at an early date to formulate a plan and complete an organization which should have an active representative in every locality, and which representative should exercise an influence upon the member of the Legislature from his district, with the object of bringing about during the coming winter a definite legislative result, in the form of such basic laws as are necessary to the organization of sanitary departments in every portion of the State. First in importance, in this legal enactment, should be the recognition of the principle that *sanitary organizations should be based upon State law instead of upon municipal law*. There is nothing so unreliable, nothing so certain to defeat the objects in view as municipal law. Municipal law is one thing

to-day, another thing to-morrow. A board of aldermen may formulate a law to-day, which in order to get a particular individual out of office it may repeal within a month. No organization is safe or efficient which is founded wholly upon municipal law in this country.

As to whether each town, city or county should have a board of health is a somewhat open question. I am inclined, however, to think that the existence of a board of health at least in every good-sized town is desirable. In our organization, after much deliberation, we concluded that it was wisest to have such a board in every city of the first class. However, as I have indicated, a good and efficient sanitary department may be operated without a board of health, the head of such department being an officer with power to execute both State and municipal enactments.

Another and most important provision *which should be included in the basic law*, is a provision for the maintenance of the office or department. It should be as impossible for local influences to cut off the support of such department, as it is for them to abolish it. As I look back over the work in Omaha, I feel that this was the one particular in which we fell short. We asked the Legislature for a tax of 1 mill upon every \$100 of taxable property for the maintenance of sanitary departments. We succeeded, however, in getting only  $\frac{1}{2}$  of a mill. This tax amounted to a sum sufficient to meet the salary of the executive officer and the necessary expenses of the office, but was not sufficient to provide for as extensive sanitary policing of the city as was desirable. The extra provision had to be made up out of the city's treasury by the common council and fluctuated in amount in accordance with the state of feeling existing in that body toward the sanitary department. All who have been engaged in sanitary work in cities know that it is a custom for ward politicians to "load up" the sanitary departments with irresponsible individuals, good for nothing else, and good for nothing there. Attempts to build up a sanitary department upon the basis of merit strictly, are met with opposition from members of the council who have friends for whom they wish to secure soft berths. The statutory provision should make it impossible for local influences to thus cripple a Health Department. I mean by this, that taxes for the support of a sanitary department should be levied in the same manner as the school taxes are levied. It is impossible for a city council to reduce the school tax below a given point, and this should also be true with reference to the funds necessary for the support of sanitary departments. I think, however, that at this point State interference should cease, just as State interference ceases in reference to school matters when it has made the maintenance of schools obligatory upon each town or city, and has made provision for their support by taxation. The appointment of the executive officer of the board or department of health should therefore, in my opinion, rest with the mayor, and the term of office of this official should be co-existent with the term of office of the mayor. There are two methods of forming a board of health. The one being the appointment of worthy citizens to compose the board who have no direct connection with the city's affairs. The other is by forming the board of officers who have a direct connection with the city's affairs. Of these two

methods, I prefer the latter, for the reason that officers who have a direct and paid connection with the city's affairs are much more likely to give attention to them and to keep themselves familiarized with them than the other class of citizens whom I have mentioned. To my mind, an ideal board of health should be composed of the mayor, chief of police, two representatives of the common council and a commissioner of health, who shall be the executive officer of the board.

The next step is to formulate a sanitary code. I spent some nine months studying the sanitary codes of the various cities of the world before formulating the code adopted by the board of health in Omaha, and acquired what was to me, some very interesting information. The first thing that impressed me was the wide difference between municipal government in this country and in Europe, for example,—the city of Birmingham in England, has a municipal government which is said to be a model one, that costs less than \$5 per capita per year, and the superb city of Munich is maintained at about \$13 per capita. The municipal administration of the city of New York costs about \$25 per capita, or five times as much as Birmingham, and as every one knows is most inefficient and corrupt. The same may be said of most of the large cities of this country. In my opinion the next great reform that will sweep over this country will be municipal reform.

Model sanitary departments are found in Berlin, Munich, Glasgow, Birmingham, and numerous other European cities, but are to be found in none of our American cities. Glasgow has one of the best health organizations in the world, which deals with exceptionally difficult sanitary problems, and is maintained at a cost of about \$500,000 per year. In this country, the model State board of health, and in fact, the only State board of health that exists with anything like full powers and support is that of Massachusetts. The States of Minnesota and Michigan each have, however, health departments worthy of study and consideration. In the great State of Illinois with a population of 6,000,000 people; a State possessing the greatest resources of any State in the Union, perhaps, the members of the State Board pay their own expenses. Provision should be made to maintain in this State a board of health in keeping with the character and resources of the State. A sufficient provision should be made to pay the members a per diem for actual service and to maintain an office, chemic and bacteriologic laboratories, and all necessary medical and other skilled supervision, and to insure competent sanitary inspection wherever needed. In short it should be provided with authority and support.

The State Board of Health of Massachusetts maintains at Lawrence a complete department for the examination of water, and this department has contributed more to the knowledge of the purification of water than any other body of scientific workers in the world. It has furnished the facts upon which water purification is based all over Europe to-day, though, strange to say, these facts have so far excited comparatively little influence in this country. A department is also maintained in connection with the Boston Polytechnic Institute for the examination and study of foods. To the water department may be sent the water of any village or farm-house and the people may know whether they are drinking safe

water or not. To the food department the citizen may go for information in reference to all questions of food adulterations. An organization should be effected whose voice will be heard from the northern boundary of the State to its southern limit, demanding in language that can not be misunderstood that something may be done in relation to sanitation worthy of our great State.

# ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Continued from page 55.)

## CHAPTER III.

None of the tables in the article of Dr. Faget support the assertion in the article, "Fevers," of the new French Dictionary of Medicine (1871): "In some fevers the remission is long and complete, as in yellow fever, for instance, in which the *initial attack* is separated from the *terminal fever* by a *remission* of one or several days duration." (Vol. XIV., p. 742.) On the contrary, according to Dr. Faget, "yellow fever shows *one single effervescence*—only *one paroxysm*, never a true remission, and the *unique attack* subsides immediately. Its progress is regressive as soon as it appears. This last peculiar feature would not show as plainly in our tables, but for the fact that they often begin after the second and even third day. The fact is that the decline is marked from the very beginning, in the line of the fever only; as for the temperature we shall see that it even increases, at least, in two-thirds of the cases during the first two or three days. . . . The thirty-eight observations of 1870 also contradict the opinion concerning the *short duration* of yellow fever. According to La Roche's opinion, based on immense learning, it would be three days ( $3 \times 24 = 72$ ): A febrile stage of about seventy hours' duration, more or less, is succeeded by a period of complete cessation of fever (Vol. I., p. 426). Judging from our tables, it should be six or seven days ( $6 \times 24 = 144$  hours): "The maximum of temperature in yellow fever, in New Orleans in 1870, has been, in the average of cases, 104.1 degrees. Such is the average maximum of fevers in general; there is, therefore, in this, nothing peculiar in yellow fever. The particular and special feature is that: 1, this average maximum of temperature is very rapidly reached in yellow fever cases. In about one-third of our cases (twelve in thirty-eight) the maximum has been reached on the very first day; in one-fourth of the cases (nine in thirty-eight) it was on the second day; in another third of cases (fourteen in thirty-eight) on the third day; and in three cases the disease had gone over three days before reaching its maximum, and it went on steadily decreasing till it reached the normal standard, and even below that point, except in cases where special circumstances or accidental causes easily accounted for, such as secondary congestions appeared. Thus we can say that there exists no stationary stage in yellow fever. The decrease of the temperature has been remarkably slow. Up to the fifth day it had not yet reached the normal standard in most of our cases.



The exceptions were such as were very mild, or such as proved rapidly fatal. In twenty or thirty the thermometer registered 100 or 102 degrees on the fifth day. . . .

"In short, the march of the temperature in our tables is marked: 1, by a period of increase, very rapid and of very short duration; and 2, by a period of decrease, rather slow and long. There is no sign of a true stationary stage. Thus the study of temperature in yellow fever offers for our consideration only an effervescence and a defervescence. . . .

"I shall sum up in saying that, the march of the temperature in yellow fever, as shown by the graphic lines representing it, is characterized by a unique paroxysm with an effervescence of one to three days, followed by a defervescence of four to seven days, without any stationary stage. . . .

"We consider that we are now authorized to say that in yellow fever we are able, in the majority of serious cases, to detect from the beginning of the fever, one of its most precious diagnostic signs, and that is the divergence of the lines indicating the march of temperature and pulse. The line of the pulse descends immediately, while the line of temperature ascends, and that during one, two or even three days. . . .

"But I shall insist upon saying that the direction of the lines of temperature and pulse is of special importance in the incipient stage of the febrile paroxysm of yellow fever, in view of the diagnosis of the disease. In the great majority of serious cases, the line of pulse descends, while the line of temperature ascends. Are we not justified in our belief that there very likely exists no other disease in which the same occurrence obtains? . . .

"Let us now consider the specific character of yellow fever, which shows itself in our opinion, by the action of its morbid principle on the heart, this action being denoted by a diminution in the number of pulsations from the very beginning. . . .

"In the work that I published on yellow fever in 1859, after having studied the progress of the fever, without the thermometer, guided only by statistics of the pulse, and those statistics compiled from at least a hundred observations, taken by a dozen physicians during the epidemics of 1839, 1853, 1858, I expressed myself in the following manner (p. 85): . . .

"In all these observations written at the bedside of the patients during three different epidemics in New Orleans we perceive, nearly without exception, that the pulse at its *apogee*, from the first day gives even more than 100, sometimes 110 and 120 pulsations; begins to fall the second day, continues to decrease regularly the third, and gives from that time 70 to 80, sometimes much less."

"The regular and rapid decrease of the pulse is such in yellow fever, from a record of a hundred observations, that we could recognize it as the true characteristic of that fever. . . .

"To-day, after the epidemic of 1870, that is to say, after having been able to study the progress of yellow fever, not only with the 'independent second watch,' but at the same time with the thermometer, I think further hesitation is impossible; the diminished frequency of the pulsations, that is to say, the heart's action, show themselves from the beginning in yellow fever, and consequently in the height of febrile excitement, as certified by the thermometer. This is the essential characteristic of this fever, . . .

and, in fact, a like decline of the pulse is not a simple abatement of the fever, since it occurs in the great majority of cases during the increase of temperature. We find, then, a diminution of the beats of the heart, produced by a direct specific action of the poison itself of yellow fever, in the central organ of circulation. This specific action of yellow fever poison on the heart can be compared to the effect produced on that organ by certain poisons, as, for instance, digitalis and veratrum viride. . . .

"Now the specific character, clinically demonstrated has just received the most remarkable anatomic confirmation in the observations upon yellow fever (just published by Prof. Joseph Jones, of the University of Louisiana). This is what he says on page 8 of his pamphlet: "The central organ of circulation is structurally altered and enfeebled in yellow fever, the muscular structures of the heart present alterations similar to those observed in the liver and kidneys. Oil, granular, albuminoid, or fibroid matter is deposited within and around the muscular fibrillæ, and the organ after death presents a yellow flabby appearance. These lesions of the heart, shown by careful *post-mortem* examination, are characteristic of the disease." . . . The general table of the average of the pulse, furnished by Blair, like ours of New Orleans, not only shows the steadily decreasing character of the pulse in yellow fever, but it also demonstrates beyond a doubt that this fever has but one paroxysm, and consequently it is a continued fever, continually decreasing but still continued. . . . "If, then, yellow fever remained a fever with but one paroxysm, in Guiana as well as in New Orleans, it proves it not only to be a continued fever, but one that resists efficaciously the concomitant influences of malarial fever." (Type and Specific Character of True Yellow Fever, *New Orleans Med and Surg. Journal*, September 1873, pp. 145-168.) . . .

Dr. D. D. Saunders, of Memphis, Tenn., in his valuable "Observations on the Yellow Fever Epidemic of 1873 at Memphis, Tenn.," gives a tabulated record of the pulse and temperature in seventy-three cases of yellow fever. The daily average of the temperature and pulse, was as follows: First day temperature 102 degrees; pulse 114½. Second day temperature 102.5 degrees; pulse 112½. Third day temperature 102.2 degrees; pulse 107½. Fourth day temperature 102 degrees; pulse 96½. Fifth day temperature 102.2 degrees; pulse 86½. Sixth day temperature 101.5 degrees; pulse 74. Seventh day temperature 99.5 degrees; pulse 69½. Eighth day temperature 99 degrees; pulse 68. Ninth day temperature 97.8 degrees; pulse 64½. Tenth day temperature 98.1 degrees; pulse 65½. Eleventh day temperature 98 degrees; pulse 67½. Twelfth day temperature 98.2 degrees; pulse 71½. Thirteenth day temperature 98.5 degrees; pulse 80. Fourteenth day temperature 98.5 degrees; pulse 82. . . .

In ten fatal cases the daily average of the temperature and pulse was: First day temperature 105 degrees; pulse 120. Second day 105.5 degrees; pulse 120. Third day temperature 105.7 degrees; pulse 116½. Fourth day temperature 106.5 degrees; pulse 114½. Fifth day temperature 104.6 degrees; pulse 106½. Sixth day temperature 103 degrees; pulse 100½. Seventh day temperature 102.8 degrees; pulse 99. Eighth day temperature 101 degrees; pulse 99½. Ninth day temperature 97.5 degrees; pulse 81. Tenth



day temperature 99 degrees; pulse 100. Eleventh day temperature 98 degrees; pulse 120. Twelfth day temperature 97 degrees; pulse 130. Thirteenth day temperature 96 degrees; pulse 130.

Of the ten fatal cases, five died on the fifth day of uremia; one died on the sixth day, of uremia; one on the seventh day, of nervous prostration; one on the ninth day, of uremia; one on the tenth day, of uremia; and one on the fourteenth day, of uremia. No case of uremia lived over fifty hours, after urinary suppression set in.

Dr. Saunders remarks: "The tables accompanying this report show yellow fever to be a full fledged fever within a few hours after its initiation, and the circulation is as rapid then as it ever gets to be unless complications arise, as in the winding up of the fatal cases. The pulse begins to diminish in frequency within a few hours of the beginning of the fever, and in the stage of convalescence will descend below the normal standard. I saw it descend to thirty-six beats per minute and the patients recovered. The temperature, however, will generally either hold its starting point, or gradually ascend from 72 to 120 hours, and then if there are no complications, begin a gradual descent with the pulse, and go below the normal standard of 98.5 degrees in convalescence. I saw the thermometer descend below 95 degrees, and the patient recover. In these cases when the pulse and thermometer descend gradually together, after the second day, no apprehension of danger need be entertained; they will always get well. Such was the result of my observation. . . . I saw no case of yellow fever recover when the thermometer marked over 106 degrees, on the first and second visits, and I saw no fatal case when the pulse and the thermometer gradually descended together below the normal standard.

"I believe with Prof. Joseph Jones, that when the temperature ranges very high from the first, the patient may die suddenly, overpowered by the poison, as in cases of sunstroke."

The results obtained by Dr. R. W. Mitchell,<sup>47</sup> of Memphis, Tenn., and by Prof. Samuel Logan<sup>48</sup> at Pensacola, sustained those previously announced by Blair and others. Dr. Mitchell gives a valuable table of the daily variations of the pulse and temperature in forty-eight cases of yellow fever, the general results of which will be more fully examined hereafter.

With this general historical introduction we will proceed to present specific details and the results of original investigations. The general results of my investigations upon the changes of temperature and conditions of the pulse in yellow fever may be formulated thus:

The maximum elevation of temperature is attained upon the first, second, and third days of the disease; ranging, according to the severity of the attack, from 102 degrees to 110 degrees in the axilla; and, as a general rule, from the third to the fifth day steadily falls and sinks down to the normal standard, and even below. In some fatal cases it rises again toward the end, rarely, however, reaching or exceeding, during the stage of passive hemorrhages, black vomit, jaundice, and urinary suppression, 104 degrees, and, as a general rule, never attains the high degree of temperature characteristic of the first stage. The supervention of an inflammatory disease, or the occurrence of an abscess, or the access of malarial fever,

after the first stage, may in like manner cause a progressive elevation of temperature, with slight evening exacerbations.

The pulse at the commencement of the attack is rapid and full. The frequency of the pulse does not, however, as a general rule, continue to correspond with the elevation and oscillations of temperature, as in many other febrile diseases; and in many cases of yellow fever the remarkable phenomenon is witnessed of the pulse progressively decreasing in frequency, and even descending below the normal standard, while the temperature is maintained at an elevated degree; and on the other hand the pulse frequently increases in frequency, but diminishes in force, near the fatal issue. The occurrence of copious hemorrhage from the stomach or bowels may be attended with sudden depression of temperature, and increase in frequency with diminution in the force and fullness of the pulse.

The remarkable progressive decrease in the beats of the pulse after the first stage in many cases appears to be due to several causes; as the anatomic changes in the heart (acute fatty degeneration), and the retention in the blood of the bile and urinary constituents.

If the temperature rises in the first stage above 105 degrees, the patient is in imminent danger; and if it reaches from 107 degrees to 110 degrees, death is inevitable, whatever may be the treatment adopted. In cases attended with the rapid rise of the temperature to 106 degrees and beyond in the first stage, death sometimes occurs suddenly, and apparently solely from the effects upon the blood and nervous system of the great elevation of temperature, as in sunstroke. The truth of this statement will best be illustrated by actual observations, and especially by the following case, which has recently occurred in my private practice:

Mrs. W., aged 28 years, has resided in New Orleans eighteen months; large, well-developed, with clear complexion and high color in health. Mrs. W. called at my office July 21, stating that she had just passed through the menstrual period, which had been protracted for ten days, was very profuse, and had confined her to bed. She complained of great weakness, "heaviness" of feeling, vertigo, and pain in the head, back, and limbs, symptoms which appeared to be attributable, at least in part, to the hemorrhage, as I had attended her upon previous occasions when suffering with analogous symptoms resulting from profuse menstruation. July 22, 1 p.m., I was called to Mrs. W., and found her suffering with slight febrile excitement; pulse 90, full and strong; face flushed; pain in head, back and limbs. July 23, 9 a.m. Face greatly flushed and of scarlet hue; capillaries of the extremities and face and surface generally congested; patient greatly agitated and alarmed: says she has yellow fever, and will surely die. It was difficult, if not impossible, to calm her fears. Skin warm, but bathed in profuse perspiration; pulse 108, full and strong; great pain in back and head. 3:30 p.m., pulse 110; temperature 103.5 degrees; urine abundant, light yellow, slightly turbid from presence of vesical and vaginal mucus; a trace of albumen. Menstrual flow returned for an hour or two during the morning, but ceased again; capillaries of the surface intensely congested; tongue red at tip and edges, furred in center. July 24, 9 a.m., pulse 118, respiration 30, temperature 106.8 degrees; skin hot and dry. The fever rose in the evening; patient talked and muttered in her sleep, and frequently awoke suddenly with a start and cry; moans and sighs with every breath; is greatly agitated and alarmed; declares the case is utterly hopeless, and that her lower extremities feel as if they were paralyzed. Pain in head, back, and limbs intense; nausea constant and distressing, but no vomiting; heavy, disagreeable odor emit-

<sup>47</sup> Yellow Fever in Memphis in 1873, by R. W. Mitchell, of Memphis Tenn., Richmond and Louisville Medical Journal May, 1874.

<sup>48</sup> Bedside Notes on the Pulse, Temperature and Urine, in cases of Yellow Fever observed at Pensacola Navy Yard, in the fall of 1874, New Orleans Medical and Surgical Journal, May 1875, p. 779.

ted by the body, as in yellow fever; great congestion of capillaries; face and hands of a scarlet hue; an eruption has appeared upon the forehead; the surface of the face, trunk, and extremities is as highly injected and as red as in scarlet fever or measles, but the brilliant redness is more uniformly diffused over the surface than in either of these diseases. Urine abundant; light-yellow color; specific gravity 1020; contains a small amount of albumen, with detached cells from the tubuli uriniferi and yellow granular casts, together with vesical and vaginal epithelium. Upon standing, the urine let fall a moderate deposit of urates of ammonia and soda, mingled with the cells and casts. 3 P.M., pulse 108, respiration 36, temperature 106.3 degrees; skin hot and dry; face and surface generally of a deep scarlet hue; pressure drives out the blood from the capillaries and leaves a white spot, into which the blood slowly returns. Tongue coated in center, with yellow fur and red at tip and edges; swollen, with margins indented by the teeth; moist and soft. Nausea, depression, fear of death, and bad odor from the body unchanged. 9 o'clock P.M., pulse 112, temperature 106.2 degrees, respiration 38; moans and sighs with every breath; when spoken to answers rationally, but often slumbers, starts, and jumps in a delirious, nervous manner; odor from the body heavy and offensive.

July 25 10 A.M., condition unchanged; pulse 118; full and strong; respiration 36; temperature 108 degrees. The delirium and restlessness of the patient prevented thermometer being held well in the axilla; the actual temperature was therefore somewhat above 108 degrees, and probably reached from 110 degrees to 113 degrees in the cavities of the heart. Conjunctivae congested; gums red and spongy; odor of body very offensive; surface of face, trunk, and extremities greatly congested and of a brilliant scarlet hue; forehead covered with a distinct papular eruption. Urine light colored; specific gravity 1020; contains albumen in considerable amount, numerous granular casts of tubuli uriniferi, kidney cells, granular yellow albuminoid matters, and amorphous deposits of urates of ammonia and soda. Two hours after I was summoned to the bedside of the patient, and found her in *articulo mortis*; pupils contracted; spasmodic respiration, with death rattle in throat. I was informed that she had started suddenly in a disturbed sleep, made several ineffectual efforts to vomit, and passed immediately into this state. She was unable to swallow. Sinapisms were freely applied, but without effect.

The treatment of this case will be briefly mentioned, although we are not now engaged with this subject. The bowels were first opened with a saline cathartic, followed by quinin. Rest was then promoted by Dover's powder. The bowels were afterward kept open by means of enema. The diet was light but nutritious, and administered in small quantities at regular intervals; the action of the kidneys was promoted by the use of gentle diuretics, as orange-leaf tea and water charged with carbonic-acid gas. Quinin aggravated the delirium, and was abandoned at once. Alcoholic stimulants were found in like manner to aggravate the pain in the head, the nervous excitement, and delirium. Cold wet cloths were applied to the head, and the surface bathed with tincture of camphor and water.

In the last moments of life the scarlet flush of the surface gradually faded, and at the moment of death, which occurred at 1 P.M., the surface presented a yellow jaundiced hue; after death, body mottled; decomposition rapid. I attributed the death of this patient to the high degree of heat and the consequent disorganization of the blood and derangement of the nervous and muscular forces consequent upon the action of the febrile poison.

(To be continued.)

**Two Hundred Years' Theses in Paris.**—The number of theses for Doctor of Medicine defended before the Paris Faculty of Medicine from Dec. 18, 1794, to July 31, 1894 is 28,793; to these must be added 793 theses for "agregation," and 220 theses for professional honors, or a total of 29,806. The theses for "agregation" were in vogue for sixty years, from 1825 to 1886; those for professors about half that period.

## HOSPITALS FOR THE INSANE—THEIR SCOPE AND DESIGN.

BY EDWARD F. WELLS, M.D.

CHICAGO.

(Continued from page 41.)

### THE INSTITUTION.

**Capacity.**—The first questions to be asked in designing an institution for the insane is, What shall be its initial, and what its ultimate capacity? If these are to be the same it may be constructed upon rigid lines; if both are known only a limited degree of flexibility of design is necessary; but if, as is usually the case, the initial capacity is known, while the ultimate capacity is a decidedly unknown quantity, then the design should be so elastic that future extensions may be economically made, to any reasonable extent, without marring the symmetry or incurring any loss of balance. The truth of this proposition has been so often demonstrated that it should not only be frankly acknowledged, but heeded as well. Without going into any argument upon the subject, we should also acknowledge the fact that the irresistible tendency of the times is toward large institutions. The day of small State insane hospitals has long gone by, never to return—they offer no advantages and can not be afforded.

The question of capacity, initial and ultimate, should receive careful consideration in connection with the proposed new hospital for the insane in Illinois. It is clear that the initial capacity should provide for present needs, plus the probable increment during the period of construction, and the subject of present requirements will first demand attention.

There were, in 1880, in Illinois, 5,121 insane persons. In 1890 there were 6,638 insane, an increase equal to about 3 per cent. per annum. A continuance of this rate to the present time would indicate that there are now 7,534 insane persons in the State. Dr. Bettman, President of the Board of State Charities, estimates the number at 7,000. If the increment continued at the same rate during the construction period of a State hospital—estimated at two years—the number would be 7,932.

The comfortable capacity of the four State, and one large county, hospitals, together with the number of inmates now present, and with the overcrowding, as represented by the excess, is shown below:—

Hospital.	Capacity.	Inmates		Excess.	Deficit.
		Nov. 19, 1894.			
Kankakee.	2,000	2,090	90		
Jacksonville	1,200	1,222	22		
Elgin . . .	1,100	1,115	15		
Anna . . .	946	853		93	
Dunning . .	900	1,067	167		
Totals . . .	6,146	6,347	294	93	Corrected excess 201.

In 1892 there were in the county almshouses of the State—outside of Cook County—848 insane persons, distributed as follows:—

In the counties composing the Central Hospital District, 425; Northern, 167; Eastern, 158, and Southern, 98.

That these numbers have not decreased since that date is made clear by the investigations of Dr. J. F. McKenzie, Superintendent of the Central Hospital, who writes me as follows:—

"In the thirty-three counties composing our Lunacy District there are something over five hundred insane persons confined in poorhouses and jails. This fact I learned by sending a circular letter to the county clerks of the different counties."

It is quite probable that a canvass of the counties of the other hospital districts would disclose a corresponding increase in the unprovided-for insane.

Taking, then, the 848 insane in the almshouses, plus the probable increase of 144 and the hospital excess of 201, and we have a total of 1,193 insane persons in Illinois who urgently need hospital care at the hands of the State. The number will have considerably increased before the end of the building period.

Taking all these, and other facts into consideration, it is a reasonable opinion that the proposed new hospital should have an initial capacity for, at least, 1,200 patients, and that the growing demands of the State will require an ultimate capacity of, certainly, more than two thousand. These figures, instead of appalling our authorities should lead, instead, to careful consideration and judicious action.

*Location.*—It will have been noticed that the Southern Hospital has a capacity for 946, with only 853 inmates. It can accommodate 93 more than it does, and this is nearly equal to the number of the insane in the almshouses of the Southern District in 1892—98, or the probable present number, 114. The slight excess indicated could probably be best provided for by transferring the twenty-six insane of Clark County to the Eastern District. The almshouse contingent and hospital excess—dividing that of Cook County as provided by law—of the other districts would be about as follows:—Central, 522; Northern, 266; Eastern, 412; total, 1,200. A glance at the map, with due consideration of the present hospital districts, distribution of population, lines of transportation, etc., will show that the proposed new hospital should be given a district composed of the northern counties of the present Central District; the northwestern counties of the Eastern District, and the western counties of the Northern District.

The hospital should be centrally located and be conveniently accessible to all parts of the district it is intended to serve. It should be near some town or city of moderate size. The water supply should be of good quality and practically inexhaustible. Facilities for drainage should be perfect. Proximity to a cheap fuel supply and adequate railroad facilities are very important. These are of such vital importance that no site should be even considered which does not fulfill, absolutely, the first four requirements, and meets, fairly, the last. There are many other circumstances which will recommend one site above another, but these can not be considered.

*Water Supply and Drainage.*—In the matter of water supply the history of so many public institutions has been unfortunate that I feel the subject worthy of special mention and emphasis. As stated above, the water supply should be inexhaustible and the drainage perfect. The water supply plant should be designed for furnishing water at the minimum rate of 100 to 300 gallons per patient daily, and the system of drainage should easily dispose of the resulting effluent. Furthermore, inasmuch as the history of our State institutions show that they almost inevitably undergo enlargement, the mains for water and the trunk lines of sewer should, from the first, have a capacity of, at least, double that of the initial capacity. To meet the contingencies of possible accidents, two pumps should be provided.

*Design.*—Within a period of time easily compassed by the memories of persons yet living, three distinct systems of insane hospital construction have, in turn, found favor at the hands of superintendents and building commissioners, viz., the corridor, the cottage and the detached pavilion. The long gloomy corridor; the heavy-laden atmosphere, and the constantly

occupied ward have condemned the Kirkbride plan. The great cost of construction, and of maintenance, together with the impossibility of exercising any efficient supervision have made the cottage hospital unsatisfactory. The objections urged against the cottage system apply to the detached pavilion. The last two are free, in principle, from the radical and inherent sanitary defects of the first named.

Progressive managers of hospitals for the insane, in common with other enlightened directors of public economic affairs, have been, and always will be, eager to adopt that which all the world is seeking—the “something better”—and to the credit of these managers it may be said that there have been very few examples of retrograde movement in the construction of American institutions of this class.

Although not often formulated there can be no difference of opinion as to the fundamental requirements for the modern State institution for the insane. It must be healthful; it must conduce to the curability of insanity; it must afford facilities for minute classification; it must protect patients from injury; it must protect attendants from unjust accusations; it must permit efficient supervision by day and by night; it must be susceptible of convenient administration; it must be of economical construction; and, finally, it must favor economical maintenance. These requirements are not of an extraordinary nature—on the contrary, they are essentially commonplace, and common-sense—and they may be had in combination without sacrificing in any degree their individual excellence. Certainly, every new hospital should demand and receive the highest obtainable excellence in each and every one of these particulars.

*Facilities for Supervision.*—The wards should be so arranged as to permit efficient supervision, without increasing the cost. A closer system of supervision has always been desired by hospital managers and various expedients have been resorted to in the endeavor to improve upon ordinary methods. Thus there has long been employed at Norristown, near Philadelphia, a system of supervision by an inspector, who occupies a small chamber between two wards, elevated above the second floor. From this chamber the occupant commands a view, directly, of the two upper wards, and, by means of a tube and an arrangement of mirrors, of the two lower wards—in all, four wards. Of this system the Committee on Lunacy of Pennsylvania have to say in their report for 1891:—

“With the added experience and observation of another year your committee are firmly convinced that the present method . . . of supervising the duties of those who daily attend the inmates should be improved. The so-called inspectory system established by the superintendent of the male department of the Norristown Hospital, whereby inspectors control a view of the wards and occupants at all times, has continued in successful operation for several years past. . . . Your committee have been watching with interest the practical working of this system and further observation of the results, as compared with the usual methods of supervising attendants on duty, has led us to a favorable opinion of the inspectory system and, we recommend to the earnest consideration of the trustees and superintendents of other hospitals this, or some other plan for the better protection of the patients from violence, injury, or any dangerous coercion, and the attendants from groundless accusations.”

The Norristown system may be extended and simplified by centrally locating the supervisor's office, with respect to a group of four or eight wards, and placing it about four feet below the second floor so that a person occupying it may have a view of all the

wards on both floors. This room, being open to view and occupied by an ordinary officer changes the system from one of espionage to one of close supervision. However, the system is so elastic that any degree of oversight—from the closest surveillance to none—may be had at will.

Insane inmates of hospitals have their comfort and safety jeopardized at the hands of themselves, their fellows and their attendants. These dangers become greater in proportion to the distance the patients are removed from official supervision and control. The plans under which institutions for the insane are usually constructed remove a large proportion of the inmates—and often those who particularly require close surveillance—far from the seat of official authority and necessarily prevents that careful supervision which their interests demand. Under the modification proposed, the officers in authority are centrally located and have at all times—day and night—opportunity to see every ward and occupant and exercise a close, constant and immediate supervision over attendants and patients, guarding the latter and detecting negligence, unkindness and cruelty upon the part of the former, and protecting them from unjust charges.

*Radiate Pavilion Wards.*—To facilitate supervision and night attendance; to render administration more convenient, and to cheapen construction and maintenance, some of the buildings of such an institution may take the form of radiate pavilions.

The earliest examples of hospitals upon the radiate system, so far as my information extends, date back to, or beyond the twelfth century, when two were erected in France; one at Angers and the other at Chartres. During the war a very large hospital of this class, with a capacity of about thirty-two hundred, was operated at Washington, or Philadelphia, and was considered a model. The Marine Hospital at San Francisco, designed by Surgeon-General Hamilton, has some wards arranged in this manner. The model hospital exhibited at the World's Fair by the United States Government was upon this system. The Southern Indiana Hospital for Insane, at Evansville, is a notable example of this form of arrangement of wards for patients of the classes under consideration. Of the Evansville Hospital, the Indiana Board of State Charities have this to say—in advance of the opening of the institution—in their report for 1890:—

"The building is on what is known as the radiate plan, which is original as applied to hospitals for the insane. Its leading feature is that of bringing each section into equally close connection with the administration department, while still giving the advantages of light and air on all sides of every ward. It is expected, with reason, that this plan will be found to facilitate supervision and promote economy in the domestic arrangements, heating, water supply, etc."

After the hospital had been occupied for two years, the same Board says:—

"The internal affairs of the hospital have been remarkably free from disturbances of any kind. . . . It is possible that this condition of things, which must be recognized as more than ordinarily favorable, is partly due to the construction of the building. . . . It was designed, as is well known among persons who study hospital construction, by Dr. Rogers, and was the result of the careful study and experience of a very practical man. His opinion was that the radiate plan . . . would be moderate in first cost, economical in maintenance and particularly easy of supervision. The experience of the last year has certainly borne out all he claimed for it as far as maintenance and supervision go."

Later, and after four years' use of the hospital, Dr. Thomas, the medical superintendent, writes me as follows:—

"There are three things claimed for the radiate plan of hospital . . . 1, economy in construction; 2, economy in maintenance; 3, convenience of administration. The first claim has not been proven in the construction of this building, but in another building extravagance may be avoided. The second and third claims are absolutely proven to the most satisfactory degree. In my opinion the radiate plan has decided advantages over both the Kirkbride and the cottage plans."

*Attendants.*—The proportion of attendants to patients which is to be allowed will have an important bearing upon the number, size and arrangement of the wards. In a large State institution for the insane, where the interests of the tax-payers require the practice of as rigid economy as the proper care of the patients will permit, the wards might well vary in capacity from fifteen to thirty-two and be cared for by two attendants. To be sure, in practice, these numbers will vary according to circumstances. The practice in different hospitals may be inferred from the following table and statements:—

State.	Hospital.	Patients.	Attendants.	Proportion.
New York	Poughkeepsie	733	105	1 attendant to 7.0 patients.
"	Binghamton	1,136	157	" " 7.2 "
"	Middletown	709	80	" " 8.8 "
Indiana	Indianapolis	1,524	138	" " 11.0 "
"	Richmond	434	39	" " 11.1 "
"	Logansport	364	32	" " 11.3 "
Minnesota	Rochester	631	49	" " 13.0 "
Kansas	Osawatomie	519	39	" " 13.3 "
Ohio	Toledo	1,174	88	" " 13.3 "
"	Cleveland	807	52	" " 15.5 "
"	Athens	813	51	" " 16.0 "
"	Dayton	732	46	" " 16.0 "
"	Columbus	1,091	66	" " 16.5 "
Illinois	Anna	865	75	" " 11.4 "
"	Elgin	1,115	80	" " 13.9 "
"	Kankakee	2,090	160	" " 13.0 "
"	Jacksonville	1,222	80	" " 15.3 "
Totals and averages		15,958	1,317	1 " 12.2 "

At Dayton there are twenty wards with an average capacity of over thirty-six patients. Sixteen of these have two attendants each, and four,—the sick and violent wards on either side—have three each. At Logansport there are fourteen wards with an average capacity of twenty-six patients. Ten of these have two attendants each, and four have three each. At Richmond there are nineteen wards, ranging in capacity from ten to thirty, with two attendants to each ward, except one ward, which has three. At Jacksonville there are thirty-six wards, with two attendants to each, except four disturbed wards on which three attendants are employed. At Elgin there are two attendants to each ward, except on five, where there are three each. At Anna, two wards have one attendant each; twelve wards two attendants each; nine wards three attendants each, and four wards four attendants each. At Kankakee four wards have one attendant each; fourteen wards two attendants each; six wards three attendants each; seven wards four attendants each; two wards five attendants each; five wards six attendants each; one ward has seven attendants, and one ward has nine attendants.

*Night Attendance and Night Supervision.*—The attendance of insane patients at night—nursing the sick; attending to the wants of the well; soothing the excited; reassuring the fearful; caring for the filthy—and the supervision of night attendance, is a subject of prime importance. The prevailing practice varies in different institutions, but that much is left to be desired in this particular is almost universally admitted.

In Massachusetts, "at Westborough Hospital and the asylum wards of the State Farm every patient is seen each hour during the night. . . . Danvers Hospital has some large associate dormitories which have special night attendants; and these, together with the suicidal wards and infirmaries, make ten wards at the hospital having special night nurses—the largest number of any hospital in the State. . . . In some institutions many patients are not seen from the time they are locked in their rooms at night until they are awakened in the morning. A homicide at one hospital has illustrated the danger of confining two patients in one room; and there is but one hospital in the State where this is not done.



Taunton Hospital alone, under such circumstances leaves the door unlocked and wide open. The State Almshouse has in its asylum wards some rooms in which two patients are confined at night, but hopes to soon do away with this practice."

The practice in New York is as follows:—At Utica with 786 patients, 11 night attendants are employed. On the male side three wards—the suicidal, the filthy and the epileptic—each have one night attendant. On the female side four wards are attended by four nurses. All the other patients are looked after by four perambulating attendants. At Poughkeepsie 733 patients are cared for at night by 16 attendants. On the male side, 380 patients, and on the female side, a small number, are constantly in sight. At Willard 2,055 patients are given 32 night attendants. In the infirmary group 180 males have 4 nurses and 260 females have 10 nurses. In the other groups nine wards have each a night attendant. The remainder are looked after by nine perambulating night attendants who make hourly visits. At Buffalo, with 509 patients, 9 night attendants, 7 of whom are assigned to single wards and 2 making regular rounds. At Binghamton the 1,136 patients have 23 night attendants—16 on wards and 7 making rounds. At St. Lawrence 227 patients had 4 night attendants—2 in each of the two occupied cottages.

In Ohio, at Columbus there are 6 night attendants to 1,091 patients; at Cleveland 4 to 807; at Athens 6 to 813; at Longview 8 to 880; at Dayton 4 to 732; and at Toledo 10 to 1,174 patients.

In Indiana, at Logansport there is one night attendant to each of the ten detached pavilions. At Richmond there is one night attendant to each of the twelve cottages.

In Illinois, the practice, as courteously reported to me by the superintendents of the respective hospitals, is as follows:—At Anna there are five general night watches making rounds. There are no regular night attendants on wards but they are especially detailed as required. Supervisors and medical officers are subject to call, but none are regularly on duty at night. Dr. Lence, the superintendent, would like to have a regular night attendant for all patients were it not for the expense. Dr. McKenzie, of Jacksonville, says:—"Six night watches make hourly rounds. . . . When we have a case of acute sickness we always detail two attendants to watch and if the case does not require special attention, the night watches give them attention every hour." Dr. Loewy, of Elgin, writes:—"We have . . . fourteen night attendants on the wards. . . . On the hospital wards the night attendants act as nurses. The night attendants are assigned wards in proportion to the character of the patients in those wards. On the hospital wards one night attendant remains constantly on duty, one also on the wards containing the disturbed and untidy patients. On the better wards two and three wards are assigned to the night attendant. The head night watchman and the head night watchwoman act as supervisors on their respective sides. No medical officer is on duty at night, although I must say I am strongly in favor of it. At this hospital I believe every patient has efficient night supervision. I increased the night service by adding eight attendants about one and a half years ago. All the doors of the patients' rooms are left open at night." Dr. Gapen, of Kankakee, reports:—"We have a regular night service, the night nurses numbering eighteen, ten being in the male wards and eight in the female wards. We also have two outside watchmen. The supervisors have no responsibilities at night except as they are called, but both they and the medical officers are subject to call at any time. I have been steadily increasing the night service, and would like to increase it considerably more, and would do so except for the expense. . . . I should like to have night service in every ward or cottage, which would mean the increase of this force from eighteen to about thirty."

The proportion of night attendants to patients in several institutions is shown in the following table:—

State.	Hospital.	Pati- ents.	Night Attendants.	Proportion.
Indiana . . .	Richmond . . .	434	12	1 night attendant to 36 patients.
" . . .	Logansport . . .	364	10	" " " 36 "
New York . . .	Rochester . . .	350	10	" " " 35 "
" . . .	St. Lawrence . . .	227	5	" " " 45 "
" . . .	Poughkeepsie . . .	733	16	" " " 46 "
" . . .	Binghamton . . .	1136	23	" " " 50 "
" . . .	Buffalo . . .	509	9	" " " 56 "
" . . .	Utica . . .	786	11	" " " 71 "
" . . .	Willard . . .	2055	32	" " " 64 "
Ohio . . .	Toledo . . .	1174	10	" " " 117 "
" . . .	Athens . . .	813	6	" " " 135 "
" . . .	Dayton . . .	732	4	" " " 183 "

State.	Hospital.	Pati- ents.	Night Attendants.	Proportion.
" . . .	Columbus . . .	1091	6	" " 185 "
" . . .	Cleveland . . .	807	4	" " 201 "
" . . .	Longview . . .	880	8	" " 110 "
Minnesota . . .	Rochester . . .	631	3	" " 210 "
Kansas . . .	Osawatomie . . .	519	2	" " 259 "
Illinois . . .	Elgin . . .	1115	14	" " 79 "
" . . .	Kankakee . . .	2090	18	" " 116 "
" . . .	Jacksonville . . .	1222	6	" " 204 "
" . . .	Anna . . .	865	5	" " 173 "
Totals and averages . . .		18,533	212	" " 88 "

**Classification.**—In considering the subject of classification of insane patients for institutional care, it should be remembered that a pathologic, and a working classification are not one and the same thing. In a good working system of classification for hospital care and treatment, the patients are assigned to those groups and wards in which they can be best observed, treated and cared for; where they are least irritated and where they are brought in contact with congenial associates. The system must be very elastic and its various subdivisions can not be rigidly limited or their characteristics clearly defined. These facts will account for the apparent looseness with which the skeleton scheme here suggested is outlined. It is believed, however, that it fairly represents the system adopted by the superintendents of those hospitals having facilities for such classification. It provides for an institution with a capacity for 1,200 patients, and suggestions are made as to the manner in which the future capacity may be increased to 1,580 or 2,500.

#### SYNOPSIS OF CLASSIFICATION.

##### Hospital Group, Males and Females.

Fe- male.	Male.	Ward.	Fe- male.	Male.	Pati- ents.
Ward 1	A	Reception. For recent admissions. . . . .	25	25	50
" 2	B	Observation. " suicidal and special cases. . . . .	25	25	50
" 3	C	Sick. . . . . " the sick, injured, etc. . . . .	20	20	40
" 4	D	Infirmary. . . . . " infirm and special cases. . . . .	20	20	40
" 5	E	Untidy . . . . . " untidy and filthy. . . . .	15	15	30
" 6	F	Violent . . . . . " violent and disturbed. . . . .	15	15	30
" 6	6		120	120	240
Convalescent Group, Males and Females.					
" 9	I	Convalescent. For convalescents, etc. . . . .	30	30	60
" 10	J	Quiet. . . . . " quiet and refined cases. . . . .	30	30	60
" 11	K	Mild. . . . . " mild cases. . . . .	30	30	60
" 12	L	Mild & quiet. . . . . " and quiet cases. . . . .	30	30	60
" 4	4		120	120	240

##### GENERAL WARDS GROUPS.

General Wards Group, No. 1.			General Wards Group, No. 2.		
Females.			Males.		
Ward 17.	26 patients.	For quiet workers. . . . .	Ward Q.	26 patients.	
" 18.	26	" " workers. . . . .	" R.	26	
" 19.	32	" " quiet epileptics, etc. . . . .	" S.	32	
" 20.	32	" " workers, etc. . . . .	" T.	32	
" 21.	32	" " restless epileptics, etc.. . . . .	" U.	32	
" 22.	32	" " patients. . . . .	" V.	32	
" 23.	32	" " quiet demented, etc. . . . .	" W.	32	
" 24.	32	" " restless . . . . .	" X.	32	
" 25.	32	" " advanced . . . . .	" Y.	32	
" 26.	32	" " dangerous patients, etc. . . . .	" Z.	32	
" 27.	26	" " untidy patients, etc. . . . .	" AA.	26	
" 28.	26	" " disturbed patients. . . . .	" BB.	26	
" 12	360	"	" 12	360	"

##### GROUP CLASSIFICATION AND CAPACITY.

Hospital Group. . . . .	120 females.	120 males.	240 patients.
Convalescent Group. . . . .	120	120	240
General Wards Group, No. 1. . . . .	360	"	360
General Wards Group, No. 2. . . . .	"	360	360
	600	600	1200

**Additional Capacity.**—The wards in the various groups can be so arranged that additional wards may be erected, without disturbing those completed, as follows:—

	Female Wards.	Pati- ents.	Male Wards.	Pati- ents.	Total Patients.
Hospital Group. . . . .	2	30	2	30	60
Convalescent Group. . . . .	2	60	2	60	120
General Wards Group, No. 1. . . . .	4	100	"	"	100
General Wards Group, No. 2. . . . .	"	"	4	100	100
	8	190	8	190	380

These additions would raise the total hospital capacity to 1,580 patients. By duplicating the general



wards groups, as suggested, would increase the capacity to 2,300, and the same reduplication, with the additions, would give a capacity for 2,500 patients. In making these additions the proper hospital balance and symmetry is always preserved, and the classification will require only slight modification in detail.

**Organization.**—For an institution such as described, having a capacity for 1,200 patients, the following organization, for the immediate care of the insane, is proposed:—

	Hosp. G.	Conv. G.	G. W. G. No. 1.	G. W. G. No. 2.	Total.
Medical Superintendent.					1
Assistant Physician-in-charge . . . . .	1	1	1	1	4
Internes . . . . .	2		1	1	4
Apothecary and Pathologist . . . . .	1				1
Supervisors . . . . .	2		1	1	4
Attendants . . . . .	24	12	24	24	84
Night attendants . . . . .	6	2	4	4	16
Head attendants . . . . .		2			2
Totals . . . . .	36	17	31	31	116
Proportion of attendants to patients . . . . .					1 to 14.2
Proportion of night attendants to patients . . . . .					1 to 75

It is very important that the questions of total, group and ward capacities; of classification, and of organization, should be considered and provisionally decided upon before even preliminary studies are made for the plans for any proposed hospital. Plainly the buildings should be made to accommodate the inmates and to meet their various necessities and not *vice versa*.

**Plans.**—The details of plans for hospitals for the insane must vary within such wide limits to meet individual requirements that this subject can only be considered in a very general manner. However, there are some features of hospital construction which, if satisfactory results are to be obtained, must be considered as either essential or highly desirable. Some of these are briefly enumerated:—

1. Every institution erected for the care of the insane should be an improvement upon previous structures. It should retain the good features of the older ones and it should possess some new combinations or additions which will render it a decided advance in this field. No less ambitious object should be considered.

2. The ward should be considered the constructive unit, and each should be complete within itself and adapted to best meet the requirements of its inmates. It should be on one floor and should have a separate entrance.

3. The several rooms of the ward should be conveniently arranged and they should have an abundance of light and facilities for thorough ventilation.

4. The day rooms and dormitories should be entirely distinct and permit airing when not in use.

5. As far as practicable, the wards should be so arranged as to permit the supervision of several at the same time. The dormitories, especially, should be so arranged that a constant and immediate night service may be given several from a common center, thus promoting efficiency and economy.

6. Each of the groups or divisions should contain a sufficient number of wards to permit minute classification. Very large wards should be avoided.

7. Toilet and bath rooms should be separated from the living rooms by a ventilated lobby. All sewerage should be discharged directly outside the walls and there should be no basement pipes.

8. Facilities should be provided for quartering assistant physicians separately in the groups under their charge and in the immediate vicinity of their work. It is believed, and experience confirms the opinion, that by increasing the responsibilities of assistant medical officers, without diminishing the authority of the superintendent, that their interest will be enhanced and that a high grade of such officers may be obtained and retained, and that the superintendent, relieved of many petty cares and annoyances, will have more time to devote to those larger questions which should be his peculiar province.

9. The institution, as a whole and in its parts, should pre-

sent a pleasing and satisfactory appearance. This may be attained in an inexpensive manner. It should not be so plain as to be ugly, neither should it have, in any sense, a palatial appearance.

10. The construction must be good, safe and substantial, and the cost moderate.

**Cost.**—Institutions for the insane have varied, and will continue to vary remarkably in cost, depending largely upon circumstances already mentioned. As a matter of true economy and correct principle, flimsy, cheap and shoddy construction should be avoided; on the contrary it should be safe, plain, substantial and durable. Such construction is neither cheap nor expensive, and it is certainly not extravagant. The total and per capita cost of several hospitals is here given for comparison:—

State.	Hospital.	Capacity.	Total Cost.	Per Capita Cost.
New York . . . . .	Buffalo . . . . .	525	\$1,609,000	\$3,065
" . . . . .	Poughkeepsie . . . . .	830	2,039,000	2,456
Pennsylvania . . . . .	Danville . . . . .	750	1,593,000	2,122
Massachusetts . . . . .	Worcester . . . . .	650	1,299,000	2,000
" . . . . .	Danvers . . . . .	863	1,622,000	1,878
Pennsylvania . . . . .	Warren . . . . .	650	1,150,000	1,800
New York . . . . .	Middletown . . . . .	675	1,006,000	1,490
Pennsylvania . . . . .	Harrisburg . . . . .	650	921,000	1,400
Indiana . . . . .	Richmond . . . . .	434	547,000	1,260
" . . . . .	Evansville . . . . .	400	504,000	1,260
" . . . . .	Logansport . . . . .	364	435,000	1,195
Massachusetts . . . . .	Westborough . . . . .	405	472,000	1,165
New York . . . . .	Utica . . . . .	700	815,000	1,164
" . . . . .	St. Lawrence . . . . .	1,500	1,725,000	1,150
Indiana . . . . .	Indianapolis . . . . .	1,500	1,696,000	1,131
Illinois . . . . .	Elgin . . . . .	1,100	1,092,000	993
Illinois . . . . .	Anna . . . . .	946	1,054,000	1,110
Pennsylvania . . . . .	Dixmont . . . . .	525	690,000	1,066
Massachusetts . . . . .	Northampton . . . . .	470	490,000	923
Pennsylvania . . . . .	Norristown . . . . .	1,384	1,146,000	830
Illinois . . . . .	Kankakee . . . . .	2,000	1,656,000	828
" . . . . .	Jacksonville . . . . .	1,200	846,000	717
Massachusetts . . . . .	Taunton . . . . .	698	475,000	702
Totals and averages of 23 hospitals		19,219	\$24,882,000	\$1,295

In this connection, I wish to enter an emphatic protest against under-estimating the cost of adequately providing for the insane in public institutions. It has been proposed to establish complete institutions at a cost not to exceed \$200 per capita. Proper accommodations for these classes can not be furnished for any such sum, and calculations and expectations based upon such estimates are misleading and can only end in disappointment.

Insanity is undoubtedly the greatest calamity which can befall a human being. From the very nature of his condition he is usually helpless and powerless to do good and is a constant menace to the safety of himself and to others. From every point of view, therefore, he deserves, not only our sympathy, but our intelligent benevolence as well.

34 Washington Street.

## ALCOHOL AND ITS EFFECTS.

BY W. P. HOWLE, M.D.

ORAN, MO.

Alcohol pure in full strength is rarely used as an internal remedy. In the form of whisky, brandy or wine it is often used. In minute doses it *stimulates*; in large doses it intoxicates; in larger doses it may kill. Therefore its effects like the effects of anything else depend upon the quantity given, the conditions under which it is taken, etc. An ounce of alcohol in a pint of water or syrup makes a stimulant about the same strength as ordinary wine; a tablespoonful of this three times a day before meals improves the appetite and leaves no bad after effects. This quantity of alcohol would last a patient nine or ten days, and within a year thirty-six ounces or a little over three pints of alcohol would be used. This quantity would not harm the average adult.

Alcohol given in teaspoonful doses every hour or

two, soon makes a patient drunk, poisons him for the time being, just as large doses of opium or chloral would. Stop the dosing and nature restores by throwing off the alcohol. Alcohol is not deposited in the tissues as mercury is said to be. Confine the worst toper in the land for ten days and no trace of alcohol can be found in his tissues. The constant use of large doses of alcohol destroys the user. It kills one man by its effects on his stomach; another by its effects on the brain; in others the liver, kidneys or heart may be the organ to give way first. In other cases it seems to spend its force on the nervous system. It seems to act as a traumatic, wounding here and there as it passes through the system, setting up gastritis, pericarditis, meningitis, etc. Why it selects a certain organ in preference to another, I can not explain, but that it does so no one will deny. Gastritis caused by alcohol is as amenable to treatment as if caused by another agent; so with any ailment that alcohol may produce. Remove the cause and nature soon puts things in order. Looked upon as a traumatic, the effects of alcohol are more easily understood.

Some of our learned men, group the many deleterious effects of alcohol all under one head and call it alcoholism. This is a handy way of doing business, but very far from the truth. Alcohol may be doing great injury to a man's kidneys, while some other agent is ruining his stomach or brain. Removing the alcohol might relieve the kidney trouble, but would not stop the stomach or brain trouble. So in examining a drunkard, look for other causes of disease beside alcohol in making your diagnosis and treatment. A drunken man often lies out on the cold ground for hours and gets chilled. The effects of the chill may be quite different from those of an ordinary jag, hence a different diagnosis and treatment will be in order.

The victim of alcohol is exposed to many dangers outside of the effects of alcohol. He is careless, wounds himself, gets wounded, mixes with all classes of people and is therefore more exposed than the sober man. All these things must be considered in studying the effects of alcohol. In examining the brain of a drunkard can you say this or that change of structure was the result of alcohol, and ignore the fact that this man was a syphilitic, had had many hard blows on his head, had been in prison, had been beaten into insensibility a number of times, had been thrown off of horses, off of wagons, off of trains, down stairs, and many other things incident to drunkenness. All these things considered, are you positive that alcohol caused this or that lesion found at your *post-mortem*? Let us give the devil his due. It is natural when we wish to show up anything as bad, that we paint it in its worst colors. Alcohol is bad enough in its effects, but certainly is often accused of crimes to which it was only accessory.

I am on record as to how I feel about the user of alcohol, as to whether he is responsible for his acts, and will not discuss that phase of the question now. I see others engaged in this who are more competent. Alcohol has come to stay as a remedy; it is capable of much good or harm, according as it is rightly or wrongly used.

Blank Applications for membership in the Association at the JOURNAL office.

## SOCIETY PROCEEDINGS.

### Proceedings of the First Meeting of the American Academy of Railway Surgeons.

*Held at the Grand Pacific Hotel, Chicago, Ill., Nov. 9 and 10, 1894.*

*(Continued from page 989, Vol. XXIII.)*

On motion of DR. R. HARVEY REED, the Academy proceeded to the election or rejection of those present, to fellowship in the Academy.

On motion of DR. L. E. LEMEN, three negative votes were declared sufficient to debar an applicant for fellowship in the Academy.

The chair appointed Dr. L. E. Lemen, Denver, Colo.; Dr. F. H. Peck, Clinton, N. Y., tellers. The count of the ballots showed all present elected to charter fellowship with the exception of two.

[Owing to their mention in the preceding report, we omit the names of those who were present and who were elected to fellowship.—ED.]

Adjourned to meet at 2 P.M.

SECOND SESSION, FRIDAY, NOVEMBER 9, 2 P.M.

On motion of DR. F. H. PECK, Clinton, N. Y., the Academy proceeded to ballot on the applications of those gentlemen who were not present.

The tellers reported the following railway surgeons who had made formal written application, as having been elected to fellowship in the Academy:

Dr. David C. Ainey, Ass't Surgeon, D. L. & W. Railway, New Milford, Pa.

Dr. Wm. T. Bishop, Medical Examiner, Pennsylvania Railway, Harrisburg, Pa.

Dr. A. B. Brumbaugh, Surgeon, Pennsylvania Railway, Huntingdon, Pa.

Dr. W. H. Buechner, Surgeon, Erie Railway, Cleveland, Ohio.

Dr. J. F. Bancroft, Chief Surgeon, U. P. D. & G. Railway, Denver, Colo.

Dr. W. M. Bullard, Ass't Surgeon, Montana Central Railway, Helena, Mont.

Dr. G. P. Conn, Chief Surgeon, C. & M. Railway, Concord, N. H.

Dr. Geo. Chaffee, Surgeon, L. I. Railway, Brooklyn, N. Y.

Dr. M. Cavana, Surgeon, N. Y. P. & O. Railway, Oneida, N. Y.

Dr. Henry W. Coe, Surgeon, East Side Railway, Portland, Ore.

Dr. R. H. Cowan, Surgeon, N. & W. Railway, Radford, Va.

Dr. Leroy Dibble, Surgeon, C. R. I. & P. Railway, Kansas City, Mo.

Dr. Wm. T. Dalley, Ass't Surgeon, U. P. Railway, Salt Lake City, Utah.

Dr. W. L. Estes, Chief Surgeon, L. V. Railway, S. Bethlehem, Pa.

Dr. F. B. Eaton, Oculist, Oregon Railway and Navigation Co., Portland, Ore.

Dr. Spencer M. Free, Surgeon, B. R. & P. Railway, DuBois, Pa.

Dr. J. H. Ford, Chief Surgeon, Big Four Railway, Wabash, Ind.

Dr. Jno. F. Fulton, Surgeon, N. P. Railway, St. Paul, Minn.

Dr. L. C. Ford, Ass't Surgeon, U. P. Railway, Lima, Mont.

Dr. E. Griswold, Surgeon, Erie Railway, Sharon, Pa.

Dr. J. D. Griffith, Consulting Surgeon, K. C. F. S. & M. Railway, Kansas City, Mo.

Dr. R. P. R. Gordon, Surgeon, G. F. & C. Railway, Great Falls, Mont.

Dr. Jesse Hawes, Division Surgeon, U. P. D. & G. Railway, Greeley, Colo.

Dr. G.W. Hogeboom, Chief Surgeon, A. T. & S. F. Railway, Topeka, Kansas.

Dr. R. L. Harris, Chief Surgeon, S. & St. A. Railway, Oakland, Fla.

Dr. Lester Keller, Surgeon, C. & O. Railway, Ironton, Ohio.

Dr. Samuel Kennedy, Surgeon, Big Four Railway, Shelbyville, Ind.

Dr. Sherman Leech, Surgeon, B. & O. Railway, Mt. Sterling, Ohio.

Dr. N. Y. Leet, Chief Surgeon, D. L. & W. Railway, Scranton, Pa.

Dr. John McLean, Chief Surgeon, P. P. C. Co., Pullman, Ill.

\*Dr. E. A. McGannon, Surgeon, G. T. Railway, Brockville, Ont., Can.

Dr. S. L. McCurdy, Surgeon, P. C. C. & St. L. Railway, Pittsburg, Pa.

Dr. Truman W. Miller, Chief Surgeon, C. & G. T. Railway, Chicago, Ill.

Dr. Henry McHatton, Surgeon, Southern Railway Co., Macon, Ga.

Dr. W. D. Middleton, Chief Surgeon, C. R. I. & P. Railway, Davenport, Iowa.

Dr. K. A. J. Mackenzie, Chief Surgeon, O. R. & N. Co., Portland, Ore.

Dr. Wm. Mackie, Surgeon, C. M. & St. P. Railway, Milwaukee, Wis.

Dr. M. V. B. Newcomer, Surgeon, L. E. & W. Railway, Tipton, Ind.

Dr. R. Ortega, Chief Surgeon, M. I. R. R. C. P., Diaz, Mex.

Dr. J. F. Prichard, District Surgeon, C. & N. W. Railway, Manitowoc, Wis.

Dr. C. B. Powell, Surgeon, C. B. & Q. Railway, Albia, Iowa.

Dr. Geo. Ross, Chief Surgeon, Southern Railway Co., Richmond, Va.

Dr. J. F. Reger, Surgeon, B. & O. Railway, Littleton, W. Va.

Dr. F. A. Stillings, Chief Surgeon, C. & M. Railway, Concord, N. H.

Dr. C. M. Scott, Ass't Surgeon, U. P. Railway, Payette, Idaho.

Dr. S. S. Shield, Surgeon, N. Y. L. E. & W. Railway, Carbondale, Pa.

Dr. F. J. Schug, Surgeon, U. P. Railway, Tacoma, Wash.

Dr. A. N. Talley, Surgeon, C. N. & L. Railway, Columbia, S. C.

Dr. Wm. Thompson, Oculist, Pennsylvania Railway, Philadelphia, Pa.

Dr. B. H. Van Kirk, Surgeon, B. & O. Railway, West Newton, Pa.

Dr. Geo. M. Waters, Surgeon, Big Four Railway, Columbus, Ohio.

Dr. C. A. Wheaton, Chief Surgeon, St. P. & D. Railway, St. Paul, Minn.

Dr. G. A. Wall, Eye and Ear Surgeon, A. T. & S. F. Railway, Topeka, Kan.

Dr. W. H. Elliott, Chief Surgeon, Central Railway of Georgia, Savannah, Ga.

On motion of Dr. F. H. CALDWELL, the vote on Dr. W. W. Barnett was re-considered, and together with the application of Dr. Scott Helm, of Arizona, was referred to the Executive Board.

Dr. G. S. WORLEY, Chief Surgeon, J. St. A. & I. R. Railway, St. Augustine, Fla., read the following interesting paper on

#### TRAUMATIC ANEURYSM.

Under the name traumatic aneurysm, several distinct affections are usually classified. The so-called, diffuse traumatic aneurysm is, strictly speaking, not an aneurysm at all, being merely an accumulation of arterial blood diffused through the tissues of a part, and differing only from a case of ordinary wounded artery, by the absence of communica-

tion with the external air. Hence the term, traumatic diffuse aneurysm, applied to a wounded or ruptured vessel filling the whole neighborhood with almost limitless (not encapsulated blood) is evidently a misnomer, since some sort of sac is inherent to the idea of aneurysm and what has been so incorrectly named as above, is a wounded or ruptured artery with interstitial or subfascial hemorrhage. Since, however, the treatment of this affection is so nearly identical with that of other forms of traumatic aneurysm, it seems consistent to include it in any practical treatise upon this class of injuries.

The diagnosis of this condition can usually be made with tolerable facility. It is a subcutaneous, soft and fluctuating tumor, often of considerable size, containing extravasated blood, and appearing immediately, or very soon after the wounding of an artery. At first the skin covering is not affected, but in a few days it often becomes discolored with ecchymosis, caused by the infiltration of blood. If the opening in the artery be large and free, the tumor will usually exhibit pulsation, synchronous with the heart-beat accompanied by a thrilling, purring or jarring sensation, and frequently by a loud bruit. If the artery injured be a very small one, however, or if the opening in the arterial tunics be oblique or of a limited size, or obstructed, there will be no distinct pulsation or bruit. In such cases the tumor will be indolent and semi-fluctuating or will perhaps, exhibit an impulse which is communicated to it by the subjacent artery. Many cases are reported of diffused traumatic aneurysm in which there was neither pulsation, nor thrill, nor bruit.

The size of an aneurysm of this variety will naturally be determined in a great measure by its locality. For instance, in localities where the subcutaneous connective tissue is abundant and very loose, it may rapidly attain a considerable size, while in other localities, such as the palm of the hand or the bend of the elbow, in consequence of the strength and resistance of the fascia its growth is correspondingly restricted. When the blood is suddenly effused in great quantity, in a traumatic aneurysm of the axillary or femoral region, all the constitutional signs of hemorrhage—pallor, cold sweating, pulselessness and syncope—may arise; and sometimes, in such cases, death from anemic exhaustion, as well as from syncope, may ensue. Diffuse traumatic aneurysms require the same treatment as ordinary wounded arteries; Erichson wisely observes: "The treatment of these cases must be conducted on precisely the same plan as that of an injured artery communicating with an external wound; the only difference being that, in the case of the diffused traumatic aneurysm, the aperture in the artery opens into an extravasation of blood, instead of upon the surface. We must especially be upon our guard, not to be led away by the term 'aneurysm,' that has been applied to these cases, and not to treat such a condition, resulting from wound by the means that we employ with success in the management of that disease."

The safety of the patient, as a rule, depends on exposing the injured artery, and ligaturing it above and below the lesions. In deeply seated arteries this is not by any means an easy operation. In some cases, compression, with absolute quietude of the injured part, should be tried before resorting to ligation. When arteries are ruptured by fragments of bone in simple fractures of the leg or thigh, compression, digital or instrumental, continuous or intermittent, should be applied to the main trunk of the femoral artery. This together with the immobility of the injured limb and the moderate degree of pressure on the tumefaction which are furnished by the dressings of the fracture, has often proved much more successful than any other plan of treatment. So, also, in cases where the axillary artery is ruptured, for instance, in the act of reducing old dislocations of the shoulder joint, and a diffuse aneurysm forms in consequence thereof, compression should be applied to the subclavian artery over the first rib by means of a door key or other suitable instrument, while the arm is immovably fastened to the chest by a roller.

Should compression fail in either class of cases, deligation of the main artery will generally succeed; provided the arm be kept immovably fixed to the chest, or the leg be held motionless by the fracture dressings in the other. But, in cases where immobility of the injured part can not be secured, the wounded artery should be laid bare and ligated above and below the injury, with as little delay as possible.

When an aneurysm upon which this, which is called the "old operation" is about to be performed is so situated that the circulation in the main artery can not be controlled by digital compression, nor by tourniquet, nor by Esmarch's

\*Since deceased.

elastic ligature—as, for example, at the root of the neck—the operation should be begun by making a puncture just large enough to admit one or two fingers of the left hand, which should be quickly thrust into the swelling in such a manner as to plug up the orifice in the integuments; the finger or fingers should then search the bottom of the cavity to find the aperture in the wounded artery, covering the aperture with the finger to prevent any outflow of blood from it, while the tumor is freely laid open, the coagula removed, and the artery ligated on each side of the lesion, as was done by Dr. R. F. Weir, U. S. Army, during the late civil war.

There is another variety of traumatic aneurysm, the pathology of which is the same as that just described, but in which the extravasation is less extensive, and in which an adventitious sac has been formed by the agglutination of the surrounding areolar tissue. Most or all of the large aneurysms, however, could be included in this class, on account of the substitution of condensed connective tissue in the wall for the distended coat of the artery. The presence of a lining coat similar to the intima of the artery is not conclusive proof of the persistence of the latter; it may be entirely of a new formation. The common cause is a penetrating or punctured wound. It is said to be caused also, but much less frequently, by overstretching of the artery in the neighborhood of a joint and fracture. The continuity of the artery is usually not entirely destroyed, and while some of its blood escapes into the adjoining tissues, the remainder continues within it and is distributed through its branches. The effused blood is in part absorbed, and in part coagulates; and after a time a distinct sac is formed about it by condensation of the tissues, and it then differs in no essential way from the common encysted form of aneurysm. Its symptoms and its subsequent course are then the same, but during the stage of formation of the sac the condition presents symptoms of danger peculiar to itself. During the formative stage of the sac, also, the injury is peculiarly amenable to treatment by direct pressure, at the seat of injury; and often after the sac has formed, a cure may be effected by the same means. This is the one important practical point of difference between traumatic and spontaneous aneurysms.

There is another form of circumscribed traumatic aneurysm, which is called "hernial" and which results from the protrusion of the inner coats of the vessel through a wound or laceration of the outer tunics. This variety must be extremely rare; its existence, indeed, is doubted by many writers. The true circumscribed traumatic aneurysm results from a punctured wound of an artery—generally a large one—which has healed, the cicatrix afterward yielding, and a true sac being thus formed from the external coat of the vessel and its sheath. The treatment consists in compression, or in ligation of the artery at as short a distance as possible above the sac. Should, however, (in any of these forms of circumscribed traumatic aneurysm) the sac burst, allowing the aneurysm to become diffused, or should suppuration or gangrene appear imminent, the proper course would be to lay open the part freely and apply ligatures above and below, as in the case of the so-called diffused aneurysm already described.

Sometimes an artery and its contiguous vein are simultaneously wounded, and an abnormal communication between them established. This condition may assume two distinct forms, known respectively as aneurysmal varix, and varicose aneurysm. Aneurysmal varix consists in a direct communication between an artery and a vein. The arterial blood which is projected into the vein at each pulse-beat, dilates it more or less extensively, and causes its walls to thicken; the symptoms are the presence of a circumscribed irregular tumefaction, usually small and bluish in color formed by a dilated vein, having a peculiar tremulous motion and emitting a peculiar thrilling, hissing or buzzing sound, which arises from the passage of blood through a small aperture in the artery, into the dilated vein.

The tumor is usually accompanied by a varicose condition of the neighboring veins. It is soft and disappears upon direct pressure. It subsides when the limb is elevated so as to favor the return of venous blood toward the heart, and in the same way its pulsation is rendered less distinct. But when the limb hangs down, or pressure is applied to the vein on the cardiac side of the tumor, it enlarges and the pulsations are increased.

Compressing the vein on the distal side of the tumor does not lessen either its size or its pulsation. When, however, the artery is compressed on the cardiac side of the tumor, the pulsation immediately ceases, and it instantly returns on raising the compression.

Varicose aneurysm differs from an aneurysmal varix, in that the arterio-venous communication is indirect, through an interposed aneurysmal sac. Its symptoms are a combination of those of aneurysmal varix and of ordinary traumatic aneurysm; the tumor, as a rule, gradually enlarges and becomes more solid by the deposition of fibrin; there is a distinct impulse added to the jarring sensation of the aneurysmal varix; and there is an aneurysmal whirr super-added to the rasping sound heard in the former affection. The proper treatment of the affection, if the sac is enlarging, consists in laying open the tumor and tying the artery above and below; in doing this, however, it must be borne in mind that the first incision (which opens the dilated vein) merely exposes the external orifice of the sac, and that this must be laid open by a second incision, when the aperture of the artery will be found more deeply seated.

The question of tying both artery and vein with double ligatures, is one which should be decided by the surgeon according to the exigency of the case. Professor Ashurst, from whom I have borrowed these illustrations respecting the various forms of traumatic aneurysm and their appropriate treatment, has hardly done more than gather up into a whole, the generalizations of his leading scientific and practical contemporaries.

In the treatment of traumatic aneurysm, particularly the varieties demanding immediate operative interference, we have a superb illustration of the slang maxim that "nothing succeeds like success."

The indications for treatment and the methods applicable for each individual case must be determined by the surgeon in attendance having in view the recognized and established laws of surgery, possessing a thorough knowledge of the anatomy of the parts to be operated upon, their correlative nervous and vascular supply and the general surroundings of the patient; he should be able by proceeding cautiously, step by step, to adopt the methods most applicable to the case.

The judicious application of pressure to the site of the injury or to the main artery, which is often essential to the successful treatment of this class of injuries, will not infrequently tax the ingenuity of the surgeon to its utmost. There can be no specially devised paraphernalia such as tourniquets, compressors, clamps or bandages which will meet the requirements in all, or in any considerable number of cases on account of the difficulty in adjusting them properly, so as to control the circulation in the wounded vessel, and at the same time protect the collateral circulation and other important structures from injurious pressure.

The more we allow ourselves to depend upon what we consider a complete armamentarium of ingenious, complicated and, as a rule, costly appliances, the more certain are we to fail in the accomplishment of our designs. It is much easier to cut a curved line with a straight knife than a straight line with a curved knife. If the surgeon understands the exact condition with which he has to deal, his skill and tact should be equal to the emergency, and his success will often be a matter of surprise to himself and the profession over the wonderful and unexpected results accomplished with such clumsy and unscientific appliances. I do not mean by this to detract from the value of useful scientific instruments or appliances, or to disparage their use, for many of them are as indispensable to the surgeon, as the saw or square is to the carpenter, but the idea that a surgeon is incompetent to treat a complicated injury of this class, or any other class for that matter, simply because he is not in possession of some ingenious instrument or appliance devised by Professor so-and-so expressly for the purpose, is one of the gigantic errors and stumbling stones in the path of every would be successful surgeon.

The place for the armamentarium of the surgeon is in his head and not in his office or instrument case; more especially does this apply to the railway surgeon who, as a rule, has nothing but emergencies to deal with and where it is always the unexpected that happens.

The difficulty encountered by the surgeon in cutting down upon, and ligating a wounded artery in a case of diffuse traumatic aneurysm, where its continuity has been entirely destroyed, and where it is necessary to secure both ends of the vessel, or in cases of encysted aneurysm where it is necessary to ligate the artery both on the proximal and distal sides of the sac, and especially in cases of varicose aneurysm, where it may be necessary to tie both the artery and its contiguous or communicating vein separately, both above and below the tumor, are often very great, and must be overcome by the cool deliberate horse sense of the surgeon or his patient will surely suffer the consequences, likewise his own reputation.



I deem it unnecessary to add that in all cases where wounds are made for the purpose of ligating vessels, the strictest antiseptic precautions that are possible under the circumstances should be observed. The antiseptic catgut ligature or a catgut ligature supposed to be antiseptic, is generally used for tying the vessels, but I prefer a specially prepared silk ligature for the purpose, prepared in the following manner: I take a small hank of No. 1 or 2 braided silk, and immerse it for several hours in a solution containing two parts of pure carbolic acid, two parts salicylic acid and ten parts of white wax, keeping the solution in a melted state by heat. The silk is kept in this solution for five or six hours, when it becomes so thoroughly saturated with the wax that it will remain in the tissues for several days without absorbing moisture or causing irritation. Moreover, it is, I suppose, impervious to the various pathogenic germs, which are credited with being the cause of so much trouble in these cases.

It has at least the following advantages: It is easily applied and when tied with the ordinary reef knot it will not slip. It can remain for several days in the tissues without irritating them to any appreciable extent, and the artery can be more securely occluded by it than with any other substance with which I am acquainted, especially the deep arteries which are difficult to reach.

The wound of operation should be dressed antiseptically, and redressed as often as necessary, and allowed to heal by granulation; after the ligatures have become detached and the wound is in a healthy condition the granulating surfaces should be approximated by adhesive strips or other suitable means and encouraged to heal by direct union.

The complications usually encountered in the treatment of this class of injuries are those naturally incident to obstruction of the circulation. The all important indication in cases where the main artery and vein of a limb have been occluded by ligature or other cause is to protect and preserve the collateral circulation.

The simultaneous occlusion of the main artery and vein of a limb should not cause mortification, unless the collateral channels are also obstructed. These channels may be dangerously obstructed by pressure exerted upon them from careless bandaging, or by the position in which a limb may be placed, as well as by the compression which arises from edematous, inflammatory, and hemorrhagic swelling. The aponeurosis or fascia cause strangulation by acting as unyielding bands, and should be freely incised, when necessary, in order to relieve extreme tension and the consequent pressure occasioned thereby.

I will not tax your patience further by suggestions upon the operative technique of any of the varieties of traumatic aneurysm. The diversity of method among surgeons is as great almost as the number of surgeons in existence. The idea is to determine what to do, and the general rules relating to how it should be done, with special reference to the complications liable to ensue, and then do it in your own way.

I know it is often beneficial to compare methods and endeavor to eliminate what is unnecessary in technique, and reduce everything connected with operative work to the greatest possible simplicity, but the confusion which would inevitably result from any such comparison in this instance would be greater than the benefits achieved.

In the absence of Dr. N. Y. Leet, Chief Surgeon, D. L. & W. Railway, Scranton, Pa., who was to have opened the discussion, the paper was discussed as follows by the different Fellows of the Academy:

#### DISCUSSION.

DR. J. HOWARD WILLIAMS, of Macon, Ga.—My experience with traumatic aneurysm is rather limited. Most of my cases have been from gunshot wounds. I have never seen a case in railway injury, nor have I ever seen a traumatic aneurysm in the early stages; it has always been a circumscribed traumatic aneurysm. Most of them, as I say, were from gunshot wounds, but some of them in railroad work, however. The only thing I have ever been able to accomplish in the treatment of them was the ligation of the arteries supplying the aneurysm. Compression or any other method of treatment has not succeeded. I have tried introducing wire into the sac and the use of electricity, but the only thing that has ever succeeded with me has been ligating the arteries above the sac.

DR. C. D. EVANS, of Columbus, Neb.—While the paper is certainly a masterpiece in regard to traumatic aneurysm, there is one thing that has not been mentioned and that is the bloodless method of treating traumatic aneurysm. I had never thought of it until about three months ago, when I operated on a patient for traumatic aneurysm, and the absence of that point in the paper brings it very forcibly to my mind. A doctor from a neighboring town brought me a case of traumatic aneurysm. It was a very plain case and very easily diagnosed. The man's leg in the upper two-thirds from the knee down was very badly ecchymosed, and a large fluctuating tumor was noticeable about midway or a little below midway on the outer side of the leg. To make a long story short, I applied an elastic bandage above the knee, and controlled hemorrhage in that way, making the lower limb bloodless, which to a great many may not seem good surgery. I ligated the posterior tibial artery, and that was the end of it. The wound healed by first intention. I turned out all the clots of blood almost the size of a goose egg. I might add also in connection with this case of traumatic aneurysm, that the man was a brickmaker by trade and was wheeling heavy loads of brick. The history he gave of the injury was this: The rain was going to destroy the brick. Several of them were wheeling heavy loads of brick together, and another man ran against his leg with the wheel of his wheelbarrow, and having a very heavy load at the time, his muscles were very tense, and the wheel coming in contact with his leg caused the injury.

DR. JOHN E. OWENS, Chicago—I have not seen an aneurysm for a long time and I do considerable hospital practice. I can not account for it occurring in the practice of other men, and yet there is nothing special in my treatment that would prevent aneurysm. The last case of traumatic aneurysm that I have in mind was a miniature one resulting from fracture of the tibia, and there was a small pulsating tumor about the size of a filbert. I cut down upon the part and could not find anything to compress in the bone. Compression did not seem to have any effect, and the pulse was very easily observed. I cut down upon it expecting to find some vessel running into the bone around which I could place a ligature and cure it. I fished around for a long time, but could not find anything, and becoming somewhat discouraged I took a chisel and scooped everything out of the bone and cured it. I think we should use the elastic bandage in cases of traumatic aneurysm with some degree of circumspection. It is an obstructive disease of the circulation. I refer to aneurysm in which the circulation is more or less disturbed and mortification supervenes very frequently, not only after traumatic aneurysm, before any operation has been done, but even after some operation like ligation or pressure. If we look at the liability of a case that comes to us in our line of work, we can readily see that the elastic bandage is an element in the treatment of traumatic aneurysm which may give us some trouble. The elastic bandage may be stretched considerably, and I should feel a little uncomfortable if I used it for fear of causing mortification. I would be disposed, I think, speaking in a general way, without going into details, to adopt pressure in most cases, and if I did not get very satisfactory results, I should at once cut down upon the vessel where it is possible to do so, and tie above and below. I would feel better when I got home after having done this.

DR. REED, of Ohio—I am very glad to see that we have with us an eminent surgeon who has just arrived. I know that he is posted on aneurysm, and I would be glad to hear from him. I refer to Dr. Bevan, of Chicago.

DR. ARTHUR D. BEVAN, of Chicago—I, unfortunately, did not hear the paper, but simply had an opportunity of hearing the latter part of Dr. Owen's discussion. The paper, I



believe, dealt with traumatic aneurysm. I have had a very interesting case of this kind within the last few weeks which may be of interest to report. A boy of 20, received a stab wound at the apex of Scarpa's triangle. He was taken to the Cook County Hospital, and hemorrhage at the time was rather profuse. A dressing was applied which controlled the hemorrhage. The wound almost healed, and at the end of two weeks he was discharged from the hospital with a small suppurating sinus. At the end of three weeks, after the receipt of the wound, he was brought to my service at the Presbyterian Hospital with a swelling about the size of a small chicken egg over the seat of the original lesion. The signs of traumatic aneurysm were very marked. I put him under chloroform, and cut down upon the line of the mass, and I found this interesting condition: There was a stab wound anteriorly through both sides of the artery just at the apex of Scarpa's triangle. The wound of the anterior surface of the artery was about three-quarters of an inch in length, and the wound on the posterior surface, about a quarter of an inch in length. I opened up the entire field of the lesion, the aneurysmal sac which surrounded the artery and vein and deep fascia of the thigh. The blood was pumping through the artery, and it is really remarkable that the patient did not have more hemorrhage because the sac seemed to be in direct communication with the fistula, although filled up with fibrin. The saphenous nerve was to the outer side of the vessel and the femoral vein to the posterior side. The operation was that of ligation. The patient made a good recovery without any interference with the circulation of the limb. Although I did not hear the paper, I am rather inclined to think that the idea of treating traumatic aneurysm by pressure was advocated. Personally, I do not think of a case in which I would feel warranted in treating traumatic aneurysm by pressure unless at some inoperable point of the anatomy.

DR. W. H. BUECHNER, of Youngstown, Ohio—I think traumatic aneurysms in consequence of railway injuries are extremely rare. I have had a rather extensive railroad practice of twenty-seven years and have never met with one. As far as the treatment is concerned, I think the only rational treatment is to shut the vessel off. I have tried compression, electricity, etc., and I have never found that either of them amounted to much. I have always succeeded by tying the vessels. The largest traumatic aneurysm I ever saw was at Professor Volkman's surgical clinic in 1886. It was caused by a stab wound in the brachial artery. He tied the vessel on both sides, and I saw the man probably six weeks after with a perfectly useful arm, a good pulse and wrist.

DR. EVANS—I saw a case of traumatic aneurysm about twenty odd years ago. The young man was 28 years of age, of general good health, and fairly well nourished. He was swinging on a horizontal bar, and within a few hours an aneurysm of the upper third of the brachial artery presented itself. The case is hardly in line with the Doctor's paper, yet it was due to traumatic causes. The axillary artery was ligated at its upper third, and eight days afterwards secondary hemorrhage came on. The patient made a very nice recovery. I think the success of this case was due to an idea I got from an old physician who saw the case with me, and that was compression by a bandage over the first rib, keeping it there until the wound had entirely healed. I think largely the success of the secondary operation of ligation of the axillary artery in the upper third was due to that compression. It was not stiff enough to entirely close up the wound.

Another case: A brakeman who was thrown from a freight car received an injury about the fascia lata. There was evidently considerable effusion of blood underneath it, because the swelling of the part was as large as an

ordinary orange. I laid the parts thoroughly open, expecting to ligate some of the vessels, but in using hot water after the aneurysm was arrested, the wound closed up, and the patient made a good recovery.

In another case in which there was a stab wound of the subscapular artery, I laid the parts open extensively and ligated. Compression did no good. As to the use of the elastic bandage, I must say I feel some doubt as to the propriety of using it, especially when the blood supply is already interfered with. Much injury can come not only from what blood vessels remain intact, but also to the nerve tissue itself, and quite serious results might follow.

DR. SCOTT, of Temple, Texas—One or two thoughts come to me since this subject has been opened for discussion that I think might well be brought up. In regard to the treatment, we must say that it necessarily varies according to the location of the aneurysm. Compression may no doubt be very good in some instances, and in others it may be harmful. I hardly think of using compression in some cases, particularly elastic compression, such as mentioned. But there are certain localities where I am satisfied compression is very good, one in particular which the Doctor has mentioned in injury to the subscapular artery. It is hard for one to understand what is to be feared in opening an aneurysm in that location unless he has had previous experience. But to one who has opened an aneurysm, perhaps as large as the head in that locality and had the pleasure of hunting around and trying to find the bleeding vessel and some features connected with it, it naturally brings about dread. I would say that there are some cases, no doubt, that possibly can be controlled by compression, but I would not think of using it until after the blood clot had been removed. I have seen two cases of traumatic aneurysm in or about that locality. In one that I was called to see, torsion was used instead of ligation. In the other case, which I had a few months ago in Temple, I was uncertain as to whether to search for the vessel or not, and I concluded to simply make an opening, remove the blood clot, and if the bleeding were great, I would go for it. In some cases it is safer to depend upon compression, provided compression will do. I had some evidence of the location of the injury on account of the contusion of the skin. I was satisfied it would be much easier for the patient and less embarrassing for myself to use compression. This I did, and controlled the hemorrhage very nicely. But there are one or two points, I think, that should receive some attention. It seems to me that the uniform opinion expressed here is that when a vessel is exposed it should be tied both above and below the seat of injury and the wound closed up, and the aneurysmal tumor divided between the points of ligation. It may seem a little previous in suggesting under these circumstances, torsion. I would favor it for several reasons, and among them the principal one is this, that when we have large aneurysmal tumors there is abundant reason for absorption, and if any infection whatever takes place during the operation we are very liable to have serious trouble resulting. The doctor who read the paper on this subject suggested, I believe, that this particular line of injuries came under the head of emergency work, and if it is emergency work, then we are not usually properly prepared with our ligatures, that is, the average railway surgeon is not always prepared for such emergency work. He cannot always depend upon the ligatures he has, and under such circumstances it is much safer to resort to torsion. I desire to say that recently I conducted some experiments, the results of which I read before the Texas State Medical Association not long since and expected to have had them published in *The Railway Surgeon* before this, but the paper has not yet appeared. My experiments were conducted along the

line of torsion. I will mention one of them. The carotid artery of a dog was ligated, exposed, and a tube attached to it. The blood arose (in the dog's carotid artery) to about six feet in this case, and in another about five and one half feet. Then the tube was immediately removed, and about three inches of the artery were excised, the proximal end of the artery was twisted, then let go, and it failed to bleed. The tubing was then emptied and the blood vessel left attached to the tubing by a small canula. The tubing was filled with water, attached, a portion of the artery three inches long was twisted, and water allowed to flow into the vessel to see if it would cause the blood vessel to recoil or leak. The tubing was then doubled in length and filled with water rising to a height of eleven feet. This is not absolutely correct but approximately so. There was double the normal arterial pressure, the water was allowed to flow into this excised and twisted artery, and it did not cause it to open or recoil, demonstrating that a twisted blood vessel, when properly done, would resist double the normal blood pressure. That experiment was carried out in several ways. Many other experiments were done, and in connection with them, the abdominal aorta was exposed and excised, caught between two forceps and each end excised, when it remained pulsating for quite awhile after the dog was dead. I mention this to show that torsion will resist double the normal blood pressure, and we can depend upon it in these cases of aneurysmal tumors more certainly than we can ligation with silk, silkworm gut, chromicized catgut, or anything else. I have so far never heard of secondary hemorrhage from it, if it has been properly applied. It is not rare to find secondary hemorrhages from various causes where ligatures are applied.

DR. HARNON, of Waverly, New York—I have very little to say on this subject. I have seen very little of traumatic aneurysm in railway practice. I remember a serious case in hospital practice twenty-five years ago, where it wound up with the death of the patient. The case did not occur in my practice. It may appear somewhat sensational to you, but I believe the day will come when aneurysm will be successfully treated. When a blood vessel has been severed or nearly so, so that compression may not destroy the circulation, then I believe as a preventive of amputation that the aneurysm may be removed and the blood vessel restored by dissecting it out, perhaps stretching it somewhat which you know it will bear, and restoring its continuity by placing some tube within its walls carrying on circulation. All that remains is to make that experiment. It has been tried and has been successful, temporarily restoring the circulation in the limb by placing a tube there which would absorb without any harm being done. I believe in this direction lies a successful remedy for traumatic aneurysm.

DR. COLE, of Helena, Montana—The author of the paper drew a graphic picture between varicose aneurysms and aneurysmal varix. I simply wish to dwell upon one or two points. The author spoke of the uniform constant thickening of the walls of the veins in those cases. Where that is the rule, I think he will agree with me it is not invariably so, and sometimes they burst through. In aneurysmal varix the wall of the veins is thin and leads to disastrous results. About three weeks ago a case was brought to my hospital in which there had been a dislocation of the joint. My assistant reduced it and overlooked a lateral dislocation of the radius. The case occurred about a month prior to my seeing it, and in attempting to replace the dislocation I succeeded in injuring the artery and produced a small traumatic aneurysm which yielded satisfactorily to pressure. I do not believe any more in the pressure treatment as a rule, than those who have expressed themselves here to-day, yet I am satisfied in emergency work we cannot be guided by any

ironclad rules. We cannot lay down a rule that will be invariably followed with success. As a rule, the safer plan is ligation of the artery, not necessarily ligation of it on each side of the injury. I think that operation and the excision of the vessel between the ligatures should be done with reference to the size of the vessel and the location of the injury. I think the writer perhaps was a little misquoted by some one in saying that he invariably recommended ligation of both sides. I do not think that statement was made in the paper, nor do I suppose any one would advocate that as an invariable rule.

DR. REED, of Columbus, Ohio—I have been highly entertained by the discussion of this excellent paper. It is a subject which, although not of unusual occurrence in railway surgery, is sufficiently frequent to give the surgeon considerable annoyance when it does occur. It is this class of cases that will cause you as much annoyance as any other class you may meet; at the same time, in the treatment of traumatic aneurysms we should be governed by two principal points: 1, the treatment in the primary stage; and 2, the treatment in the subsequent stage, what we might term the secondary stage of old traumatic aneurysm. In the treatment of the primary condition, such as was alluded to by Professor Bevan, we can readily understand that it would be necessary as a rule to apply a ligature, torsion, or some method which would get rid of a bleeding aneurysm, the sac of which was made up of the connective tissue, and which would be dangerous to allow to remain. I have in mind at present a case similar in character to the one reported by Professor Bevan, in which an injury occurred to the femoral artery, penetrating it from side to side, and also penetrating the vein, producing a punctured wound of both the femoral artery and femoral vein. The party was a male clerk on one of the roads running out of Columbus. The attending physician thought it was useless to do anything, and allowed the man to go without treatment, excepting to put him on his back and keep him as comfortable as possible. To his astonishment he got well with an aneurysm; in fact, he not only got well but lived and worked for fourteen years, with this aneurysm. It was situated about the region of Scarpa's triangle. Subsequently the man was taken sick and I was called to see him and observed this aneurysm. The man subsequently died of another sickness, which enabled us to make a *post-mortem* examination of the aneurysm which was the result of traumatism, and upon examining this we found that the artery had closed in this manner. We will suppose a gunshot wound or its equivalent passing through the artery from side to side, but immediately around the artery, the connective tissue formed an aneurysmal sac, just as described by Dr. Bevan, until it was perhaps as large as an orange. This sac was strong enough to hold the blood and become a part, as it were, of the walls of the artery. On the other side was a similar sac which was adherent to the vein. The connective tissue was pushed out by the force of the blood against the hole made in the vein and artery and plugged both. There was adhesion of the connective tissue to the vein which formed a sac around the artery, making a complete aneurysmal sac, and at the same time closing up the wound so there would be no escape of blood. This sac thickened and became so strong as to enable the man to go on with his work without difficulty, so far as the aneurysm was concerned.

There is one method of treatment that has not been touched upon here this afternoon, and that is the Macewan needle operation which, I think, in aneurysms of this character would be advisable. I do not think the needle operation, however, would be advisable in acute aneurysm, or in aneurysm due to a recent injury.

I do not think the wire operation of Professor Ransohoff, as advocated by him before the AMERICAN MEDICAL ASSOCIATION, would be of service. I think that method of treatment is absolutely dangerous on account of the liability to the formation of clots and emboli. I simply bring up these points as being important, and which have escaped attention, in speaking of the treatment of aneurysm, and more particularly the needle operation. I have seen Professor Senn use it successfully in the Presbyterian Hospital, of this city in several cases.

(To be continued.)

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

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No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.  
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, JANUARY 19, 1895.

FOOD AND DRUG ADULTERATION.

The earliest investigations into this subject conducted under National auspices were those made by PROFESSORS DIEHL and KEDZIE and DR. SMART of the Army, for the late NATIONAL BOARD OF HEALTH. The field of operations of the last named investigator was quite extensive and was intended to develop the amount and character of food adulteration in this country, with a view of determining whether federal legislation was needful for its suppression. The conclusions arrived at were that few of the adulterations then practiced were of a deleterious character, that they affected the pocket of the individual rather than his health, and that the question of legislation should therefore be viewed from the commercial rather than the sanitary standpoint.

Since then the Department of Agriculture has taken up the subject and published several reports, one of which, Bulletin No. 41, "On the Extent and Character of Food and Drug Adulteration, by ALEX. J. WEDDERBURN, Special Agent," is now before us. Earlier bulletins, particularly Nos. 13, 25 and 32, were valuable as giving the methods and results of analyses; but the benefit to be derived from the present issue is not so evident, as it consists mainly of communications from persons assumed from their position or occupation to have knowledge of the subject. PROFESSOR DIEHL in his report to the late NATIONAL BOARD OF HEALTH characterized communications of this kind as productive of no satisfactory result, the information furnished being too vague and general in its character. That he was correct in this estimate seems proved by the extracts published in Bulletin 41. Their general tenor goes no further

than such assertions as, "I am sure," "I have no doubt," "it is my opinion," "I am credibly informed," or "there is no question," "that food adulteration is largely on the increase," etc.; although some acknowledge lack of specifications to sustain the charge: "While we have no evidence that would be worth anything to you, we do know that there is scarcely an article of food offered by the grocers throughout the country that is not adulterated." One reporter asserts that, "some of our flour is adulterated more or less with a certain kind of earth that comes from the South;" and in a list of the ordinary sophistications of foods and drugs arranged alphabetically by the compiler, we find, p. 51, under the title *Eggs*: "The yolks of eggs are now largely imitated, and it is stated that the whole egg is now successfully duplicated as a result of scientific genius." This recalls the sensational newspaper articles of HASSALL'S time which led the English cockney to look askance on milk as a possible emulsion of sheep's brains, prepared by the depraved and conscienceless inhabitants of the rural districts. Even some parts of MR. WEDDERBURN'S report are open to a similar criticism. He holds that the extent of adulteration of food and drugs is 15 per cent., although only 2 per cent. is of a character injurious to health. The cost of furnishing food, drink and drugs to 65,000,000 people, at an average weekly rate of \$2 per head, amounts to \$6,760,000,000, and 2 per cent. of this, or \$135,200,000 is "the annual amount paid by the American people for having their lives taken or their health injured." PROFESSOR WILEY, the Chief of the Division of Chemistry, in a prefatory note, disclaims responsibility for the opinions of the correspondents cited in the published selections, as well as for some of the conclusions reached by the compiler; but in looking over the pages of this Bulletin the question constantly in mind is, Why should such statements have been published by a scientific bureau of a Governmental Department? A National food and drug law is sorely needed from the commercial point of view, for the protection of the individual as well as for that of legitimate industry and interstate and foreign commerce, and in some instances it may be urged from the sanitary standpoint; but evidence of the kind now presented is not likely to have much weight in effecting its passage.

*Let there be created a Department of Public Health!*

THE WORK OF THE SECTIONS.

At the risk of being somewhat tiresome, we once more venture to invite the attention of the members of the ASSOCIATION to the great advantage of concise writing, and short papers. The short paper is invariably read by the majority of the readers, the long paper is retained and perhaps laid on the shelf. The brief paper from which every superfluous word

has been carefully pruned, is more valuable than a paper involved in expression, and loaded with adjectives.

We have no quarrel with the complimentary adjective on its own account, nor with tropes and metaphor, but they have their place. That place is not found within the limits of a scientific paper read at a medical society for instruction.

We have once before mentioned the admirable work of the Surgical Section last year at San Francisco, but it will do no harm to again mention the fact that DR. ROBERTS, the Chairman, placed a time limit on the papers to be read at the meeting, and it was so announced in his circular calling for articles. The result was an admirable series of papers, fresh and bright with the individual thoughts of the authors themselves. In the average society paper, unless specially included in the historical class, there is no need of embodying in it, the entire history of the subject. The writing is not intended for the encyclopedia, but for current medical literature, and it will be remembered, as it is clear and distinct. If a writer can only rehash the cyclopedia or the text book, he would do well to decline to furnish papers; but every general practitioner of medicine and surgery, and as well every specialist in full practice, has so much information that he can communicate, that fortunately there is no need to weary the Section with page after page of matter already in print, that each may as well read for himself at his leisure. It is seldom necessary in our day to cite obsolete authors, except in purely historical studies, and it is questionable if long tables of bibliography should not be altogether omitted. These tables no longer prove the erudition of the writer, because they may be easily copied from the *Index Catalog* of the Surgeon General's Library and the *Index Medicus*.

The carefully written record of cases with appropriate comment is a style of medical writing that never grows old or obsolete. Hippocratic writings, almost the only ones of medicine that have lasted upwards of two thousand years, are full of case records and case histories, not the dry details, but an interesting summary.

The advantage to the consultant in having his papers read, is almost certain to cause him to write them short, so that his clientelage will read them. This advantage appeals to the consultant in a pecuniary sense, not less than the desire to go to posterity as an original worker and thinker. Every reader is not so fond of conciseness as LOUIS XIV., but many a consultant will be the better off by writing briefly and to the point.

An old and instructive story of LOUIS XIV., who loved conciseness, is to the effect that one day meeting a priest he said: "Whence came you—where are you going—what do you want?" The priest said:

"From Limoges, to Bruges; a benefice." "You shall have it," said the King.

The great writers and orators of the past, whose works have lived, have transmitted to us models of conciseness, and they have been so transmitted because of that conciseness. Those ambitions to live in future pages, after personality has long past, will eschew long articles, and write with compactness.

#### NOT A "NEW" RULING.

Our esteemed contemporary, the *Tri-State Medical Journal*, has been led into an error of statement through the inadvertent "sidehead" of an item in the JOURNAL of October 20, ult. The decision of the Illinois State Board of Health, declining to recognize a degree granted by a dental, pharmacal or veterinary school as the equivalent of any part of the minimum requirements fixed by the Board as characterizing a medical college as in good standing, is not "a new ruling;" on the contrary, it has been in force during the last two years, having been adopted at the January, 1892, meeting of the Board after a consideration of the evidence presented by the Secretary, DR. REILLY, as to the wide disparity which then existed in the qualifications for the degrees of the various schools.

Judging from the following comments of the editor of the *Tri-State*, the objection to the recognition of such degrees is as weighty now as then. DR. MOORE says: "There is a grand opportunity for fraud in this connection. All over the land are 'colleges' and 'universities' teaching dentistry, veterinary science and pharmacy as side-shows. They are insignificant schools for whose existence no good reason has ever been offered. To accept the degree from such a school of mongrel pedigree as equivalent to one year's study in a medical college of high grade is wrong, and can result only in a lowering of the medical profession."

But this is by no means to say that there are not many reputable and estimable dental, pharmacal and veterinary schools in existence, the scope and thoroughness of whose instruction might well entitle their graduates to be entered as second-year students in medical colleges of high grade. The difficulty lies in the want of uniformity in the requirements for these degrees, and in the absence of a recognized standard the State Boards probably do wisely in rejecting all. Such sweeping rejection should lead to organizations of the better classes of these schools similar to the American Medical College Association, membership of which is now generally recognized as entitling a college to recognition by State Boards.

#### "A CLERICAL ERROR."

An observant correspondent of the JOURNAL—DR. W. H. SHARP, of Parkersburg, West Va.,—calls attention to what he kindly styles "a clerical error"

in the editorial comment on "Smallpox in 1894," published in the issue of January 5. It was therein attempted to contrast the mortality from smallpox in the ante-JENNERIAN period—96 smallpox deaths out of every 1,000 deaths from all causes—with the actual number of deaths from smallpox in 1894—less than 3,000 out of a total of 1,170,000 deaths from all causes, or about 2.5 smallpox deaths out of every 1,000 deaths from all causes. As printed in the JOURNAL the number of deaths from smallpox out of the total deaths was given as 12,300, instead of the correct figures 112,300, thus weakening the arithmetical force of the argument for vaccination by about nine-tenths, as DR. SHARP points out.

## CORRESPONDENCE.

### "The Practical Importance of Well Established Facts In Therapeutics."

CHICAGO, Jan. 15, 1895.

To the Editor:—Under this head, your correspondent, Dr. J. H. Stallard, gives in our JOURNAL for Jan. 5, 1895, an interesting account of his own experience in using alcohol in the form of brandy or whisky, apparently to prove that it is a true tonic and restorative. His first point of proof is that after having climbed to a height of 10,000 feet one morning, he took a hearty breakfast and, after only an hour's rest, began his return when the "heat was intense" and over glacier ice "as irregular and uncertain as on board of a ship." What is not singular, the intense heat, the presence of undigested food in his stomach, with the excitement of his unusual walk brought on extreme irritability of the pneumogastric and whole vasomotor system of nerves, indicated by excessive vomiting renewed at every attempt to proceed. In this dilemma, after his digestive organs had been emptied of their contents and the "intense heat" of midday had somewhat subsided, he was given a full dose of brandy which, by its true anesthetic effect, so far lessened the excitability of his cerebral and pneumogastric nerve cells that he was enabled to resume and complete his journey under the impression that he had on "a pair of brandy boots." I suppose an equivalent dose of ether, chloroform or any other reliable anesthetic would have produced the same effect. But is there no difference between an anesthetic and a stimulant or cardiac tonic?

Your correspondent's second point of proof is, the fact that at about the age of 62 years he had a sharp attack of pneumonia, took half ounce doses of brandy or whisky every two hours for nine days and his "recovery was perfect." But if his recovery proves that the alcohol was a "stimulant and heart tonic," what will he say in regard to the case of an eminent physician and medical teacher in one of our Eastern cities, who had a severe attack of pneumonia after he was 60 years of age, was promptly bled freely from a vein in his arm, and treated strictly according to the antiphlogistic system of the first half of the present century, and not only made a perfect recovery, but lived in fair health to the ripe age of 83 years. Does it prove that venesection and antimony are stimulants and heart tonics?

The third point of proof implied by the personal history of your correspondent is that he has attained the age of 74 years still in good health, though he has drunk wine every day for over fifty years and as little water as possible. But, on the other hand, I well knew an eminent surgeon and teacher, who was through life a total abstainer from both

alcohol and tobacco, and was somewhat of a vegetarian besides, who continued his professional duties until he was 80 years of age and died of old age at 86 years. And I could refer to a score of similar cases, some of whom reached their 100 years. If Dr. Stallard's condition at 74, affords any proof that wine is a stimulant or heart tonic, the other cases must prove that simple water is equally efficacious, to say the least. But, in truth, such personal histories prove nothing of value, for every well read physician knows that we meet with individual cases of unusual longevity in all classes of society, sometimes in the midst of poverty and unsanitary surroundings with bad food and drink, and sometimes in the mansions of luxury. Such histories of individual cases of disease only show that some persons possess a tenacity of life that enables them to recover in spite of the most injudicious treatment when sick, and attain longevity in spite of both bad habits and bad surroundings. To determine the actual effects of alcohol or of any other agent, on the living body requires a widely different line of investigation, at least, something more than the impressions of the patient while under the influence of the anesthetic.

Yours truly,

N. S. DAVIS, M.D.

### Treatment of Typhoid Fever.

ST. FRANCIS, ARK., Jan. 8, 1895.

To the Editor:—Having become interested last summer in Dr. Woodbridge's articles on the abortive treatment of typhoid fever, I determined to test it at the first opportunity. I had seen and assisted in treating quite a number of cases of typhoid fever in the Memphis City Hospital, having been an interne there for nearly two years, and have no recollection of any cases being free from fever under three weeks, although treated according to the latest and most approved methods. Last fall I treated several cases according to Dr. Woodbridge's plan and was exceedingly pleased with the results. I did not succeed in cutting the disease so short as Dr. Woodbridge did, on account of the method being new to me, and for other reasons, only giving prescription No. 1 every hour for twenty-four hours, then the guaiacol and eucalyptol every three hours for twenty-four hours, thus alternating them as I thought necessary. I was surprised to see how uniformly the temperature would drop from the effect of these antiseptics so frequently administered, only to rise again on leaving them off or reducing dose or frequency of administration. All of these cases recovered and only one had any bad nervous symptoms. Two of them were free of fever on the tenth day of treatment, two on the thirteenth, one on the fifteenth, one on the sixteenth and one on the seventeenth. In the case running for sixteen days, all medicine was left off—on the tenth day—by mistake, for eight hours, and the temperature which had fallen to 99.5 rose again and was 104 for two evenings. The highest temperature in the two worst cases was 105.5, and in none was it less than 104 for a few evenings, thus showing them to be severe cases. One case on the eighth day of the disease had incontinence of feces, the only one having any bad nervous symptoms. I was forcibly reminded and impressed with what Dr. J. B. Herrick, of Chicago, said about the effect of antiseptic treatment of typhoid fever. In an article headed, "A Synopsis of nearly a Thousand Cases of Typhoid Fever," he says that there is no doubt but that the antiseptic treatment of typhoid fever prevents the development of nervous symptoms. This article was published in our JOURNAL some time ago. I regard the treatment as being a vast improvement over any other and a boon to humanity. Dr. Woodbridge simply carried to the full extent what has been advocated for some years by quite a number of the most prominent men in the profession, and I think it a practical success and



not a therapeutic theory. There seems to be no doubt but that this frequent administration of antiseptics has an inhibitory influence on the typhoid bacilli, checking their activity, hence preventing the development of toxins, the absorption of which no doubt causes the grave nervousness in so many cases. I will say, in conclusion, that in none of these cases did fever exist over twenty-one days after beginning.

Yours faithfully,

WM. BAYARD SHIELDS, M.D.

### Treatment of Typhoid Fever.

ORAN, Mo., Jan. 8, 1895.

To the Editor:—In our JOURNAL of January 5, I find a report on typhoid fever by Dr. Woodbridge and it reminds me of a report I made to the Southeastern Missouri Medical Association a few days before the Doctor made his report at Hot Springs. I reported a case of typhoid fever treated with *hyposulphite soda* and *Fowler's solution*, which gained over a pound a day during treatment. He ate his meals regularly, went to the table and to the privy (fifty yards distant from his hotel) his temperature ranging from 102½ to 105 for fifteen days. He ate largely of green apples, dates, oranges, lemons, anything he wanted (and could get), never complained of any pain, said he felt frstrate all the time, slept well, read the newspapers by day, and was a great Breckinridge man, they both being Kentuckians. I am as positive that this man had a genuine case of typhoid fever as I am that I am writing this squib.

Now what does my report and that of Dr. Woodbridge teach? Nothing, only that typhoid fever does not kill everybody that has it. I treated a babe, 2 years old, last week with as typical a case of typhoid fever as those described by Dr. Love in this same number of the JOURNAL. I gave it calomel and Dovers' powder 1 gr. each, every four hours for six days and *Fowler's solution* (Squibb's) ¼ of a drop every two hours during the same time. This case was clear of fever on the tenth day and called for food. Can Dr. Woodbridge or any other man, do any better for typhoid fever than I did in these two cases? We did not use the same treatment but obtained the same results. Therefore the treatment is not entitled to all the credit.<sup>1</sup> I gave my doses two hours apart, allowing some time for sleep between doses. Any doctor who gives medicine every fifteen minutes for twenty-four hours ought to have mild cases to treat or be dosed himself for the next twenty-four hours.

Dr. Woodbridge is an enthusiast, and evidently a good man, but there is nothing in his treatment that is new or an improvement on mine. Mine will only cure cases that would probably have gotten well without it—typhoid fever comes as near having its own way as any disease we have to treat. Dr. Woodbridge's treatment is like the homeopaths or the old woman's butter, "If it does no good it will do no harm." Dr. Woodbridge is full of enthusiasm; I am full of gall. This makes a stand off. He tells what he thinks is true; I tell what I think is true. Another stand off. The reader can take his choice of treatments—not forgetting that typhoid fever kills under all kinds of treatment, and that many cases get well under the most unfavorable conditions.

W. P. HOWLE, M.D.

### A New Truss—The Nagler Shield.

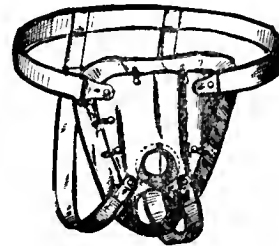
SAN FRANCISCO, CAL., Dec. 29, 1894.

To the Editor:—For the past few months I have been carefully investigating the virtues of a new mechanical device to act as a truss and abdominal supporter wherever such is indicated. It absolutely controls all protrusion and reduces

<sup>1</sup>This is a non-sequitur, for Fowler's Solution is an excellent germicide, so also is calomel, and sodium hyposulphite.—ED.

to a minimum all discomfort from pressure or friction. It consists in its main features of an aluminium shield, carefully molded to the abdominal periphery, and suitably modified to conform to the anatomic requirements of either sex. The shield is lined with soft felt, in which pockets are formed, which can be filled with additional packing, should any particular case demand such support.

In extreme cases a padded metallic ring, surrounding the penis is fastened underneath on top of arched cut away portion of the shield, and this ring is pressed against that part of the pad where the opening for the scrotum is set in and when so adjusted to the body completely controls all possible prolapsus.



The Nagler Shield.

The pressure for the truss is created by the fastening of an elastic belt around the body, which is attached to a series of pins placed around the borders of the shield; this can be graded to suit the amount of pressure required. An additional mechanism prevents all vertical movement.

The complete truss is so simple and yet so effectual that nothing but actual experience of its use will convince those unacquainted with its virtues. The lightness of the material—an infantile umbilical truss not weighing over one ounce—and the freedom from friction go far to commend the application of this truss in all reducible hernias or lax abdominal walls.

FRED W. D'EVELYN, M.D.

### One Hundred Thousand More.

PARKERSBURG, W. VA., Jan. 9, 1895.

To the Editor:—In your article on "Smallpox in 1894," in JOURNAL of January 5, occurs a clerical error on page 27, which destroys the force of the argument. Should read 112,300 deaths instead of 12,300, making the value of vaccination much less than it is.

Yours,

W. H. SHARP, M.D.

### Doctor Dana O. Weeks.

MARION, OHIO, Jan. 12, 1895.

To the Editor:—A mistake occurs in this week's issue of the JOURNAL, page 62, under Society News. Dana O. Weeks was elected President of Marion County Medical Society—not Dana O. Webb. Very truly yours,

O. W. WEEKS, M.D.

## PUBLIC HEALTH.

**Board of Health of North Carolina.**—The December *Bulletin* of the North Carolina Board of Health makes announcement of the resignation of the President, Dr. H. T. Bahnson, of Salem, to become a director of the State Hospital at Morganton. Dr. George G. Thomas, of Wilmington, has been elected to succeed to the presidency. Dr. William P. Beall, of Greensborough, has been appointed by the Governor to fill the place in the Board.

**Windmills for Sanitation.**—A paper, at the Mexican capital, reports that a new project is on foot for the better sanitation of the sewer system of the City of Mexico. It is proposed to construct twenty-five windmills, at a cost of \$25,-

000; these mills are to propel wheels or paddles within the sewers, and by them the rapidity of the current of the sewage is to be quickened.

**Disinfection of Fecal Matter.**—In a paper recently read before the Paris Academy of Sciences, M. Vincent claims that the best disinfecting agent for fecal matter and the contents of privies is sulphate of copper, especially if it has been previously acidulated with 10 per 1000 of sulphuric acid. For normal stools at a mean temperature of 16 C., disinfection is accomplished in twenty-four hours when the proportion of copper sulphate used is equal to 6 kilos per cubic meter; for typhoid stools 5 kilos, and for cholera stools 3.5 kilos per cubic meter are sufficient to destroy the microbes after a contact of twelve hours. This difference in the amount required is due to the fact that these pathologic stools are very fluid and contain pathogenic microorganisms which are less resistant than the saprophytes.

**Bacteria in School Rooms.**—In a recent communication to the Hamburg Medical Society, M. Ruete details the results of his bacteriologic examination of the air of school rooms. He made use of Hueppe's method and made his investigations at 2:30 in the afternoons. While these were always made under the same conditions the results were very variable. He found a minimum of 1,500 bacteria to the cubic meter, a maximum of 3,000,000, and a mean of 268,000. Analogous researches gave Hesse an average of only 9,500. Among the bacteria observed the author calls attention (*Bulletin Medical de Paris*) to a motile bacillus which does not develop on agar, but on gelatin plaques gives rise to circular colonies with crenated edges; it can also be cultivated on milk and potato; pure cultures kill mice in twenty-four hours and their blood is rapidly fatal to guinea pigs. Ruete has been able to extract toxins from the blood of animals thus killed.

**Prophylaxis of Tuberculosis.**—In his *Maladies du Soldat*, Professor Marvaud details the prophylactic measures employed in the French army against the spread of tuberculosis. These consist of: 1, the immediate discharge from service of all men affected with tuberculosis or likely to become so, such as those having weakly constitutions, vicious conformation of the chest, insufficient respiratory capacity, or hereditary tendency; 2, the prompt discharge of all who become affected during service; 3, preventive hygienic measures; location of barracks away from towns and on elevated and well-ventilated sites; thorough ventilation of squad-rooms, and day-rooms for the use of soldiers in inclement weather, antiseptics in spittoons and paraffined floors to prevent soiling with sputa, the disuse for a certain period of any squad-room in which cases have been developed, isolation wards, disinfection, attention to diet, the avoidance of sudden transitions from heat to cold, and the use of such exercises in the open air as tend to expand the chest. As the death rate from phthisis is 150 per cent. greater in the army than in the civil population of corresponding sex and age these prophylactic measures are of prime importance.

**Michigan State Board of Health.**—The Michigan State Board of Health held its quarterly meeting at the office of the Secretary, in the Capitol, at Lansing, Jan. 11, 1895. The meeting was called to order by President Frank Wells, of Lansing. Prof. Delos Fall, of Albion; Dr. Vaughan, of Ann Arbor; Dr. Gray, of Pontiac; Dr. Milner, of Grand Rapids; Dr. Granger, of Bay City, and Secretary Baker of Lansing, were present. The regular business including the auditing of bills and accounts was transacted. A special committee to report to the Board the advisability of entering upon the production of immunizing blood-serum for the use in the production of immunity from diphtheria, with a view of still

further testing, in this country, the efficacy of the method. Dr. Vaughan, Director of the Michigan State Laboratory of Hygiene, reported that he had thoroughly considered the subject and concluded that at the present time the expense would be too great for the State Board of Health to undertake. It was suggested that the Board should take action to protect the people against the use of spurious antitoxins. On motion of Dr. Granger the Board voted to appoint Prof. Victor C. Vaughan, M.D., Director of the Michigan State Laboratory of Hygiene, a special committee to test the immunizing properties of samples of antitoxin offered for sale in Michigan.

Dr. Baker offered the following preambles and resolutions which were unanimously adopted:

WHEREAS, An accurate and prompt registration of the deaths and the causes of deaths in each locality of this State would be of very great practical usefulness to the work of this Board, and consequently of great value to the people of Michigan; and

WHEREAS, Under the present law, which has not been amended since 1869, the registration of vital statistics has failed to give accurate results, and to present them sufficiently early to be of the greatest practical sanitary use and public interest; therefore

Resolved, That the Michigan State Board of Health earnestly recommends the enactment of an improved law for the registration and return of deaths (and also of births) which law shall provide for their immediate record, and prompt report to the State Department.

Resolved, That a committee be appointed by this Board to present the subject to the Legislature, and to urge such action; said committee to act independently or in conjunction with similar committees of the Michigan State Medical Society, Michigan Academy of Science, or other organizations, as may be deemed advisable.

The subject was referred to the Committee on "Statistics of Mortality and Sickness," with request to act in accordance with the resolutions.

Dr. Vaughan, the committee, to whom was referred the subject of suspected poisoning by dried beef, at Somerset Center, Hillsdale County, reported that he had examined the dried beef, and found it contained a capsulated bacillus which when injected into white rats and guinea pigs promptly killed them, showing that it was a poisonous germ. Dr. Vaughan also reported relative to suspected poisoning by pressed chicken at Sturgis. During a banquet some two hundred persons were poisoned. A sample of the chicken was examined at the State Laboratory of Hygiene, and found to contain a short capsulated bacillus which was poisonous, but not of such a virulent character as the one found in the dried beef. It was found, by inoculation, that the germ would kill guinea pigs, but did not kill rats.

Dr. Milner, of Grand Rapids, Committee on Schools, was directed to prepare a bill, for introduction in the Legislature, which shall regulate the employment of teachers in our public schools, and professional nurses who are affected with any communicable form of tuberculosis. Instances have been noted and referred to by Dr. Milner at a previous meeting, where it is probable that tuberculosis (consumption) has been contracted from a teacher.

On motion, the Board voted to direct the Committee on Legislation, Dr. Granger, of Bay City, to confer with members of the State Live Stock Commission and the State Veterinarian, to prepare bills for the improvement of the sanitary laws of the State, relative to live stock, and to look to the introduction and passage of such bills.

The proposed bill for a "State Hospital for Consumptives," in connection with the State Laboratory of Hygiene at the University, was read section by section, amended and approved by the Board. The objects of the hospital are: 1, the proper care and treatment of persons having the disease known as consumption, phthisis, or tuberculosis, in order that the spread of this disease may be lessened; 2, the

training and education of persons who shall go out from that hospital, in the best methods for restricting the spread of this dangerous disease; 3, the training, in such methods of medical students who are to practice medicine in Michigan so that they may know how to restrict tuberculous diseases; and 4, that physicians and others may be enabled to study this disease under favorable conditions, thereby obtaining knowledge useful for the prevention of the spread of this disease, and for its ultimate restriction or extinction in Michigan.

Dr. Baker presented the subject of the need for legislation to prevent the introduction of dangerous diseases into localities in Michigan. He stated that there is no specific law on this subject, although he has several times drawn bills and had them introduced in the Legislature for this purpose. The present law is not operative until after the local board of health has made and published regulations.

By invitation of the Governor, the Board met the Governor in his room, for conference relative to the work of the Board, and a proposed increase in its scope, one question being whether the public interests might be better subserved if the Board were given power to stamp out dangerous diseases in localities where for any reason the local officers were unable or unwilling to take the proper measures.

**State Sanitary Convention of Pennsylvania.**—Preliminary announcement. The Eighth State Sanitary Convention of Pennsylvania, to be held under the combined auspices of the State Board of Health and Vital Statistics and of the State Associated Health Authorities, will convene in the Supreme Court room, Harrisburg, Jan. 30, 1895, at 10:30 A.M. The reports of the several standing committees of the State Associated Health Authorities—namely, the Committee on Legislation (E. S. Wagoner, of Mechanicsburg, Chairman); the Executive Committee (Dr. Benjamin Lee, of Philadelphia Chairman); and the Committee on Publication (M. G. Lipfert, C.E., of Phoenixville, Chairman) will be read. The following subjects will be presented for discussion:

The Sanitary Treatment of Communicable Diseases; Compulsory Vaccination; The Best Means of Educating the General Public in Matters of Practical Hygiene; Typhoid Fever, the Curse of the Rural Districts; The Proper Use of Disinfectants.

An evening session will be held in the hall of the House of Representatives, at which subjects more especially connected with sanitary legislation will be presented. The Governor of the State, Gen. D. H. Hastings will be the presiding officer. The most prominent sanitarians in the State will take part in the discussions. While the attendance of local health authorities is expected to be very large, all persons of both sexes interested in the promotion of sanitary reform and organization will be welcome, and are urgently requested to attend.

Application for special rates for transportation should be made to the Secretary, 1400 Pine Street, Philadelphia. State railroad wished, and enclose stamp for return postage.

BENJAMIN LEE, M.D., Chairman Executive Committee.  
WM. B. ATKINSON, M.D., Secretary.

## ASSOCIATION NEWS.

**The Baltimore Meeting.**—The Committee of Arrangements has secured the new Music Hall for the meetings of the Association. This hall is just completed, and is one of the most comfortably arranged buildings in the country. The general sessions as well as all the section and committee meetings will be held in the same building. The rooms are large, comfortable, well lighted and ventilated. Access to the hall is convenient by lines of cable and trolley cars from all the hotels and in fact from any part of the city. The Committee on Halls has assigned rooms to all the sections. Chairmen or

secretaries of sections are requested to forward to the Secretary of the Committee of Arrangements titles of papers at an early date so that a preliminary program can be printed in the JOURNAL not later than March 1.

GEORGE H. ROHÉ, Secretary.

**Photographs of Members.**—Members of the Association who send their photographs to the JOURNAL will find their contribution to the collection acknowledged under the heading of Letters Received.

## SOCIETY NEWS.

**The Wapello County (Iowa) Medical Society** met January 3

**The Central District Medical Society** of Missouri held its regular meeting at Sedalia, Mo., January 3.

**Berks County (Pa.) Medical Society.**—The Berks County, Pa., Medical Society held its annual banquet at Mineral Springs, Pa., January 8.

**Erie County (N.Y.) Medical Society.**—At the annual meeting of the Erie County, N. Y., Medical Society the following officers were elected: President, Fred. W. Bartlett; Vice-President, Justin G. Thompson; Secretary, F. C. Gram.

**The Lucas County (Ohio) Medical Society** held its annual meeting in Toledo January 2. The following officers were elected for the ensuing year: President, John A. Wright; Vice-President, J. D. Howe; Secretary, F. O. Hunt.

**Schuylkill County (Pa.) Medical Society.**—The Schuylkill County (Pa.) Medical Society held its annual meeting in Pottsville January 8. The following officers were elected: President, C. W. Bankes, Middleport; Vice-President, A. P. Carr, St. Clair; Secretary and Treasurer, George Little, Tamaqua.

**Kalamazoo (Mich.) Medical Society.**—The Kalamazoo, Mich. Medical Society held its annual meeting January 8. The following officers were elected: President, O. A. Lacroes; First Vice-President, C. Van Zwaluwenburg; Second Vice-President, O. F. Burroughs; Secretary, J. W. Bosman.

**Milwaukee (Wis.) Medical Society.**—The Milwaukee, Wis., Medical Society held its annual meeting in that city January 8. The following officers were elected for the ensuing year: President, W. H. Washburn; First Vice-President, G. J. Kaumheimer; Second Vice-President, Lorenzo Boorse; Secretary, H. B. Hitz.

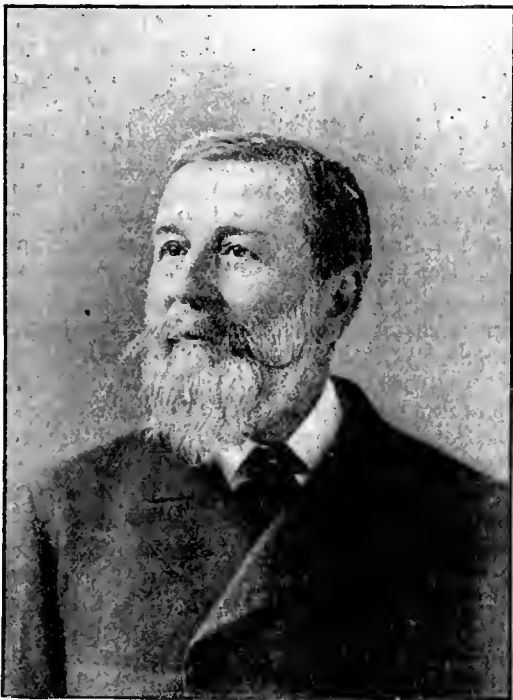
**Kansas City Academy of Medicine.**—The Kansas City Academy of Medicine held a regular meeting January 5. The following officers were elected for the ensuing year: President, John Puntton; Vice-President, V. W. Gayle; Secretary, J. W. Kyger; Treasurer, C. L. Hall. The annual banquet was held January 8, and the event was a brilliant one.

**Iowa State Medical Society.**—The forty-fourth annual meeting of the Iowa State Medical Society will be held April 17, 18 and 19, in Creston, Iowa, and the forty-sixth annual meeting of the AMERICAN MEDICAL ASSOCIATION will be held May 7, in Baltimore, Md., and it is hoped all will avail themselves of the benefits of these meetings and be present at both of them. The following are the chairmen of the different sections for the next meeting of the State Society: Medicine, F. M. Hiatt, Red Oak; Surgery, J. M. Emmert, Atlantic; Obstetrics and Gynecology, H. L. Getz, Marshalltown; Ophthalmology and Otology, H. B. Young, Burlington; Materia Medica, J. R. Guthrie, Dubuque; State Medicine and Hygiene, J. S. Braunsworth, Muscatine; Mental and Nervous System, F. S. Thomas, Council Bluffs.

The announcement program will be mailed about April 1.  
J. W. COKENOWER, M.D., Secretary.

## NECROLOGY.

JOHN MILLS BROWNE, ex-Surgeon-General, U. S. Navy. Born in Hinsdale, N.H., May 10, 1831. Graduated at the Medical Department of Harvard University in March, 1852. Appointed from New Hampshire, March 25, 1853; entered the service as Assistant Surgeon, and performed first duty on board the store-ship, *Warren*, Lieutenant commanding, Fabius Stanly, at Saucelito, opposite San Francisco; in September, 1854, the *Warren*, Lieutenant commanding, D. McDougall, proceeded to Mare Island, and became the temporary residence of Commander D. G. Farragut, the inaugurator and first Commandant of the Navy Yard; Medical Officer of the Navy Yard until May 10, 1855; then duty on board the coast survey steamer, *Active*, Lieutenant commanding, James Alden; attached to *Active* until November, 1857; *Active* employed in surveying the coast and harbors of California, Oregon and Washington Territories, in the winter of 1855-56, with the steamer *Massachusetts* and the sloop *Decatur*; *Active* engaged in the Indian war at Puget Sound;



JOHN MILLS BROWNE, M.D.

and in the summer of 1857, in connection with H. B. M. sloop *Sattelite*, occupied in settling the northwest boundary. Passed Assistant Surgeon, May 12, 1858; brig *Dolphin*, Lieutenant commanding, John N. Maffit, June 1, 1858, Home Squadron off Cape Verde, Cuba, *Dolphin* captured the brig *Echo* with over three hundred slaves destined for the Cuban market; *Echo* sent to Charleston, S. C., subsequently the surviving negroes were taken to Liberia in the frigate *Nisagra*; Oct. 1, 1858, steamer *Atlanta*, Commander D. B. Ridgely, Paraguay expedition; Dec. 25, 1858, Hospital Norfolk, Surgeon Ninian Pinkney; May 9, 1859, sloop *Constellation* Flag Officer Wm. Inman, Fleet Surgeon, Thos. D. Smith, flag ship of African Squadron; visited Madeira, Cape de Verde Islands, St. Helena, Liberia, St. Paulo de Loanda and other ports and islands along the west coast of Africa; Sept. 25, 1860, at night off Congo River, *Constellation* captured the bark *Cora*, with 705 slaves, who were sent to Liberia; commissioned as Surgeon, June 19, 1861; Dec. 23, 1861, steam sloop *Kearsarge*, Commander Charles W. Pickering, special duty coast of Europe; visited Cadiz, Algeciras, Gibraltar, Tangier, Ferrel, Brest, Cherbourg, Boulogne-sur-mer, Calais, Ostend, Flushing, London, Margate, Ramsgate, Deal, Dover, Folkestone, Hastings, Queenstown, Azores, Madeira, Teneriffe; off Cherbourg, June 19, 1864, *Kearsarge*, Commander John A.

Winslow, after an engagement of one hour and two minutes destroyed the rebel steamer *Alabama*; *Kearsarge* left Europe in August, 1864, for the Azores, and from thence proceeded to Fernando de Noronha, and Las Rocas, off Brazil, in search of the rebel steamer *Florida*; returned to Barbadoes, thence to St. Thomas, and arrived at Boston Nov. 9, 1864; Dec. 23, 1864, temporary duty Navy Yard, New York; April 29, 1865, Navy Yard, Mare Island; special duty to superintend the erection of the Naval Hospital at Mare Island; duty in charge of the hospital at Mare Island 1870-71; Fleet Surgeon Pacific fleet 1871-72. Commissioned as Medical Inspector Dec. 1, 1871; Navy Yard and Naval Hospital, Mare Island, 1873-74; Fleet Surgeon, North Pacific station, 1874-76; Naval Hospital, Mare Island, 1876-80. Commissioned as Medical Director, Oct. 6, 1878, President of Medical Examining Board, Washington, D. C., 1880-82; member of Board of Visitors, Naval Academy, Annapolis, Md., 1881; naval representative at the International Medical Congress, London, England, 1881; duty in charge of Museum of Hygiene, 1882-85; duty on Board of Naval Regulations, 1882; member of National Board of Health 1883; naval representative at the International Medical Congress, Copenhagen, 1884; Member of Retiring Board, 1885-88. Chief of Bureau of Medicine and Surgery, with title of Surgeon-General of the Navy, from April 2, 1888, until date of retirement, May 10, 1893. (Official record in Naval Register.) Died Dec. 7, 1894.

WILLIAM DETNOLD, M.D., one of the senior surgeons of New York City, and a founder and first President of the New York County Medical Association in 1884, died Dec. 26, 1894. He was born in Hanover, Dec. 27, 1808. After taking his medical degree at Göttingen in 1830, he was for a time in the surgical service of the Army. He took up his permanent residence in New York in 1837, and very soon thereafter became identified with the College of Physicians and Surgeons; of this school he was Emeritus Professor of Clinical and Military Surgery at the time of his decease. This embraces a period of more than half a century. He was one of the founders of orthopedics in this country; his first clinic dating as early as 1841. At the opening of the Civil War (1862), he was made full Professor of Military Surgery and Hygiene. His services at this time were much in request in the organization of medical corps and hospitals, especially those that were called into being in the vicinity of New York City, for the use of the State volunteers. He was an infrequent writer on medical topics, but his little book on club foot and some analogous subjects is one of the mile-stones of the pre-Listerian epochs of orthopedy. He was an ex-Vice-President of the Academy of Medicine and an ex-President of the Medical Relief Fund for Widows and Orphans. He had been a Consulting Surgeon to the Presbyterian Hospital. General paralysis was assigned as the cause of his last illness and death.

HENRY GOLDTHWAITE, M.D., of New York City, died January 4, aged 53 years. He was a native of Mobile, the son of the late Judge of the Supreme Court of Alabama. He was graduated from Princeton College in the class of 1860. He became a Confederate staff officer, attaining the rank of Major. After the war, he was in business in his native city, but he adopted medicine as his preferable pursuit. He graduated from Bellevue Hospital Medical College in 1876, and was next an interne at the Hospital and an instructor in the College. In 1878 he became one of the physicians resident at the Fifth Avenue Hotel, and it was there that he died somewhat suddenly from cerebral hemorrhage, on the date above named. He was twice married. He was a member of several local societies, and one of the visiting staff of the City or Charity Hospital.

CHARLES WRIGHT, M.D., of Carroll, Ala., January 3.—Jonathan Bemis, M.D., of Cambridge, Mass., January 6, aged 84.—E. H. Porter, M.D., of Columbia, Mo., January 4.—William Mercer, of Princeton, Ill., January 4, aged 80.—F. A. White, of Philadelphia, Pa., January 8, aged 38.—Stephen W. Root, of New York, January 9, aged 51.—Joseph S. Fitzgerald, of New York, January 8.—G. C. Upson, of Cuyahoga Falls, Ohio, January 7, aged 73.—J. D. Egelston, of Olathe, Kan., January 11, aged 67.—A. C. Hallam, of Brooklyn, N. Y., January 9, aged 49.

## BOOK NOTICES.

**Travaux d'Electrotherapie Gynecologique, Etc., Etc.** By G. APOSTOLI. Paris. 1894.

The volume before us is a collection of articles written on the subject of electro-therapeutics in gynecology, and from the prospectus we learn that it will be published semi-annually. The editor has very industriously sought all foreign publications for writings on his specialty and has in most cases translated them bodily into French and the result is this volume of 720 pages. The Americans quoted are Drs. Rockwell, Goelet, McGinnis, Buckmaster, A. Laphorne Smith, F. H. Martin, Massey, Skene, Mundé and J. H. Kellogg. Those who wish to keep pace with the entire literature of this subject will find this volume a necessity.

**Sexual Neurasthenia (Nervous Exhaustion), Its Hygiene, Causes, Symptoms and Treatment, with a chapter on diet for the nervous.** By GEORGE M. BEARD, A.M., M.D., Edited with notes and additions by A. D. ROCKWELL, A.M., M.D. Fourth edition. New York: E. B. Treat. 1895. Price \$2.75.

This well-known book has, as will be seen, passed to a fourth edition. A chapter on Sexual Erethism has been inserted in this edition in order to keep pace with the growing literature on the subject. In the formulas, Mr. Rockwell has translated the old English weights and measures into the decimal system, instead of writing them in that system *de novo*. The result is that the decimals are too fractional to conform to any known prescription in the metric system. The old system is also given. The work is an excellent one, and well deserves the compliment of a fourth edition.

**Twenty-fifth Annual Report of the State Board of Health of Massachusetts.** Boston. 1894.

Bearing in mind the noble record made by this Board in the last quarter of a century, and the high class of its annual reports, we naturally turn to the new volume to see if it keeps up the standard established by its predecessors, and are pleased to see that the mantle of Bowditch has fallen on worthy shoulders in the person of Chairman Wolcott. The present volume includes the general report, and a series of special reports on the subject of Water Supply and Sewerage; Weekly Mortality Reports of Cities and Towns; Reports of Infectious Diseases; Reports of Food and Drug Inspection; Isolation Hospitals for Infectious Diseases, and Report on the Health of Towns.

Apart from the chemists' reports, in themselves extremely valuable as showing careful and painstaking work, we must notice the article of the Secretary, S. W. Abbott, M.D., on Isolation Hospitals. After a review of the origin of this special class of hospitals, the author mentions the isolation hospitals of the principal cities of Europe, and gives plans of some of them. This will be found invaluable for health officers desiring to construct similar hospitals.

**Saint Thomas' Hospital Reports.** New series. Edited by Dr. T. D. AGLAND and MR. BERNARD PITTS. Vol. xxii, pp. 614. London: J. and A. Churchill. 1894.

This volume contains the statistical reports of this famous hospital, for 1892 and 1893, and its publication was this year delayed that the calendar and prospectus for 1894 might be included. The papers in the volume are generally excellent, and well reflect the existing state of British medicine and surgery. They are as follows:

i, The Treatment of Hallux Valgus by H. H. Clutton; ii, Case of Separation of Lower Epiphysis of Femur—Gangrene, Amputation, Pyemia, Death, by H. H. Clutton; iii, Traumatic Separation of the Upper End of the Femur in Early Life, by William Henry Battle; iv, Acute Osteo-periostitis

of the Femora, etc., by William Henry Battle; v, Acute Bronchiectasis, by Seymour J. Sharkey; vi, Pregnancy in a Uni-cervical Bicornate Uterus, by W. W. H. Tate; vii, Sterilized Surgical Dressings and Sterilized Water, by Edmund White; viii, A Case of Gangrene of Foot with Sugar in the Urine, Amputation, by Cuthbert S. Wallace; ix, The Removal of the Uterine Appendages for Uterine Myoma, with an account of Twenty Cases, by Chas. J. Cullingworth. The remainder of the volume is taken up with the reports of the several departments of the hospital for the years 1892 and 1893. There is a very interesting biography of the late George Rainey who was connected with Saint Thomas Medical School for nearly sixty years, and for nearly forty years as a teacher of anatomy, and demonstrator of the microscope.

## MISCELLANY.

**Dr. Charles G. Carleton**, of Lawrence, Mass., has been appointed City Physician of that place, *vice* Dr. Howe resigned.

**Nomenclature of Diseases.**—It is stated on the authority of Mr. W. Fleming, that the new edition of the "Nomenclature of Diseases of the Royal College of Physicians of London," will not be ready for some months. The revision of 1880 was published in 1885, and that of 1890, according to the foregoing statement will probably be ready in 1895.

**Injection of Air in Tuberculous Peritonitis.**—Folet, of Lille, at the Académie reports a case of tuberculous peritonitis, in which after withdrawal of six liters of fluid, he injected three liters of air in the abdominal cavity. The fluid was not reproduced eight months afterward and the woman's health remained excellent.

**Another "Citizen's Complaint" Impending.**—The following is from *Puck*:

"Across the Court.—Mrs. Keegan: 'Fer hivin's sake, Mrs. Casey, phwut is thot turrible shmellin'smoke?' Mrs. Casey: 'It's Mrs. Dooney below wid phwut she calls disinfectants.' Mrs. Keegan: 'Well, will yez plaze tell her from me thot if she don't shtop it Oi'll complain to the Board of Hiltth?'"

**New Journals.**—The *Journal of Medicine and Science*, published in Portland, Maine, starts its second number with the announcement that its "circulation" is 30,000. We trust that the affidavit editor may always be able to retain so handsome a circulation.

The *Dental Digest* is on our table, an excellent journal handsomely printed and carefully prepared.

**The Vermiform Appendix in Hernia.**—Kraft, (*Nordiskt Medic. Arch.* No. 23, 1894) reports seven cases of hernia; in three cases the sac contained the appendix alone, and in the remaining four cases he found the appendix with a knuckle of intestine. In practice when the appendix was neither gangrenous, nor perforated he reduced it; but in case of gangrene or perforation, resection was indicated.—*Revue Internationale de Medecine et de Chirurgie pratiques.*

**Students in German Universities.**—Ascherson's *Universitäts Kalendar* gives the following figures for the twenty German universities in 1894: The total number of students is 28,448, 8,684 of whom study medicine; 7,776 law; 3,336 Protestant theology, and 1,469 Catholic theology. Berlin heads the list with 4,265 students; then comes Munich with 3,744; Leipsic with 2,764; Halle, 2,154; Tubingen, 1,477, and so on. Ros-toch is the lowest, with 476.

**Treatment of Synovial Ganglion.**—Professor Duplay in a recent article (*Arch. General de Méd.* December, 1894), recommends the return to the former practice of iodine injection. The skin is to be well washed and sterilized. The hypodermatic needle is then introduced into the skin and made to glide



over the swelling a little, so that the opening into the sac and through the skin may not be opposite. From five to ten drops of the tincture of iodine are then injected, the amount varying according to the size of the ganglion; an aseptic cotton pad is applied over the puncture, which sometimes requires to be repeated. M. Duplay has had no failure, but some cases required more than one operation.

**Mentholated Oil.**—One of the remedies employed by Dr. Louis Martin, chief assistant to Dr. Roux, is this oil. It is referred to in a recent number of the *Bulletin Medical*, in a lecture delivered at Pasteur Institute. Its use is to avert broncho-pneumonia in cases under treatment by the serum, and one cubic centimeter is given once a day. The oil is composed of 4 grammes of menthol to 100 grammes of the oil of sweet almonds. As to the local treatment of cases of diphtheria, the lecturer states that caustic treatments are to be excluded. Phenic acid and sublimate solutions are now little used. Dr. Roux counsels the washing three times a day with solutions of boric acid or a solution of Labarraque's liquor, fifty grammes in one liter of boiled water. The feeding of children, under the serum treatment, should not be changed. They should be well supported, whenever the existence of serious albuminuria does not compel the employment of an exclusive milk diet.

**Cocain in Rigidity of the Uterine Neck.**—Farrar (Obstetrical Society of London November, 1894) has successfully employed cocain in two cases of rigidity of the cervix in the course of labor. In the first case, a primipara, the labor had been retarded more than forty-eight hours. Chloroform had been administered without relief; intending to incise the neck, he applied a compress saturated with a 10 per cent. solution of cocain and retained it for three minutes. On examination he found that even in this short space of time, dilatation had progressed with rapidity, and the case terminated normally. The second case was a primipara 40 years of age, and there was a rigidity of the cervix which had resisted the pains for three days, and as well all the means of non-operative dilatation. The application of a 10 per cent. solution of cocain caused a rapid dilatation.

**Pigmentation from Arsenic.**—Richardiere recently presented a patient at the Hospitals Medical Society of Paris (*Ann. de Derm. et de Syph.*)—a female aged 19, suffering from adenia—in whom injections of 42 drops of Fowler's solution and the internal administration of 500 drops of the solution produced a general pigmentation resembling the skin of a mulattress and almost black in the axillæ, neck and fingers. After ceasing the use of the arsenic the pigmentation decreased and was followed by desquamation. This pigmentary deposit was the principal sign of arsenicism, which was manifested otherwise only by a slight diarrhea and some paresis of the right leg. M. Rendu asked whether the generalized character of the pigmentation did not point to tuberculosis of the supra-renal capsules.

**Uses of Erysipelas Serum.**—Emmerich has recently experimented with serum from erysipelatosus animals as to its effect upon anthrax. After infecting rabbits with the latter disease he injected up to 20 cc. of the serum either into the peritoneal cavities or under the skin; these injections were repeated twice daily for two or three days. No anthrax developed. The author thinks (*Gaz. Med. de Liege*), that we may possibly employ the serum with success in the treatment of tuberculosis. He inoculated rabbits by introducing the tubercle bacilli into the anterior chamber of the eye, and having found the tubercles there developing he then infected the animal with the erysipelas microbes, whereupon the tuberculous process was slowed but not stopped. Emmerich concludes that his experiments warrant further researches into the uses of erysipelas serum, not in human tuberculosis alone but also in other infectious diseases, such as glanders, syphilis, tetanus, etc.

**Pyoktannin in Blennorrhagia.**—According to Vratich, No. 11, 1895, Posselt has employed pyoktannin in eighty-five cases of blennorrhagia, thirteen of which were subacute, twelve chronic and sixty acute, also two cases of blennorrheal con-

junctivitis and two cases of blennorrheal cystitis. The intra-urethral injections were made from two to four times a day with solutions of from 1 to 1000, to 1 to 2000. The patient was directed to retain the injected liquid one minute. In sixty-eight patients the injections were painless, in three there were intense pains but inconstant, and in one the author was obliged to relinquish the treatment on account of the pain. After a lengthy account of the microscopic appearances of the pus and the gonococci, the author concludes, by stating that pyoktannin is a good remedy in the treatment of blennorrhagia, but it must be used with care, on account of its irritant action, and care taken that the solution is not too concentrated; 1 to 1000 to 1 to 2000 should be the maximum, but that which renders pyoktannin little appropriate in private practice is the violet stain which it gives the hands, and the under linen of the patient.

**Local Application of Carbolic Acid.**—Cerné, of Rouen, reports the two following cases in the *Normandie Medicale*: A diabetic male had an insignificant wound of the leg dressed with a compress wet with a weak carbolic acid solution; this produced gangrene which increased in size daily. The patient went to an empiric who replaced the carbolic acid by an ointment of some sort and the gangrene was arrested. The second case was that of an alcoholic, with sclerosis and perforating ulcer of the left great toe; this was dressed with a carbolic solution of 1 to 40; on the second morning all the end of the toe was gangrenous. These cases show the dangers which may result from the local application of carbolic acid, especially if made by the patient himself—that is to say, without precaution or measure. Caution should be exercised in the use of carbolic dressings; the danger is greater when, from any cause, the tissues have less than their normal vitality.

**A Deserved Tribute.**—Treating of the abridgment of *Observations upon the Medical Department of the British Army*, made by Brevet Lieutenant-Colonel Alfred A. Woodhull, U. S. A. Medical Corps, the reviewer of the *British Medical Journal* says, "the abridgment is such an admirable summary of the organization and regulations of our [the British] army medical department that it might be perused with advantage by the medical officers themselves; every point, almost, is reviewed with surprising accuracy and any misstatements are of the most trifling character. We have always been struck with the general excellence of reports issued by the War Department of the United States, both as regards matter and form. It would seem in America that when a competent officer is selected to report he is allowed a free hand as to scope, style and length; his work is apparently not mutilated by superior intelligence at headquarters, nor cut down by a stingy printing office." Surgeon Woodhull himself is spoken of in an equally laudatory manner; his competency to criticize is fully acknowledged and frequent citations warrant the reviewer in closing with the remark that, "From all of which it will be seen that our American cousin is a just as well as a frank critic in army medical matters."

**Alterations of the Urine in Malaria.**—At a recent séance of the Vienna Imperio-Royal Medical Society, reported in *La Semaine Medicale*, von Limbeck related the results of researches which he had made in two cases of malaria. In these cases the elimination of nitrogen was in relation with the elevation of temperature; the proportion of urea and the total quantity of nitrogen were not modified; the elimination of ammonia also was in direct relation to the elevation of temperature; the quantity of urea was augmented but the relation between the ammonia and the total quantity of nitrogen was normal. During the febrile accession the quantity of phosphates was found diminished; they did not increase until after the access. Freund had also found a retention of phosphates during the febrile stage in some other infectious diseases. The elimination of chlorids, contrary to what occurs in other infectious diseases, is enormously increased during the malarial paroxysms; this fact is so characteristic that the author thinks it may be accorded a real diagnostic value.

**Columbia College.**—At a meeting of the trustees of Columbia College, at New York, January 7, it was announced that two large gifts had been made to the College of Physicians and Surgeons. One is of \$350,000 from Cornelius, William K., Frederick W., and George W. Vanderbilt, who contributed an equal amount each. The other is from William D. Sloan, who will erect a new maternity hospital to connect with the present one, the whole to be known as the Sloan Maternity Hospital. The estimated cost is \$200,000.

### Hospital Notes.

**FREE HOSPITAL FOR WOMEN.**—The new Free Hospital for Women at Boston, Mass., was formally opened January 1. There are twenty patients in the institution.

**St. JOSEPH'S HOSPITAL.**—An addition to St. Joseph's Hospital at Bloomington, Ill., is contemplated; the estimated cost is \$1,000.

**A NEW HOSPITAL FOR INSANE.**—Estimates have been prepared for the rebuilding of the hospital for the insane at Anna, Ill., which was recently destroyed by fire. The Legislature will be asked to appropriate \$200,000 for that purpose.

**Dr. R. D. BURNS**, of Allegheny, Pa., has been elected the resident physician at the Allegheny General Hospital, *vice*, Dr. Shaler resigned.

**THE LANE HOSPITAL** at San Francisco, Cal., was formally opened January 8. The building will accommodate 100 patients and cost \$230,000.

**GRADY HOSPITAL.**—The annual report of the Grady Hospital at Atlanta, Ga., shows that 1,640 patients have been treated at that institution during the past year.

**THE NEW MERCY HOSPITAL** at Des Moines, Iowa, will be ready for occupancy February 1. The total cost will be about \$20,000.

**NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.**—The tenth annual report of the New York Post-Graduate Medical School and Hospital shows that 17,833 patients have been treated in the dispensary and 1,300 in the wards.

**CHILDREN'S HOSPITAL, BUFFALO, N. Y.**—At a meeting of the managers of Children's Hospital at Buffalo, N. Y., January 3, it was decided to appropriate the \$1,200 raised at the Christmas sale for the endowment of four free beds.

**FOR A CONSUMPTIVE HOSPITAL.**—It is reported that the estate of Gen. Benjamin F. Butler has decided to turn over Old Fort Union in New Mexico for the use of consumptives. The property contains about 67,000 acres.

**St. TIMOTHY'S HOSPITAL PHILADELPHIA.**—Under the will of Henry Klein, M.D., of Philadelphia, liberal gifts have been left to three religious bodies having their headquarters in that city; the residue of his estate is to go to Saint Timothy's Hospital.

**MASSACHUSETTS HOSPITAL FOR INSANE.**—The State Asylum at Waverly, Mass., has received a much-needed remembrance under the will of the late Thomas E. Proctor, of Boston. The managers of the General Hospital are to be made the custodians of \$100,000, that will be in trust until it shall with accrued interest reach the value of \$400,000. Then the amount may be used in the construction of buildings, at the new grounds of the McLean Asylum for the Insane at the place named above, to be devoted to that branch of the General Hospital.

### Louisville Notes.

**Dr. C. J. WALTON.**—Dr. Clairborne J. Walton, of Hodgenville, Ky., is mentioned as a candidate before the Republican Convention for nomination as State Auditor. Dr. Walton was a Brigade Surgeon in the Union Army under Gen. S. W. Price, and during Harrison's administration was Pension Agent.

**Dr. JAMES WEIR, JR.**—Dr. James Weir, Jr., of Owensboro, has been tendered the chair of Nervous and Mental Diseases in the Gross Medical College of Denver, Colo., by the Dean of that College, Dr. F. H. Hawkins. The Doctor has not as yet accepted the call.

**PURE FOOD EXPOSITION.**—This Exposition has again been postponed, at the request of the grocers interested. Many manufacturers of food products who were unable to get their exhibits ready during the holiday season, have consented to make their displays if the exposition is postponed. The date now set is the first or second week in March, and it will continue three weeks.

**BLOOD POISONING.**—It is greatly to be regretted that so many surgeons fall a martyr to their calling, but it seems to be an almost daily occurrence for trouble of more or less serious character to fall to the lot of the surgeon. Dr. Ap. Morgan Cartledge, of this city, has been confined to his bed for some weeks the result of a wound received while operating upon a septic case of appendicitis. He is much improved at the present writing though still confined to his room. Dr. Arch Dixon, Jr., of Henderson, is also the victim of a similar accident, having been quite ill in Frankfort whether he had gone soon after, as the result of inoculation.

**Dr. W. L. CLAY.**—Dr. Clay, a member of the prominent Clay family of Paris, this State, was found lying dead in his bed at his home in this city—the coroner's verdict being apoplexy. Dr. Clay was born in Paris, Ky., fifty-five years ago. He had lived in this city for the past sixteen years. He belonged to General Morgan's command during the late war and was a member at the time of his death of the Confederate Veterans' Association of Lexington, Ky.

**STATE BOARD OF HEALTH.**—This Board held a meeting on the 5th inst., those present being Dr. Jos. M. Mathews, Louisville, President; Dr. J. N. McCormack, Bowling Green, Secretary; Drs. George Beeler, Clinton; Wm. Bailey, Louisville; Arch Dixon, Henderson. Dr. J. N. McCormack was unanimously elected Secretary, his term of office having expired. Several cases of alleged violation of the Kentucky practice law came before the Board, and a number were refused licenses. The case of Dr. H. H. Gwynn, of Louisville, was taken up, as he had asked for a rehearing. As the applicant was not present, his examination papers were read, and the answers appearing unsatisfactory in every branch his application was denied. Dr. Gwynn has been tried once for practicing illegally, and fined. He came before the Board and stood an examination, and upon these papers was refused a license.

During the session the following telegram was received from the Governor:

"Information received that cattle are dying at Nicholasville, Jessamine County, presumably from pleuro-pneumonia. Please take immediate steps to investigate." JOHN YOUNG BROWN.

Instructions were immediately wired Dr. E. T. Hagyard, State Veterinarian, at Lexington, to proceed to Nicholasville, investigate and report to the Board. The only cases of pleuro-pneumonia among cattle were those of the Harrison County epidemic, seven years ago, which was stamped out at a cost to the State of \$2,400. The State Veterinarian has rendered the report of his investigation of the alleged cases of pleuro-pneumonia in cattle. He found the cattle complained of in a remote part of the county and four of the herd had died, not from pleuro-pneumonia but from inflammation of the stomach caused by some poison. This is the second report recently which has been proven without foundation, in regard to pleuro-pneumonia in Kentucky cattle. The investigation was complete, and is thoroughly to be relied upon, and Dr. McCormack will officially report the above facts to Governor Brown.

**FALLS CITY MEDICAL SOCIETY.**—This society met at the Kenton Club, on the evening of the 9th inst., the guest of Dr. Louis Frank. The paper of the evening was read by Dr. Frank; the subject, "Empyema." Two cases were reported in which operations of resection of the ribs was made; in one of them a solution of iodoformized oil was injected into the cavity, under which treatment the case made a rapid recovery. Dr. Howard reported some cases relieved by hypnotic suggestion.

**DEATH REPORT.**—The report for the week gives a total of eighty-two deaths. The mortality from pneumonia still exceeds that from any other disease, there being seventeen from this cause and ten from consumption.

**CITY HOSPITAL.**—Superintendent Barbour states that the Hospital is so crowded that orders have been given to the attending physicians to discharge all patients that can possibly leave the hospital, in order to make room for the new applicants.

**MASONIC WIDOWS' AND ORPHANS' HOME.**—At the regular annual meeting of the directors of the Home, the following staff was elected for 1895: Dr. P. B. Scott, Physician in Charge; Dr. John G. Cecil, Consulting Physician; Dr. Frank Simpson, Visiting Physician; Dr. Henry E. Tuley, Assistant Visiting Physician; Dr. Ap. Morgan Vance, Visiting Surgeon; Dr. Wm. Cheatham, Oculist and Aurist; Dr. W. B. Pusey, Assistant Oculist and Aurist; Dr. I. N. Bloom, Dermatologist; Dr. Chas. E. Dunn, Dentist; Miss Anna Davies, Resident Nurse.

**THE HOSPITAL COLLEGE OF MEDICINE OF LOUISVILLE** entered upon its twenty-first annual session on the second day of the current month under the most favorable auspices. There were 172 matriculates at the beginning of the session, being the largest number on the opening day of any previous year in the history of the college. One year ago the college moved into the handsome new building provided for it by the Trustees of the Central University of Kentucky, of which it is the Medical Department. Since that time the laboratories have been thoroughly equipped and in both the clinical and laboratory teaching additional instructors have been provided. This college was the first of the Southern colleges to adopt the three-year graded course, and for several years the classes were depleted in consequence. The large attendance at the opening of this session demonstrates that the profession approves of the advanced position taken by this college, and that professional sentiment in the South is in thorough accord with that of the North and East, relative to higher medical education.

### Washington Notes.

**MEDICAL SOCIETY OF THE DISTRICT.**—The stated meeting of the Society was held on the 3d inst., and the following officers elected: Dr. S. C. Busey, President; Drs. Thomas N. McLaughlin and Geo. L. Magruder, Vice-Presidents; Dr. Thomas C. Smith, Corresponding Secretary; Dr. Samuel S. Adams, Recording Secretary; Dr. C. W. Franzoni, Treasurer; Dr. E. L. Morgan, Librarian. Drs. J. T. Winter, E. F. King, C. W. Richardson, Censors; Drs. C. H. A. Kleinschmidt, G. N. Acker, S. S. Adams, G. C. Ober, W. S. Bowen, Board of Examiners. The constitution was amended so as to allow prominent members (non-medical) of the different scientific departments of the National Government to become members of the Society by invitation. Two new committees were created, viz., Committee on Public Health, composed of seven members which shall report in January at the stated meeting of the Society, on the general health of the District. Committee on Legislation, composed of seven members which shall have charge of all matters of a legal character.

At the regular weekly meeting of the Society, held on the 9th inst., Dr. Kinyoun, of the Marine-Hospital Service, presented the subject of antitoxin treatment of diphtheria to the Society in his usual clear, concise and scientific manner, and in conclusion urged the importance of the supervision of the Government over all manufacture and distribution of the new substance, antitoxin. Dr. Walter Reed, Surgeon U. S. A., opened the discussion, and added considerable information to that already imparted by Dr. Kinyoun. He called special attention to some personal experiments at the Museum in this city, and showed how his bacteriologic test was delayed by the previous application of antiseptics to the mucous membranes from which cultures were afterward made. Dr. Lamb presented a case and specimen of appendicitis.

**THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.**—The two hundred and twentieth meeting of the Washington Obstetrical and Gynecological Society was held on

the 4th inst. Dr. G. N. Acker reported a case of ante-partum hemorrhage with death of child, and Dr. E. L. Tompkins presented a patient with polio-myelitis anterior, and read a very instructive paper on the subject. Both papers were very fully discussed. Dr. J. W. Bovee presented two uteri with appendages; one removed per vaginam, the other by abdominal section.

**WORK OF THE INSANE ASYLUM FOR THE MONTH OF DECEMBER.**—Dr. W. W. Godding, Superintendent of the Government Hospital for the Insane, has submitted to the Commissioners the report of his office covering the month of December. During that period there were twenty-three patients admitted for treatment, of whom fourteen were white and nine colored. Of the whites nine were men and five females, with six colored men and three colored females. Fourteen patients were reported as discharged or died during the month. Four white males and two females were discharged, and two colored males. Three white males died during the period and one white female, while for the colored people one death in either sex is reported.

**HEALTH OF THE DISTRICT.**—The report of the Health Officer for the week ended December 29 is as follows: Number of deaths (still-births not included): White, 63; colored, 55; total, 118. Death rate per 1,000 per annum: White, 16.33; colored, 30.10; total, 20.80. Death rate per 1,000 per annum for corresponding week last year, 21.70. Still-births: White, 3; colored, 2; total, 5.

The following is the report for the week ending January 5: Number of deaths (still-births not included): White, 65; colored, 50; total, 115. Death rate per 1,000 per annum: white, 11.40; colored, 27.36; total, 22.25. Death rate per 1,000 per annum for corresponding week last year: White, 7; colored, 12; total, 19.

**FIRE IN THE FREEDMAN'S HOSPITAL.**—A fire occurred in this hospital on New Year's day which caused considerable alarm, but little damage. Origin, defective flue. Protection from such occurrences has already been requested by the new surgeon in charge, Dr. D. H. Williams, late of Chicago, who has asked for fire plugs, fire escapes and brick buildings to take the place of the frame ones now in use. Dr. Williams is making this hospital a model institution.

**EXAMINATION OF POTOMAC ICE BY THE ARMY MEDICAL MUSEUM.**—The cutting of ice in the Eastern Branch, at the end of South Capitol Street, was the subject of a number of complaints recently received at the Health Office. Inasmuch as this is the place whence all the dead animals are shipped to Mann's desiccating establishment, Dr. Woodward determined to have a thorough investigation made of the quality of the ice. Accordingly, he sent a sample to the Army Medical Museum to have a bacteriologic test made. The report to Dr. Woodward from the Medical Museum is given below:

*Dear Sir:*—I beg to inform you that the specimen of ice forwarded by you on the 3d inst. has been subjected to a bacteriologic examination with the result that with five plates made, each with one cubic centimeter of water, only a few colonies of the bacillus convolutus, a common water organism, were found.

I may state that this specimen, to my surprise, contains fewer colonies of bacteria than any of the other specimens of ice so far examined by us in the laboratory.

WALTER REED,  
Major and Surgeon, U. S. A.

**THE PROVIDENCE HOSPITAL.**—The annual report of this excellent institution shows the large amount of good work done during the past year. During the year just passed a number of improvements have been made in the Hospital, thus keeping it thoroughly abreast with the best hospitals in the country. We desire to note, in particular, the introduction of steel ceilings in the wards, corridors and private rooms, by which the same are rendered more cleanly and at-

tractive, while at the same time, they are a great improvement from a sanitary point of view. The hospital has been newly painted throughout, and numerous improvements in the plumbing and ventilation have been made, all of the most modern pattern. During the past year the course of instruction for the sisters and nurses which was outlined at the last annual meeting has been put into practical operation.

**CHILDREN'S HOSPITAL.**—A supply of antitoxin has just been received from Berlin by the Children's Hospital, to be used in cases of diphtheria at the hospital. The annual charity ball for the benefit of the hospital has been arranged for and will soon take place.

**CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.**—The directors are seriously considering the enlargement of the building to meet the increased demands of patients. This hospital is the center of clinical teaching in the District.

**SIBLEY MEMORIAL HOSPITAL.**—The admirably located and splendidly equipped Sibley Memorial Hospital, founded by Wm. J. Sibley, corner of North Capitol and Pierce Streets, will be formally opened for patients about February 1. Consulting physicians recently chosen are Drs. W. W. Johnston, J. Ford Thompson, Z. T. Sowers, S. S. Adams; medical staff, Drs. H. B. Deal, D. Olin Leech, Frank Leech, G. C. Ober, D. B. Street, J. L. Suddarth, J. T. Winter, W. C. Woodward; surgical staff, Drs. E. A. Ballach, H. H. Barker, C. W. Brown, I. S. Stone, J. Van Rensselaer, J. R. Wellington; ophthalmologist, Dr. C. R. Dufour. The deaconesses, who will also act as nurses, will receive a course of lectures on nursing, to be given by different members of the staff, the details of which are to be arranged by a committee consisting of Drs. Brown, Adams and Street.

**ABOLISH THE DRINKING CUPS.**—Dr. Charles H. Stowell has written a long communication to the *Washington Post*, urging the abolition of the common drinking cup so universal in the public schools. He shows the great possibility of spread, by its use, of contagious and other diseases. He suggests that each pupil carry its own drinking cup.

**OPPOSITION TO MEDICAL PRACTICE LAWS.**—The Eclectic Medical Society of the District of Columbia, which received a charter two years ago from Congress, held a meeting on the 10th inst. and denounced formally the proposed medical laws for the District, on the ground that all further legislation on this subject is unnecessary.

**SMALLPOX IN THE DISTRICT.**—There is a very persistent tendency to the spread of smallpox in the city. While no very large number of cases have so far made their appearance, every little while, despite the strenuous efforts of the Health Department, a new case is discovered and in many instances the cause of contagion is not discoverable. At present every section of the city has its case.

**THE NEW MEDICAL BILL FOR THE DISTRICT.**—The Commissioners gave a hearing on the 11th inst. to a number of medical men representing the Medical Society of the District and the Homeopathic Society, on the various bills now pending before Congress to regulate the practice of medicine. The Commissioners have taken the whole matter under consideration and a report on the subject may be expected very soon. It will pass to the Congressional Committee for final action. Little hope of a law exists, so long as those interested do not agree among themselves and present a plan or bill satisfactory to two or possibly the three schools now existing in the District. The general impression in Congress is that some law is necessary, but the Committee has no time to listen, during a short and busy session, to the wrangles and irreconcilable propositions from the different medical organizations.

**A WASHINGTON DOCTOR IN JAPAN.**—Dr. L. M. Taylor, of Washington, D. C., is in Yokohama, and writing, says among other things: "The general impression here, among intelligent foreigners, is that the Japanese will, before the spring, bring the war to a termination, resulting in their keeping Port Arthur and some additional strategic points captured, China to pay Japan's expenses incurred during the war."

**THE COST OF MAKING ANTITOXIN IN THE DISTRICT.**—Health Officer Woodward appeared before the Commissioners on the 10th inst., and submitted the following estimate for the suppression of contagious diseases: For the production of antitoxin for the treatment of diphtheria—twelve horses at \$40 each, \$480; maintenance of twelve horses at \$10 per month, \$1,200; bacteriologist, \$1,800; materials and apparatus, \$320; total, \$3,800.

**VACCINATION IN THE POLICE DEPARTMENT.**—Maj. W. G. Moore, Chief of the Police Department, has taken action in the smallpox matter by issuing the following order:

"Each and every member of this department will report at his station house on such days and between such hours as may be designated by the surgeons of the District, who will determine whether or not vaccination is necessary in each individual case. Each surgeon will furnish these headquarters with a list of those vaccinated, those not needing vaccination, and any who may refuse the operation, and in due time will report the result to the Major and Superintendent."

**NATIONAL DAIRY UNION.**—The second annual convention of the National Dairy Union is in session here. Among other objects of the Association, they have the establishment of a Dairy Division in the Department of Agriculture.

## THE PUBLIC SERVICES.

**Army Changes.** Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Jan. 5, 1895, to Jan. 11, 1895.

Capt. WILLIAM C. SHANNON, Asst. Surgeon U. S. A., is granted leave of absence for three months, on surgeon's certificate of disability.

First Lieut. HENRY C. FISHER, Asst. Surgeon, is granted leave of absence for one month.

First Lieut. CHARLES LYNCH, Asst. Surgeon, leave of absence granted is extended one month.

First Lieut. GEORGE D. DE SHON, Asst. Surgeon, will proceed from Ft. Logan, Col., to Ft. Douglas, Utah, and report for temporary duty.

Capt. REUBEN L. ROBERTSON, Asst. Surgeon, leave of absence granted for seven days is extended twenty-one days.

Capt. ADRIAN S. POLHEMUS, Asst. Surgeon, is granted ordinary leave of absence for one month and fourteen days, in addition to the extension of leave of absence granted him on surgeon's certificate of disability.

**Navy Changes.** Changes in the Medical Corps of the U. S. Navy for the week ending Jan. 12, 1895.

Asst. Surgeon AMMEN FARENHOLT, detached from the U. S. R. S. "Vermont," and to Naval Hospital, Norfolk, Va.

Asst. Surgeon C. P. KINDLEBERGER, detached from Naval Laboratory and Department of Instruction, and to the U. S. R. S. "Vermont."

Medical Inspector GEORGE H. COOKE, in addition to present duties, will attend officers on duty at League Island Navy Yard but residing outside of the Yard.

## LETTERS RECEIVED.

Andersou, Winslow, San Francisco, Cal.; Ayer, S. P., Kewanee, Ill. Antikamnia Chemical Co., St. Louis, Mo.

Birney, E., Greene, Iowa; Bates, X. T., Poughkeepsie, N. Y.; Brownne, J. S., New York, N. Y.; Brown, Warren, San Francisco, Cal.; Bagwell, J. F., Diehlstadt, Mo.; Bridges, Norman, Los Angeles, Cal.; Blair, J. M., Houston, Texas; Barnsdale, Robt., Plover, Ill.

Central News Co., Naperville, Ill.; Central Col. of Physicians and Surgeons, Indianapolis, Ind.; Columbia Chemical Co., Washington, D. C.; Coley, Wm. B., New York, N. Y.; Clousen, J., Omaha, Neb.

Davis, Geo. S., Detroit, Mich.; Doliber, Goodale & Co., Boston, Mass.; Drew, C., Jacksonville, Fla.

Elliott, A. R., Chicago, Ill.; Edwards, S., Oakfield, Wis.; Elliott, W. S., Woodford, Tenn.; Ewing, W. Brown, Wernersville P. O., Pa.

Fowler, Nath'l C., Jr., Yonkers-on-Hudson, N. Y.; Flaherty, James, Prattsburg, N. Y.; Frazee, Geo. E., Ann Arbor, Mich.

Gross, M. S. S. E., Chicago, Ill.; Grady, Richard, Baltimore, Md.; Gerhard, Wm. P., New York, N. Y.

Hamilton, E. E., Wichita, Kansas; Harrison, W. G., Talledego, Ala.; Hummel, A. L., (2) Philadelphia, Pa.; Hurd, A. W., Buffalo, N. Y.; Howle, W. P., Oran, Mo.; Hyman & Schamps, Cleveland, Ohio; Holland, J. W., Philadelphia, Pa.

Judkins, E. H., Portland, Me.; Jenkins, W. R., New York, N. Y.; Keener, W. T. Co., Chicago, Ill.; Kenyon News & Subscription Co., Chicago, Ill.; Kerr, W. S., Mansfield, Ohio.

Longmans, Green & Co., (2) New York, N. Y.; Lippincott, J. B. Co., Philadelphia, Pa.; Lord & Thomas, Chicago, Ill.

Marchand, Chas., (2) New York, N. Y.; Med. Dept. Mutual Life Insurance Co., New York, N. Y.; McKeown, W. W., Youngstown, Ohio; Means, W. J., Columbus, Ohio; Moore, W. E., Derby, Iowa; MacGowan & Cooke, Chattanooga, Tenn.

Pierson, Allen, Spencer, Ind.; Parke, Davis & Co., Detroit, Mich.; Raeder, J. W., Wilkes Barre, Pa.; Rational Chemical Co., St. Louis, Mo.; Rees, A. M., Charleston, S. C.

Stewart, F. E., Detroit, Mich.; Smith, C. W., Horner, W. Va.; Sinnett, J. H. M., Smithville, W. Va.; Schieffelin, W. H. & Co., New York, N. Y.; Southworth, Chas. T., Monroe, Mich.

Van Hook, R. C., Lebanon, Tenn.; Wright, J. P., St. Louis, Mo.; Woltshiek, F. J., Cedar Rapids, Iowa; Ward, V. J., Miller, Ga.; Washburn, A. A., (2) Clinton, Md.; Woodbridge, J. E., Youngstown, Ohio; Westernman, B. & Co., New York, N. Y.; Whufield, A. J., San Luis Potosi, Mexico.



# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, JANUARY 26, 1895.

No. 4.

## ADDRESSES.

### RADICALISM AND CONSERVATISM IN GYNECOLOGIC SOCIETIES.

Address delivered at the Annual Meeting of the Chicago Gynecologic Society, October, 1894.

BY F. H. HENROTIN, M.D.  
CHICAGO.

An address by the retiring President seems to be one of the leading features of the annual meeting of this Society, and I see by the program that I am not to be spared this year.

Gynecologic societies are generally organizations of comparatively recent nativity, and are the result of the recognition of gynecology as a distinct and all-important branch of medical science. I am not in possession of facts by which I could outline to you the history of these societies generally, but the work they accomplish is so important that I thought I might entertain you upon their peculiarities and their field of usefulness. Previous to the last two or three decades, the work now accomplished by these associations was made a part of the transactions of the general medical societies, and later on, of the obstetrical societies. As gynecology developed, however, and the womb of alma mater brought into the world the modern aggressive abdominal surgeon, gynecologic societies made their appearance, and to-day they are a factor and a power, whether local, national or international.

The gynecologic society of to-day is usually a select, exclusive, limited and energetic body. The individual in a community who first announces himself as a specialist in the treatment of diseases of women is usually a man who by reason of his ability in that department combined with an appearance, deportment and breeding which commands respect, has been unusually successful; and a society formed around a nucleus of a few such men can hardly help being select. That such a society, select in its membership, should become exclusive and limited is but fitting, and this very limitation makes its members energetic and untiring. Small societies when composed of the right material, constantly surprise us by the character and the amount of good work done.

Among the startling figures in every gynecologic society is the radical. It was probably one or two of these who originated the society itself and who are among its founders or charter members. The radical gynecologist is usually a great fellow. He generally has the best and most remunerative practice in that section of country. His jaw is square and he usually has an opinion, and does not hesitate to give it when requested. In practice he is a "grand *couteau*" and is at his best in abdominal surgery, and when he goes in after something he usually brings it. He generally does but little gynecologic tinkering or

"swabbing" as he calls it; that is, since he has become a radical. He did begin with glycerin tampons, but he has forgotten that. He is, as a rule, a full professor in an undergraduate college unless he has been frozen out by some phase of college politics, and if he is the right sort of a radical, rest assured that no one else teaches that branch in that college.

He is a skillful operator, accustomed to operate before the class, and when he cuts into the bladder or perforates the uterus, usually no one knows of it until it is ascertained if the patient recover. He gets through the abdominal wall in seconds and makes vaginal or abdominal hysterectomies in minutes. He is always a fighter, if a true radical, and ready to take his punishment like a stalwart. Methods differing from his are usually not good methods, and he fights them with knife and pen and tongue. He is, however, a good brave friend and has magnificent courage in proclaiming and maintaining his convictions. When some fellow member writes and reads an article on conservative surgery of pelvic diseases, a strange, far-off look settles in his eyes until the discussion opens. There is much to admire in this man. He gets many hard knocks. The medical practitioner who seldom opens books to read, and never uses a lance, I mean the man practicing medicine with a license and no more, is extremely fond of enlarging upon the present practice of wholesale removal of internal organs by certain men, and when doing so is quite as emphatic and denunciatory as can well be imagined considering their common allegiance to the same profession.

In more moderate terms there come also words of dissent from the youthful and inexperienced. Many of us remember the time when before becoming more expert, we considered radical operations usually unfortunate.

Then again, more serious yet, the general surgeon, and, it may be, a fellow member of the same society must have his say concerning the tendency of modern gynecologists to perform these horribly mutilating operations without reason. The general public also takes up the cry, and the press, or some uninformed unfortunate fellow through the press, dilates upon the butchery and unwarranted license in operating.

All the hot coals kindled by the aforementioned are heaped upon the head of our friend, but he stands bravely to his colors. There is one shaft, however, that wounds him in the most tender spot, and that is the one hurled by one of his own kind beneath the shield of conservatism. An honest radical will stand anything in the way of criticism better than one word from the man who, practicing the most extreme radicalism in surgery is constantly writing and preaching and talking conservatism. When too old to operate, if he does not kill himself by overwork, he sometimes becomes more conservative.



I protest against all these denunciations of the great work being done by these men, and against the unfortunate tendency of some men who write on conservative methods in such a manner as to convey criticism. It was the work of these very men that lifted gynecology far toward its present plane, and in fact, it was the radical procedures that later on rendered conservative methods possible.

That occasionally surgical enthusiasm carries some of these disciples beyond the line of prudence is not denied, but a sin of commission in this respect is not more baneful than one of omission, and on the whole, they usually deserve their reputation. I need not mention names to call to your minds the many men who were persecuted and anathematized for their boldness in the field of gynecic surgery, and yet who are now recognized as having accomplished heroic work in the establishment of the life-saving methods of to-day.

There is an old saying that "Competition is the life of trade." I do not believe it. Whether in trade or in profession, the successful man does his work honestly and perseveringly through his love for his labor and with an honest ambition for success, but without envy for his rivals; profiting it may be by the experience gained from the mistakes of others, but traveling his own road diligently and not striving to pull others down.

In the great struggle for supremacy of these latter days, there is too much of this "knifing," as I might call it. The men at the top are almost constantly at bay. Many of them become unapproachable because of the habit of being perpetually on guard to defend their views. They thus imperceptibly acquire almost vicious dispositions. One man hardly treats Americans with civility, because some Americans have criticized him too harshly. Another does not stir from Philadelphia or Baltimore except in armor clad, for all emergencies prepared, and so on throughout the land, each according to his greatness having a larger or smaller enemy's territory to watch.

These remarks do not apply to proper, just, intelligent and dignified criticism, where such is fit. A deep thrust of a Jaggard blade is frequently quite painful and makes one writhe, but the knife is clean, the wound aseptic, and a veteran is the better for the experience.

All the above I say preparatory to the usual good advice and suggestions of a retiring President, and they come in mind, in view of the constantly increasing evil of criticizing the man in our societies, and forgetting the fact that we are only brothers of one family. Moreover it does not apply to this society more than to many others; though organizations largely composed of men devoted to some special branch are most likely to err in this direction. Allow me, then, to confess some of our sins, and expressing contrition, make resolutions for the future.

Special societies then, being select and limited in membership, should be composed of working members only, and any individual joining but not giving his share of labor, should be allowed to go. Of this there can be no doubt if good is to be accomplished. The gentleman who joins our ranks and makes his appearance once a year or fails to send a paper does not belong with us, no matter how great his name nor how high his standing. The gentleman, also, who appears once a year to read a paper or present an instrument or a specimen, and never comes to

hear any other man's paper or view another man's instrument or specimen, is of very little value as a member, and both of these species should be called to time in a gynecologic society. We will, therefore, pay more attention to attendance at our society in the future, and damned be he who never comes.

We recognize obstetrics as the fountain head from which we sprung, but we acknowledge that we are constantly forgetting our parentage and that we give too little time to its consideration. This is positively a fact. I defy intelligent contradiction to the assertion that apart from the teaching of asepsis, there is more empirical, loose, non-scientific obstetrics practiced in this country to-day than most men would be willing to acknowledge, and even asepsis is used as a cloak to bungling work. This country, with full knowledge of what clean scientific obstetrics means, has done less than any other in rendering that knowledge universal. Concerted action emanating from gynecologic and obstetric societies is most emphatically needed in the regulation of irregular midwifery schools, and in the propagation of scientific midwifery. We will elect as our officers to represent us before the community and in the profession at large, men only who by their good work deserve the distinction and who will not allow politics to creep in our midst.

In our discussions and criticisms we will observe a standard above and beyond all personalities, and be guided by an elevated sense of the dignity of our calling. We will slash without fear the arguments which we believe unsound, and destroy to the utmost all teachings which we consider bad.

Unprepared essays and irresponsible hasty assertions will be expunged from our proceedings and the blue pencil drawn gently through the title: "My last 1,000 hysterectomies," or the photograph of the sort of basin in which to wash the hands preparatory to a laparotomy.

And when a general surgeon in our ranks informs us emphatically that this wholesale sacrifice of uteri must stop, that the history of gynecology in the last ten or twenty years must be written over, we will gently invite him to read us a paper on excision of the malignant parotid and larynx, with statistics, remembering that good breeding will not allow us to notice if the gentleman turns red in the face.

Lastly, as regards the assistance we propose to render to the latest advanced movement in gynecologic circles toward "the Conservative Treatment of Pelvic Intra-abdominal Diseases," we have this to say: We all confess that in our early work we sometimes failed to recognize diseased organs before operating, and we further acknowledge that we sometimes were very little wiser when we had these organs in hand and sight, and that our anxiety to know whether we could exsect such organs safely was greater than our knowledge of what constituted pathologic conditions, and that therefore few of us feel perfectly free from just blame. We state upon honor, however, that since we have learned to distinguish intra-abdominal pelvic disease, we are all conservative and are guided only by one desire; to cure the patient and to cure her permanently and completely.

That we recognize and acknowledge that to radical methods and radical operators is due a large amount of the credit gained by conservative operations later on, and that we have no desire to discredit such gen-

tle men but cheerfully acknowledge their assistance and the value of their labors. We also desire to state that it is our experience that so-called radical operations are very frequently really the most conservative in their ultimate effects, and that these questions are still debatable and will remain so until closer and more frequent and more complete observations help us to reasonable conclusions.

That we believe that all the members of our society and kindred societies are honestly endeavoring to secure the most desirable results, both immediate and ultimate, and that the discreditable work is done by the inexperienced who is honest and conscientious, and the inexperienced who is not conscientious, and that we will do all in our power to assist the one and to disarm the other.

Finally, that we pledge this society as such, in unison with other gynecologic societies, and its members individually, to an honest, earnest and dignified endeavor to promote the aim of all, and that we recognize in our ranks neither radicals nor conservatives, but simply co-workers with one and the same aim—the alleviation of the sufferings of womankind.

### PRESIDENT'S ADDRESS.

Delivered at the opening meeting of the Academy of Medicine,  
Louisville, Ky., Jan. 7, 1894.

BY T. L. McDERMOTT, M.D.

PRESIDENT OF THE ACADEMY OF MEDICINE, LOUISVILLE.

It is a gratifying duty that devolves upon me, to welcome you to these quarters and to inaugurate the opening of the Academy of Medicine. It has long been a matter of unfavorable comment that so prosperous a medical center as this, embracing in its circuit so many luminous votaries, who would add grace and lustre to any sphere, has so long been denied the pleasure and profit that must, of necessity, arise from more intimate communication among its most zealous devotees.

Aside from the fact that such gatherings, not only foster the purest instincts of ethical fraternity but also refine and advance our calling, the mere existence of such an Academy proves the unselfish desire of its founders to strengthen the professional ties that bind us to a lofty purpose, the elevation of our guild and the widening of its beneficent power. What prince or potentate beloved of the populace, has a higher incentive or a nobler aim than we? The glamor of its past has endeared it to every age, and its grander progress in the future will be ended only with the decay of time. From humble beginnings it has traced its prospering presence, through all the years, growing grander in its victorious march at every stage of its eventful career. Nor was its progress made through tortuous channels or by the aid of misleading sophistry. It advanced through broad and open paths that reflected the enlightenment it had gained in its way. Neither the trick of the charlatan, nor the lust of the miser found encouragement or lodgment in the councils of its faithful band. They were always the same brave legion, levying tribute from industry and genius to embellish the temple they were building for the world. A frank and manly army were they that shattered the idols of fraud and turned the heedless ear to the alluring temptations of princely influence or debasing gold. The crown won by those humane apostles of science by means of such sacrifice and devotion

has been transmitted to us, and through us, to posterity; and I hope we are erecting a sanctuary where fitting proselytes may be dedicated to the noble task of carrying us forward to greater victories and grander trophies.

While a well poised modesty might forbid any rash expectancy, who can tell but that from our humble midst some brilliant star may yet illumine paths that are still dark, and that yet may open glorious vistas unimagined in our brightest dreams? From less promising beginnings men and measures have risen into exalted prominence and have brightened the pages of history with their renown.

I hope this meeting will be the forerunner of a long and intimate companionship, embittered by no envious rivalry, or selfishly sought prominence. I hope it will be the personal aim of all to extend and perpetuate the usefulness of this association; for in no other calling is there so often need of a helping hand and of charitable counsel. Give lavishly of both to the aspiring and the humble, for the general good is only attained by common effort and self-abnegation. In every city of considerable size in the world, a society like this has been the Mecca and the inspiration of the proudest exponents of our science.

Forbearance toward the frailties we all possess and a zealous enthusiasm for the common good are the cardinal elements of success in this undertaking. Every individual member must feel that upon his efforts largely rests the usefulness of the society. We start the enterprise to-night in a general way. It depends upon the majority of the body to guide our steps in the future into such paths as may seem most desirable for the general welfare. It is intended that these quarters shall be kept open daily and that they shall be supplied with all the latest periodicals. It is hoped that the members will avail themselves of this opportunity to cultivate each other and to study together. In a long experience as a student and practitioner, I have realized that the most valuable lessons to me, were those I learned by contact with fellow doctors. The benefits resulting from quick and constant relations with other men in the same pursuits as our own are inestimable, whether at the bedside, or on the rostrum. A consultation in either case, not only decides the hesitating but confirms the established opinion. Those who have sometimes wavered in momentous dilemmas can tell how grateful they were to a helpful brother whose sturdy skill gave them medical guidance, or whose masterful poise in a fateful moment checked the rashness which might have jeopardized a precious life.

The Academy is especially intended for the encouragement and development of the younger members of the profession; and it is hoped they will excite and emulate the generous rivalry that intellectual efforts stimulate and improve. To them must we look for that breezy personality that gives vigor and freshness to an enterprise whose vitality so largely depends on an active and eager membership. It should be the duty of all to maintain that benevolent harmony, without which existence, if possible, would only be characterless and without profit or pleasure. Let it be the unwritten law of the assemblies that captious criticism, acrimonious debate or selfish display shall beget silent scorn rather than generous tolerance. No acerbities must be allowed to mar the peaceful haven we have designed for our exploits

We have no need for warriors or their methods in this Arcadian realm where we hope the white-winged messengers of peace and forbearance will insure a long and honorable prosperity. Rather let us emulate the busy bee, whose quiet but indefatigable industry slowly but surely achieves results that furnish the text for the grandest ambition. Nothing is accomplished in scientific circles by the lash or the sword. Patient delving, silent study, harmonious communion and comparisons with fellow-laborers are the omnipotent factors that build and ornament the fabric whose foundations are built on stony facts and gilded with empyrean truths. The real architects of the world are brain-workers. In the little gray cells are evolved the masterful conceptions before which the brawny mason and the iron-monger stand in awe while realizing the insignificance of their own rude works. Franklin harnessing the lightning, Morton evolving an anesthetic, Jenner elucidating vaccinia, these are only a few of many instances I might cite to show the tremendous value and glory of mental achievements before which the brutal deeds of giants, the bloody triumphs of armies and the huge works of ponderous machinery pale their fitful luster as ignominiously as a flickering taper in the glare of day. Mind dominates matter, and the wise physician, figuratively speaking, controls the dynasty of every kingdom.

How few, even of our own number, realize the stupendous power of an alchemy or a knife that may blast a nation's hopes or break a mother's heart. Only after a lifetime of ineffectual labor is drawing to its close, does the sluggard comprehend the loss in his wasted moments or even the jaded savant, while realizing his incompetence give utterance to his impotent regrets. A song of praise or a meed of opulence may beguile us with their tuneful lullabies and may seduce the loitering dreamer while time and opportunity are running riotously away. So life, like the brook, flows on and on, and the dalliance of the year that has passed becomes the anathema of the one that is born, without relief from the curse that has blackened them all. Toward the end, prizes and power alike have exhausted their potency; and still the sluggish mill pond contains the sediment of a myriad aspirations that sparkled like iridescent diamonds in the crystal waters at their source. Only to those patient few who show untiring fidelity to their work and a lifelong devotion to duty, will come the real meed of glory. By many unostentatious sacrifices they may reach a pinnacle for others' wonder, may build an immortal monument for themselves, while giving health and happiness to untold millions. The lesson of a self-sacrificing life is not lost. Even moderate intellectual powers, rightly applied, may bring us greater rewards than riches or rank, though they also can be won. To many of us belong such intellectual attributes and powers. What tocsin shall wake them from their slumberous lethargy?

"Lives of great men all remind us,  
We can make our lives sublime."

But how or when? That is the burning question which glows in the morning of intention, but the night shades of delay enshroud them in their pall. The enigma finds solution in the gathering of this evening, the clash of intellect in seemingly debate encompasses the defeat of error, and as the sword in battle leaves only the imperishable to valor. Out of the destruc-

tion comes conquest, and truth and fame are the rewards of the struggle. Let us cultivate these discussions then, in the spirit in which they are instituted, for self-improvement and the advancement of medical research, always keeping in mind the axiom; that in "unity there is strength" and that the end to be attained is the common good of all. Let us not imagine for an instant that any individual member of this society is essential to its future welfare. Egotism and contention are a baleful menace to our prosperous continuance. Our association must be harmonious to be stable. Let the suave chivalry and the courtly demeanor of the drawing-room add lustre to the learning and skill of the polished doctor and let the wounds of debate be forgotten at their close. Recriminations inadmissible in convivial society should find even less tolerance in the efforts of scientific explorers. Let the torrid Hotspur bathe his reeking flanks in patience and accord forgiveness to petulant zeal, always remembering the object of our meeting is to promote medical study for the enlightenment of our guild. This is our professional home. Beneath its shelter we can all find a warm welcome and a pleasing habitation. Let the discordant sounds that shock men in the busier marts of trade find no echo in its precincts, hallowed by so many associations and sacred to such lofty themes. Within the walls of a symposium so alluring, let the traveler of science find fitting respite and a sweet hospitality in the bosom of his friends. Surrounded as I am, in this charmed circle by men I know so well, it seems superfluous to mellow the lute to ears properly attuned by study and breeding; but I feel we have set in motion a beautiful engine, capable of doing great good for us and afflicted humanity, and I would be derelict in duty to hush these notes of warning.

On the other hand, if we realize the advantages as well as the dangers that confront us, we shall succeed in the fullest measure. This society will be a beacon to all. Let its shining light not only illuminate our own lives, but guide others who are in darker lines to its fostering influences. Thus educated and equipped it may be our boast, as it has been our predecessors, that our great brotherhood has been ennobled by every generation that wore its livery.

## ORIGINAL ARTICLES.

### ON A NEW TYPE OF NEURASTHENIC DISORDER—ANGIO-PARALYTIC OR "PULSATING" NEURASTHENIA.

BY CHARLES L. DANA, M.D.

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The present tendency to analysis and differentiation of clinical types is a helpful one. It may at first sight seem to encumber our nosology needlessly, but the final result is to secure a better comprehension of disease, its cause and its treatment, as well as to lead eventually to simpler classifications. This fact has been well illustrated in the history of neurology. I feel sure that the differentiation of a good many types of neurasthenic disorder will eventually be made and that this, if carefully done, will help to remove the indefiniteness at present suggested to our minds by the word.

Such is my apology for attempting to describe a new type of neurasthenic disorder now.

I have had six patients who all presented very distinct and peculiar symptoms. Coming to me at varying intervals I have been struck with the similarity of their symptoms. It justifies me in claiming for them a distinct type of functional disorder.

The clinical portion is best shown by telling the story of one of my patients:

*Case 1.*—He was a furrier by trade, an Englishman by birth, married, and 29 years of age; his mother had heart disease; the rest of the family were healthy. He was always a strong and active, though nervous, young man. Since a boy he had used tobacco excessively and drank much beer. He had never had syphilis or bad sexual habits. When he was 18 years old he was attacked with a sudden fainting spell, and a few days later he had something like a convulsive tremor. The seizures were evidently due to excessive smoking. Since these attacks, which did not recur, he has had a general feeling of pulsation through the whole body. It is not his heart alone but his chest, trunk and head that throb in unison with the heart beat. This pulsation stays with him day and night, and in every position of the body. Neither rest or activity modifies it very much. Abstinence from tobacco and alcohol does not relieve it. It is accompanied with some nervousness, and he occasionally has a sense of propulsion as though he were going to run forward. He has very rarely vertigo but no tinnitus aurium. He sleeps well. His symptoms have continued, with varying intensity, up to the present time. He is now, however, rather worse. An examination of him reveals a healthy, nervous looking man; the hands show a fine tremor. The skin is dermatographic, to such an extent that one can distinctly write a name on it which comes out bright and red and remains for thirty or forty minutes. The skin is moist and ruddy, the pulse very soft, compressible, the rate being 80 per minute.

There is no goitre or exophthalmos. He sometimes has a little vertigo; but no pain, or headaches. His special and general sensations are normal. He has no atrophy or paralysis. There is some exaggeration of the knee-jerks and a considerable degree of the static ataxia which I find common in neurasthenics. His urine is normal. His heart is normal, beating strongly, yet it is not hypertrophied. There are no murmurs. Pulse, 75. He has a decided epigastric pulsation and a systolic murmur is heard here. Pressing on the carotids lessens quickly the throbbing feeling in his head.

The trouble makes him nervous and distressed, and he is barely able to attend to his business. A long rest, including a sea voyage, and abstention from tobacco and alcohol did him no good.

Under treatment he improved slowly. Two years later I saw him again. His health was much improved but the pulsation still annoyed him.

*Case 2.*—The second case was more remarkable by reason of the successful therapeutic procedure employed. The patient was a man 27 years old, single, an oysteropeener and dealer by trade. He had worked very hard and been exposed to wet and cold. He denied, absolutely, sexual excess and venereal disease. He used alcohol and tobacco in moderation. It is to be remembered, however, that assertions of temperance in these things are not always trustworthy; and in this patient I thoroughly suspected masturbation. His parents had no nervous trouble. He had had most of the diseases of childhood, but was always fairly well aside from these. In 1884 he had typhoid fever. In May, 1889, he suddenly and without known cause, began to have attacks of palpitation of the heart. This gradually passed into a condition in which he felt a sensation of pulsation all over the body; a general throbbing, synchronous with the heart beat. This beating was much more marked in the head and was here accompanied with a feeling of pressure in the occipital region. He suffered a great deal from cold hands and feet. He had no dyspnea and no pain. His appetite and digestion continued fairly good but he became very nervous and mentally depressed; and his sleep was disturbed. In fact he denied that he slept at all. I first saw him in March, 1890, a year after his trouble began. Examination at this time was largely negative, so far as objective symptoms are concerned. He was fairly nourished but rather thin. The lungs and abdominal viscera were normal. The heart action was not strong, but there was no dilation or murmur. The rhythm was normal, and the pulse rate never high, ranging from 70 to 80. The pulse was very soft and of low tension, the hands and feet cold and easily congested. The skin

was very dermatographic, a mark upon it lasting five hours. He had an epigastric pulsation. Pressure on the carotid stopped the beating on the side of the head on which pressure was made. There was a slight enlargement of the thyroid, but no exophthalmos, no tremor, no sweatings, no heat sensations. The reflexes and the special senses were normal. The urine also was normal in amount and reaction: specific gravity 1026. It showed great excess of phosphates. His intelligence was good; he was not hysterical. No form of treatment, mental or medical did him any good. He had given up work because he said he could not attend to it.

I finally sent him to the hospital and had him put to bed and carefully watched for possible masturbation element. Rest, carotid compression, tonics, sedatives, ergot, digitalis and other drugs failed to relieve him except that his sleep was improved by sulphonal.

He became willing to undertake any treatment for his relief, and I finally sent him to Dr. Seneca D. Powell who kindly undertook to tie the common carotid. This was successfully done at the Post-Graduate Hospital in the fall of 1890. After the operation the patient expressed himself as quite rid of the distressing beating so far as the right side of the head and body was concerned. He felt so much relief that he was able to endure the left-sided beating. He left the hospital and went to work. Dr. Powell and myself have seen him at intervals since. He continues better; the beating has not returned on the right side but continues on the left. He has gained some in flesh and strength and is comparatively comfortable, it being now over three years since the operation.

*Case 3.*—The patient was a young man of 25, of healthy antecedents. He denied venereal infection. He was always of a nervous temperament. For the past three years he had drank excessive amounts of beer, had sometimes taken a small keg in a day. He smoked moderately and there was no sexual excess. In the spring of 1894, while in apparent health, he awoke one morning with a feeling of dizziness and nervousness; sensations of beating and throbbing appeared; he became very nervous and depressed and was unable to concentrate his mind on his work. A beating sensation was felt in his head and chest continually and caused him great distress. He had also headache and insomnia, and ringing in the ears. He placed himself under the treatment of a local physician who found a sensitive urethra and treated him a long time for this with slight benefit. When examined by me, I found a rather rapid pulse, 85 per minute, of low tension. The heart was normal in size and sounds, the peripheral circulation was sluggish, the extremities cold and easily congested; the skin was dermatographic; there was an epigastric pulsation, though not so marked as in other cases. An examination of the eyes by Dr. Wm. F. Mittendorf showed astigmatism and a slight venous pulsation of the retinal vessels. The tongue was coated and the bowels constipated. His most annoying symptoms were the beating, the nervous depression and that indescribable feeling of incapacity to work and enjoy life which the neurasthenic dwells upon so much. I should add that he had repeatedly tried to master his sensations and go to work, but they never left him, and he returned to his invalid habits in despair. He has improved considerably, but is still far from well.

I have not met with exactly similar cases in women.

*Case 4.*—A married woman, aged 55, and several years past the menopause, has frequently complained of the same pulsating sensation. She is rather large and plethoric, and is of a nervous temperament. For several years she has suffered from nervousness, insomnia and the vasomotor symptoms of the climacteric. She now complains chiefly of the constant "beating, beating, beating" in the head and chest, and is quite sure a vessel will burst unless it is stopped. The pulse is quite regular, constantly at 100, but there is absolutely no exophthalmos, goitre or even tremor. Basedow's disease does not appear at this age. Her heart is slightly enlarged, and there is a systolic murmur at the base, which, however, disappears when she gets relieved by treatment of the tachycardia and pulsation. The urine is normal. She improves rapidly under aconitia and rest. The pulse got down to normal, the murmur disappeared and she was comparatively well for six months. The symptoms returned for a few months under stress of some domestic affliction and have been again relieved.

It is evident that cases of this kind are more closely related to Basedow's disease than those before



described. They are not due to any heart lesion, for people with heart disease do not have such pulsating phenomena except during attacks of palpitation.

The other cases which I have seen have not all been so severe and obstinate as the above four, but the patients have shown the low tension pulse, vasomotor weakness of extremities, subjective sense of beating felt most in the head, epigastric pulse, dermatographic skin, insomnia, nervousness and mental depression.

*Etiology.*—So far as my experience goes, the cases occur in young men or adults under 40. I have not seen this form of disorder in women except in the modified type described. The abuse of tobacco and alcohol, particularly the former, was the conspicuous exciting cause in two cases, while tobacco and alcohol and sexual excesses were factors in the others.

*Pathology.*—The instability of the vasomotor system in neurasthenics is well known and has been particularly shown by Wolf (*Allg. Zeitsch. f. Psych.* xxiv.) and Anjel (*Arch. f. Psych.* viii., 2). The special symptoms of palpitation, of epigastric pulse and of tinnitus, fullness of the head, head pressure and throbbing are also familiar. But the patients I describe have more than this. There is a general pulsation of the body felt most annoyingly in the head but also in the trunk. One patient (Case 2), when suspended in a Sayre's apparatus, could be distinctly seen to move with each beat of the heart.

It appears to me that in this condition there is an abnormal relaxation of the arterioles and capillaries, the blood is thrown into tubes that have lost their resiliency and thus the pulse waves are not fused together. It is as though a liquid were thrown through a series of tubes with flabby non-elastic walls. Hence the heart-beat is strongly felt all along their course as far as the capillaries. Besides this there is after a time a hypochondriacal element in their cases. The patient's attention becomes fixed unalterably on his sensations.

Van Hósslein (*Miller's Handbuch der Neurasthenie*, p. 127) describes the case of a neurasthenic who suffered from epigastric pulsation. This tormented him so that he went to a surgeon who opened the abdomen thinking he had an aneurysm. The abdominal aorta was found to be perfectly normal; the wound healed and the patient was cured.

I doubt if Dr. Powell's success can be accounted for in this way, because he only cured one side of the man. Yet it seemed to help him generally and permanently more than one would expect from the nature of the operation.

*Symptoms and Diagnosis.*—I have already referred to the characteristic symptoms of the malady. The patient is neurasthenic and presents the general symptoms of this condition. But his special symptom is the sense of beating of which he never loses the consciousness. He has a low tension pulse of normal or but slightly accelerated rhythm; he does not have palpitations occurring in paroxysms as in Basedow's disease. He may or may not have tremor; there is a striking degree of dermatography, and an epigastric pulsation. Pressure on the carotid stops the beating on the corresponding side of the head. There is no evidence of exophthalmic goitre. There is, usually, insomnia, nervousness and mental depression.

*Treatment.*—The striking success of surgical treatment in one case leads me to believe that ligation of

an artery is the surest cure for the disorder. Still in the milder and less typical forms, cure is obtained by the use of general and vasomotor tonics, in other words by the ordinary treatment for neurasthenia. I have found no benefit from ergot. Restrictions must be promptly placed upon the use of tobacco, alcohol and sexual indulgence. Potassium iodid, hyocine, hydriodic acid and arsenic sometimes act well in this as in other forms of vasomotor neuroses. Aconitia in doses of gr. 1-200 may be of service. I strongly advise against the use of the bicycle in these cases.

A prescription containing bromid of iron gr.  $\frac{1}{2}$ , bromid of potassium grs. x, hydrobromic acid  $\mathfrak{m}$  viii and spartein sulphate gr.  $\frac{1}{3}$ , gives relief in many cases. Bromid of camphor and strychnia are often useful. I insist, when possible, upon the patient taking hydrotherapy in the form of a Charcot or Scottish douche.

50 West Forty-sixth Street.

### A FURTHER DISCUSSION ON MALARIA A WATERBORNE DISEASE.

Read before the Mississippi Valley Medical Association at its twentieth annual meeting, at Hot Springs, Ark., Nov. 20, to 23, 1894.

BY W. H. DALY, M.D.

PITTSBURG, PA.

Ex-President of the Section of Laryngology of the Ninth International Medical Congress; Member of the American Climatological Association; Member of the American Laryngological Association; Senior Physician to the Western Pennsylvania Hospital, Pittsburg, Pa.; Consulting Physician, Throat Department, Pittsburg Free Dispensary; Member of the British Medical Association.

A paper which I read before the American Climatological Association, in Washington, May 29, 1894, entitled, "Some Practical Observations on so-called Malaria being a Waterborne Disease," and published in the *Medical Record* of Sept. 15, 1894, has called forth in the *Medical Record*, and other medical journals, much correspondence pro and con; it has also brought to me many private letters from prominent medical men, who have read my paper, many, in fact most of them, not only indorsing my observations and views, but giving as a result of their own independent observations, data which strengthen the position I have been brought to contend for. I am pleased to learn of the widespread attention the paper has received, and only ask that the same unprejudiced observations will be resorted to that my paper comprehended, that every factor in the question shall be taken account of, and that causes and consequences shall be followed up, in considering both the evidence of the water, being the sole or chief vehicle of the Laveran corpuscle passing into the human organism, or the air we breathe, or whether both the air and water are the efficient vehicles of the germ finding its way into the blood, where we know it exists in the pathology of malaria; producing its manifestations, known to us as paludal fever, malarial fever, or chills and fever in its multiforms.

In summing up the evidence in a given case of so-called malaria, it is important to remember, that the water vehicles of malaria may include contaminated land water, taken into the stomach on the stalks of celery, or on the leaves of lettuce, or it may find its vehicle in the rinsing of milk cans with malarial water, or in the adulteration of milk with contaminated water containing the Laveran germ; the cistern water stored under the earth may easily be contaminated by the earth water containing the germ, if the



cistern itself is cracked or otherwise inefficient; the fact that the patient has drank at all of suspected water, even but once, ought to be taken into consideration, as the single draught of contaminated water may have contained all the necessary germs for the infection of the blood and the production of the fever.

It can well be understood how the greatest care must be exercised in a malarial country to avoid taking into the stomach, some time or other, the germ in drinking water, and it will therefore appear at once, how necessary it is to exclude the water possibility, in making up data that will exclude the air theory of infection.

In order to define my position on this question, permit me to quote from my article in the *New York Medical Record*, of Sept. 15, 1894, wherein I say: "Twenty years' observations and studies on this subject, and investigations made in various districts from Manitoba to Louisiana, and all along the southern coast of the Atlantic Ocean, and of Cuba, Yucatan, and other districts in Mexico, lead the writer to the conclusion, that so-called malarial disease is not easily, if at all, contracted by inhaling so-called malaria or bad air, of the low, swampy, or new lands, but it is distinctly, if not *almost exclusively*, due to drinking the water that has come into contact with, and become infected with, the malarial germs or infusoria that exist in the earth and waters of the swamp and lowlands. This germ does not ordinarily, if at all, float in the air during the day, nor does it find easily a vehicle in the fog or vapors of the night. Indeed it is difficult to understand how one is to avoid the night air, even if it is conceded to be deleterious—a conclusion I much doubt. Does any other air than night air exist at night? Is it possible to breathe any other? Is there any habitation sufficiently sealed against the outside air, to make the breathing of outside night air impossible?" It is the water alone that can and must be avoided; to avoid the air is quite impossible.

Touching the important general question of malaria, it is pertinent to quote from a recent review in the *British Medical Journal* of Oct. 27, 1894, of Dr. A. Laveran's work on "Paludism," as translated by Dr. J. W. Martin, of London, and printed by the New Sydenham Society for 1893. The review says: "It is interesting to note the different ways in which two of the most important discoveries in pathology of modern times have been received. No sooner had Koch proclaimed the bacillus tuberculosis, than it was accepted with acclamation on all hands, immediately stamped as genuine, and passed as good current coin. This was in 1882. Two years before this date, in 1880, Laveran described the microörganism of malaria. The discovery was hardly recognized at the time, and even now, after a lapse of thirteen years, it excites so little interest that many are unaware that it has been made. The pathogenetic character of the schizomycetes (fungus or bacteria microbes) as a class had been well established long before Koch made his famous discovery, but no one suspected that an equally if not more important rôle is played by the protozoa (unicellular animals) as disease agents, until Laveran made his discovery. If we look at the matter from the practical point of view of sickness and mortality, we find that bacillus tuberculosis is credited with one-seventh part of the total mortality of mankind; the malarial organism with one-half.

"For thirteen years the great discovery has been before the profession, and yet practically nothing, so far as Englishmen or Americans either, excepting Sternberg and a few others are concerned, has been done with it. We should like to know what practical teaching in the matter there is in our medical schools, particularly in our naval and military medical educational establishments. We wonder how many of the men whose principal future lifework will lie in combating this organism have been brought face to face with the thing itself, have actually seen their future enemy, or been taught how to search for it. In this matter our medical guides and teachers, both in this country and even in France itself, have a great deal to answer for. But signs of the recognition of the importance of Laveran's work are beginning to be discoverable. Evidence of this we have in the translation recently issued by the New Sydenham Society. We trust that this semi-official stamp of recognition will at last insure its general acceptance by our countrymen, or, at all events, its thorough investigation.

"Dr. Laveran's work is a very complete, temperate and judicial statement of all the more important modern views on the subject of the malaria parasite. In the course of the work the parasite in its polymorphic forms is carefully described; its bearing on the pathology of malarial disease and the practical outcome of our knowledge of the existence of such an organism are thoroughly discussed. Interesting chapters call attention to similar forms of parasitism among the lower animals, and detailed clinical evidence is given in abundance in support of many of the statements the author advances. Dr. Laveran expends a good many pages, we think unnecessarily, in defending himself from the repeated attempts which certain Italian investigators have made, to filch from him the credit of a certain and important part of his great discovery. Any one who has read his first large work and his numerous early papers knows very well with whom the entire merit of the discovery rests. Although stating them very fully, Laveran does not see his way to accept Golgi's views of the life cycle of the plasmodium, fascinating and original though they may be."

While the great question of malarial fever is one of widespread interest, it is the one phase of it that the writer is investigating, viz.: The waterborne means of infection. Laveran says:<sup>1</sup> "Numerous facts tend to prove that the infection may take place through drinking water, and that persons who have contracted paludism (malarial fever) have almost always made use of water of palustral (with humid or marshy soil) localities." He says further:

1. "It has been found repeatedly that in the same localities, among persons living under the same conditions, but drinking water from different sources, some were attacked by palustral fever while others escaped.

2. "In certain localities which were formerly insalubrious it has been sufficient to place pure water at the disposal of the inhabitants, instead of the stagnant water which was formerly used, for palustral fevers to disappear.

3. "In some localities, otherwise very healthy, people may contract fever, whose drinking water comes from unhealthy localities, and the persons most ex-

<sup>1</sup> Paludism. By A. Laveran. New Sydenham Society, published 1893.

posed to infection in these conditions are those who consumed most water.

4. "Travelers passing through unhealthy countries often succeeded in escaping fevers, by only drinking water that has been boiled, while people who do not take that precaution suffer severely."

Dr. Norbury<sup>2</sup> in the *Medical Record* of Oct. 6, 1894, says on the subject of "Malaria a Waterborne Disease:" "I wish to add my experience and observation to the line of inquiry pursued by Dr. W. H. Daly, of Pittsburg, Pa., in his most excellent paper in the *Medical Record* of Sept. 15, 1894, regarding malarial infection. In the summer of 1881, while employed under the directions of Maj. G. J. Lydecker, U. S. A., in the construction of the Kamps-ville Lock (Illinois River improvement), Kamps-ville, Calhoun County, Ill., I had the occasion to observe the effects of drinking water on persons temporarily residing in this malarial district, as well as upon the native inhabitants. The land immediately adjacent to the lock site was known as bottom land—it was overflowed at each high water season—and was poorly drained, being very flat. Water stood in the bogs or swamps until the dry weather of summer had completely evaporated it. Drinking water was obtained for the men employed in the construction of the lock foundations from drive wells, put down to the depth of twelve or fifteen feet. The men employed on the dredge and tow boats and the officers used filtered river water.

"Among the many laborers who sought employment were forty Swedes, who had arrived in this country from their native land about ten days before coming to the lock; they were a vigorous, well-nourished body of men, eager for work. They took board in quarters near the lock, and drank water from the drive well. Within ten days one of them was taken down with malaria, and before two weeks ten or more had succumbed; one died and two were seriously ill. At the end of a month but three were able to continue work; one of these had no malarial symptoms at all; he worked on one of the boats, where he drank filtered water. Now all of these men seemed peculiarly susceptible to malarial infection, and as quickly as they could returned to Chicago to escape its ravages. The men who worked on the boats escaped the disease. The natives who drank of the well water were not so much affected, yet quite a number of them had to quit work. The wells used by the natives, however, were located on the edge of the bluffs, about one-half mile from the river. Here we have, I think, marked evidence of the infection coming from drinking water; for all the employes, officers and all, were situated under like atmospheric conditions and exposed to the same heat, etc., during the day, yet those who used filtered river water escaped, while those using drive or open well water were afflicted. Some three and one-half years spent in engineering work on the Illinois River confirmed my belief in the possibilities of infection from water supply, rather than from atmospheric conditions. I indorse Dr. Daly's views."

Since my paper appeared, Dr. Healy in a letter to the *Record*, asks some pertinent questions as to a solution of an outbreak of malaria some four months ago in the Twenty-fourth Ward, New York City, following the excavation for sewers, that can only be answered by a careful investigation on the ground, as to whether any of the persons taken ill: 1, had drank from wells;

2, had eaten lettuce, celery or other uncooked vegetables from paludal localities; 3, whether any had drank milk from paludal localities where the cans may have been rinsed, or milk adulterated with palustral water (malarial).

Dr. Healy, however, says as to the drinking of contaminated water, being one of the prime factors: "I can offer proof positive in the person of myself. Some eight years ago the house in which I then resided, had for its water supply a cistern and a well. After using this well water for drinking purposes for a few months I suffered from a severe attack of chills and fever. Upon investigation I found the well was receiving the leakage from an out-house as well as the surface drainage. Upon discontinuing its use all symptoms disappeared."

Dr. R. D. Jewett, editor of the *North Carolina Medical Journal*, writes me in a private letter dated Oct. 22, 1894: "Your ideas are emphatically ours, and we believe that acceptance of this fact by our people will be a great boon to this section." And Dr. Jewett has in these few lines, the gist and great good of the whole question, viz., teach the people to drink only uncontaminated water, and you have made the great advance toward settling this question. And this is the chief end and aim of my several papers; for the accomplishment of that custom will go far toward settling the question of how we are to prevent palustral fever, by eliminating what I believe to be *quasi* factors.

Dr. M. D. Hoge, Jr., of Richmond, Va., writes me in a private letter dated Sept. 19, 1894, as follows: "Your 'Observations on Malaria' in the last number of the *Medical Record* is one of the cleverest and most satisfactory articles on the subject I have ever read. I write to thank you for it, as a believer in your views for a long time past. To my mind it is the only rational and reconcilable theory on observations on this plague of our section. I am at present engaged in a study of the blood of cattle suffering from climatic fever, and hope to have something ready in a short while."

Dr. W. A. Plecker, of Hampton, Va., writes me in a private letter dated Sept. 18, 1894:

"I am convinced that you are correct in your views, and am surprised that attention has not been more generally called to impure water as a source of malarial fever."

I have received many other letters of a similar tone, and there can be no doubt that it is the duty of the profession to cultivate a habit in their patients to drink only boiled or uncontaminated water in infected districts; since they can not avoid breathing the suspected air let us at least eliminate the water factor. I confidently predict we will then have successfully compassed the prevention of palustral (malarial) fever.

We all fully agree with Laveran's researches, and it is quite well known to all my hearers that damp, uncultivated, marshy or humid soils are those that offer the best medium for paludism. The existence, however, of marshes properly speaking is not necessary, and on the other hand all marshes do not cause fever, even in hot countries; at Tahiti in Australia and New Caledonia, both of which abound in marshes, palustral (malarial) fever is rare. If the marsh then is not necessary there must be a humid soil for the Laveran corpuscle to propagate itself. The small rains which take place at the end of the summer in

hot countries, and which are soon dried up with the sun, are known to be very dangerous and productive of palustral (malarial) fevers. This fact has been observed by Dr. W. J. Lumsden, Dr. Oscar McMullen and others of Elizabeth City, N. C., who write me, saying, especially are these rains productive of new cases, as well as outbreaks of fever in old cases, among those who have drunk the water from surface wells, and the same facts are spoken of by Laveran and other observers.

The physical conditions here are evidently hot sun, brief fall of storm water, succeeded by hot sun, for the rapid growth and development of the paludal parasite; a long-continued rain, followed by colder weather are conditions unfavorable to development, as shown by the lesser multiplication of palustral disease.

There can be no doubt that the digestive juices are destructive to the palustral protozoa in the stomach, if the digestion is strong and healthful, but that condition, unfortunately, is not an ever present condition in those who drink water from palustral soil. Hence those who are most readily affected are such as are fatigued, weak, or under mental or physical strain or disease; anemia and privation also weaken the digestive vitality, and permit the passage of the parasite, through the diluted juices of the stomach into the blood. It has been so often demonstrated, as to be accepted as a fact, that parasites are developed by preference in weakened constitutions, where vitality is already lowered, just as mosses and lichens invade the trunks of sickly trees and other vegetable growths.

"It seems," says Pasteur, "that vigorous life repels other life which wishes to graft itself upon it. It is when an individual grows weak that it becomes an easy prey to the parasites which besiege it, and it has been shown that by starving animals they can be made liable to disease, which they resist in their normal state.

"The period of incubation or latent stage of palustral (malarial) fever has been shown to be from seven to nine days, and the longest period seventeen years (latter problematical), and Mariotti and Ciarocchi, Cella and Marchiafava, Gualdi and Antolisei, and Angelini, made experiments which showed that, when palustral blood containing hematozoa is injected into the blood of man free from paludism (malaria), the fever appears in the inoculated subject on an average of ten days after the injection.

"The paludal hematozoa (malarial) in the blood live at the expense of the normal elements of it. The invaded red corpuscles grow paler and paler in proportion as the parasite develops, and it is probable that no anemia, except that resulting from hemorrhage, can be better explained than palustral anemia."

Professor Bouchard writes: "One thing seems certain to me, viz., it is that bacteria act in animals by the matters they secrete, and further, the fever of the infectious disease is toxic; it is provoked by diastases, such as that studied by Roux; by ptomaines, such as the amidaleine of Brieger."

A recent private letter from Dr. A. Laveran, of Paris, says:

"*My Dear Confrere*:—I thank you very sincerely for your article, which I have read with a great deal of interest. I think with you, that palustral infection has its place in water, and I am happy to see your new work which sustains that view. One finds, moreover, in the water of palustral

localities, organisms, very closely resembling the hematozoa of palustræ, but no one has yet succeeded in proving the question, as to the form under which hematozoa is to be found in the medium outside of it.

Be pleased to accept, my dear confrere, this expression of my devoted sentiments."

I have made some unavoidable digressions in discussing the phase of this subject in which I am deeply interested, and have taken the liberty of quoting liberally from Laveran and others in the foregoing pages. It is within the easy province of every medical man to make researches on this question, unprejudiced by any theory, and as a practical means of testing the drinking water factor in paludal infection of the system. Let every physician and citizen in infected regions resolve to observe and advise the drinking of carefully stored storm water in cisterns above ground, and the boiling of land water, where such must by force of circumstances be used for potation.

#### BIBLIOGRAPHY.

1. "Some Practical Observations on So-called Malaria being a Waterborne Disease." By W. H. Daly, M.D. Read before the American Climatological Association in Washington, May 29, 1894. Published in the Medical Record, Sept. 15, 1894. This essay called forth the following articles in discussion, pro and con:
2. "Is Malaria a Waterborne Disease?" By Frank P. Norbury, M.D. Medical Record, Oct. 6, 1894.
3. "Some Practical Observations on Malaria Not Due to Drinking Well or Surface Water." By Joseph S. Healy, M.D. Medical Record, Oct. 13, 1894.
4. Editorial, "Malaria a Waterborne Disease." Indiana Medical Journal, October, 1894.
5. "Is Malaria a Waterborne Disease?" By Isaac J. Jones, M.D.. Medical Record, Dec. 1, 1894.
6. "Is Malaria a Waterborne Disease?" By F. W. Dalrymple, M.D. Medical Record, Nov. 10, 1894.
7. "Questions Concerning Malaria." By W. H. Daly, M.D., Medical Record, Dec. 1, 1894.
8. "Malaria and Drinking Water." By Rawlins Cadwallader, A.M., M.D., Medical Record, Dec. 15, 1894.
9. "Is Malaria a Waterborne Disease?" By E. Kershner, M.D., U.S.N., Medical Record, Jan. 5, 1895.
10. "Malaria a Waterborne Disease." By L. W. Zwisohn, M.D., Medical Record, Jan. 5, 1895.

## ON THE VALUE OF KINESITHERAPY IN GYNECOLOGIC PRACTICE.

Read before the Gynecological Society of Boston.

BY RICH HOGNER, M.D.

BOSTON, MASS.

The Swedish medical gymnastic was founded, developed and perfected, as is well known, in the beginning of this century by P. H. Ling, and to-day there is not a civilized country where its fame has not spread and where some medical gymnast has not located.

That the Swedish medical gymnastic is firmly grounded on scientific principles is best shown by the fact that regular physicians are beginning to take it up, as a specialty, more and more, and that the public has confidence in its ability in spite of the damaging influence of the so-called massagists, hardly half taught or self-made medical gymnasts, not to mention ignorant male and female administrators of baths, who do all that is possible to disgrace the name and drag down the method. But just as "wise old crones" and midwives have not been able to injure the scientific practice of gynecology and obstetrics, so have their counterparts in the field of medical gymnastics been unable to drag down the kinesitherapy. The labor of these impostors has created a wide gulf between the quack and regular medical gymnast, a gulf which will be widened still more in proportion as physicians study and themselves practice the manual treatment of diseases.

Swedish medical gymnastics reach the desired results by means of active and passive movements, increasing or decreasing the metabolism, regulating resorption in any given part of the body and by in-

creasing the general tone. Kneading and other manipulations quicken a sluggish circulation, increase the blood supply and local nutrition, and by this means tone up the vessels, nerves, muscles and elastic tissues. In case of great nervous irritability it has a tranquillizing effect. Its proper practice requires an intelligent knowledge of anatomy and physiology, and for the best results a thorough medical education. There are, however, comparatively few physicians who devote themselves exclusively to kinesitherapy, but, on the other hand, there are many skilful, experienced medical gymnasts (especially in Sweden, where they must go through a three years' course of study), whose great daily experience is productive of many facts applicable to new fields of investigation. The good results obtained by these medical gymnasts in treating diseases which many physicians have looked upon as of the *noli me tangere* sort have, therefore, been doubtfully received in the beginning and indeed reasoned away entirely, until some physician of known authority has been sufficiently unprejudiced to test the matter himself and find the cause—previously shrouded in darkness—for the wonderful cures which have, in fact, been made by many medical gymnasts; similarly has been the experience of kinesitherapy in gynecologic practice.

As long ago as 1859, a Swedish officer and medical gymnast by the name of Thure Brandt, employed Swedish medical gymnastics in the treatment of the so-called female diseases, but not till 1877 had this empiric perfected his method. For many years the fame of Brandt's cures had spread abroad, but physicians and gynecologists had remained, as a rule, indifferent to it until Dr. Profanter's initiative. In 1886, Professor Schultze invited Brandt to give a public test of his method at the University Clinic at Jena, and we know of Brandt's brilliant victory. Since that time, physicians from all parts of the world have flocked to Stockholm to learn the method from its master.

The full scientific explanation of Brandt's successful cures first appeared in 1888 through the researches of Professor v. Preuschen<sup>1</sup> upon the pelvic muscles, and the influence exerted by contractions of the levator ani upon the axial position of the uterus and upon the vaginal canal.

I will not go into the details of Brandt's method, as it is not long since I have presented it in a paper read before the Massachusetts Medical Society, but will simply remind you that this method does not confine itself to bimanual massage and so-called "liftings of the uterus," with subsequent powerful adductive movements of the lower limbs, nerve pressure, etc., but first and last in every *séance* are given regular gymnastic movements that lead the blood to or from the abdominal organs, and which are determined by careful calculation for each case. I will quote from the above mentioned paper, what I said about the technique and action of the valuable *uterus liftings*, as this is the more difficult to perform and understand. A practical assistant is required and the treatment is only used, as a rule, when the uterus lies forward or, at least, is so placed for the time being. The patient assumes a half-lying position on a gymnastic bench. The physician sits at the left side, passes the left hand under the patient's knee

and enters the vagina; places the womb in the normal position, if necessary, and while keeping the left forefinger on the cervix presses it gently backward and upward with this finger; at the same time he lays the outside hand on the middle of the abdomen, in a direction from above downward, pushes the skin gently downward so it does not become rigid but can be pushed upward again when the womb is lifted; the hand rests on the forward, upper surface of the womb, thus showing where it is to be found. The assistant has in the meantime so placed himself that he can with his hands held together in a half supine position, parallel to the abdominal wall, press into the pelvis on the anterior side of the womb with the finger tips down to the os internum; there, if possible, he should meet the physician's forefinger. Without losing his hold around the uterus, the assistant lifts it up, giving delicate, light, vibratory motions to the hands, so that he seems to try to lift the cer-



Brandt's position of the "inner hand." The forefinger in vagina (sometimes in the rectum), and the unused fingers of the hand perfectly straight and firmly together, resting closely against the body, and taking, together with the palm, the shape nearly of the inner gluteal region; the thumb is held a little forward of the os symphysis. When necessary, Brandt has confined the thumb in vagina and the forefinger in the rectum.

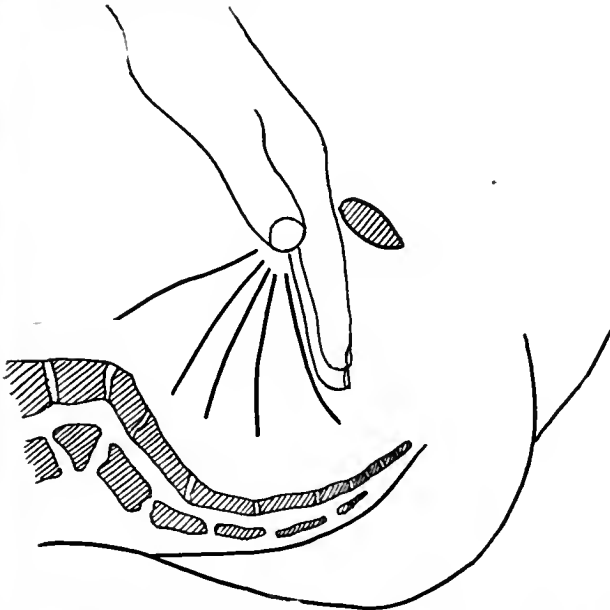
vix or orificium externum lengthwise of the os sacrum's curvature from below, in the median line, upward, so that the fundus uteri follows, though not to the same extent. When at the beginning of the movement the uterus is in a more or less upright ante-position, it can be placed finally in a more horizontal one, with cervix in prolapsus-uteri, even as high as the promontorium, the fundus leaning forward. The uterus is thus lifted more or less high, is held in this position a few seconds, or even a moment, and lowered by the assistant more or less rapidly, according to the desired effect. The movement is repeated in this way three times at each *séance*. The physician always assures himself that the womb lies in proper position forward at the close of the movement. If this should not be the case the uterus is correctly placed before and after each new lifting. If the uterus liftings are not properly done they can hurt the patient very much. After the liftings some strong movements are always given as before stated for the adductores femorum, during which the levator ani contracts, as has been proven by experience.

<sup>1</sup>Die Heilung des Vorfalles der Gebärmutter durch Gymnastik der Beckenmuskulatur und Methodische Uterushebung. Centralbl. f. Gynäk., 1888.



Since Ziegenspeck, and after him v. Preuschen, have drawn attention to what was unsuspected before, the significance of the levator ani in holding the uterus within the pelvis or, in other words, in preventing prolapsus, it may be allowable to enter more specially on its anatomy. The muscle levator ani punctum fixum is, as we know, the forward half of the little pelvis as far as the spinæ ischii; its punctum mobile os coccygis. In the female body the anterior fibers of the levator ani extend down the sides of the vagina; through this muscular base or levator ani the three pelvic canals must push their way down. A contraction of the levator ani has, therefore, says Ziegenspeck, as consequences:

1. A crowding together of these canals from back to front.
2. A change of position of the canals from this point forward and upward toward symphysis.
3. A disturbance through the distance from the spinal line, as well for the portio vaginalis as for the vaginal opening into the diaphragma pelvis which otherwise lies in this line.



A scheme of the "uterus liftings," showing the uterus' axis in different phases during the movement.

In contraction, then, of the levator ani, the vagina becomes really bent with the angle backward, so that part of the vagina which is over the diaphragma pelvis takes a nearly horizontal position when the patient is standing. Both the increase of distance from the spinal line and the changed position of the vagina secure the portio's position in the pelvis.

Professor v. Preuschen continues: The levator ani has a double function; it decreases the width of the vagina and, by causing a horizontal bending, places the upper portion of the vagina in a condition to bear up the portio; it interposes a barrier for the down-sinking portio. Whether this barrier can really hinder the descensus of the portio depends, on the other hand, on its relation to the position of the uterus. If the uterus is retroverted, the weight of the bowels drives the portio forward in the direction which comes finally to that point where the horizontal direction of the vagina merges into a downward slant. The first strong pressure from the bowels can then cause prolapsus. It is quite different if the uterus is anteverted and meets the horizontal portio at an acute

angle opening forward. As long as this position exists, or as long as the uterus returns to it, and after every change of position, pressure of the bowels brings the portio only more firmly against the barrier formed by levator ani and prevents prolapsus. Now as the uterus in nearly every case of prolapsus takes a retroverted position, the secondary aim of the treatment is to overcome the retroversion and convert it into an anteversion. This indication is filled by the methodical uterus liftings after Brandt's method.

Furthermore: Schultze has shown that the causes of retroversion can for the most part be traced to abnormal fixations depending on inflammatory processes in the cellular tissues of the pelvis, and Freund and Ziegenspeck have shown that it consists mostly of a mass of tissue and muscular fiber, the scarred retractions of the tissues between the bladder and the uterus. Any attempt to bring the uterus into anteversion therefore, tends to stretch the abnormal fixations between the uterus and bladder, as the portio again takes its normal position with relation to the spinal line. This is in the most perfect manner, induced by the "uterus liftings" of Thure Brandt.

The gynecologic kinesitherapy has its fixed indications and contra-indications. The indications are: Chronic or subacute inflammation in the cellular tissues of the pelvis and their secondary changes; exudation, para- and perimetritis and subsequent misplacements (retroflexions, anteversions and ante-flexions; diminished mobility of the uterus; misplacements of the ovaries with twisting of the vessels and nerves, adhesions, etc.); oöphoritis and para-oöphoritis; chronic metritis (sometimes endometritis), cervical catarrh, descensus and prolapsus uteri, vagino-cysto-rectocele, swelling of the tubes, hema-tocele, pericystitis and proctitis with secondary weakness in the sphincter vesicæ and ani.

As contra-indications are stated: Malignant tumors, acute pelvic peritonitis, newly established inflammations in general, salpingitis, gonorrheal, purulent, tubercular and septic processes in the uterus and its adnexions, tubal pregnancy and finally excessive fat in the abdominal wall.

A regular pregnancy is not always to be considered as a contra-indication and Brandt himself, with his marvelous experience, has many times prevented miscarriages by lifting movements, immediately relieving labor pains and hemorrhage; usually after the first or second day he follows the treatment by gentle massage or short tangential strokes from fundus downward to the isthmus.

In spite of the fact that gynecologic kinesitherapy is a laborious method, fatiguing to the physician and patient, requiring daily seances for weeks or even months, it is practiced more and more by European physicians and clinical gynecologists besides, whose time, mind, and strength surely would not be sufficient to devote to unnecessary and fatiguing manipulations. The fact that such men as Schultze, Profanter, Schauta, Dührssen, v. Preuschen, Jentzer, Stapher and others, introduce kinesitherapy into their great operative gynecologic practice, shows best what worth they place on Thure Brandt's method.

It would be too much to enumerate here all the cases of successful cures which have been published in the gynecologic journals of the world up to date, or to compute statistics; I will only state that the latest presentation of the subject was made at the



at the International Medical Congress at Rome by Professor Jentzer, of Geneva, when among others he submitted a brief statistical account of 145 cases treated by himself personally, namely:

1. Two cases of prolapsus with lengthening of *colum uteri*. Age, 23 and 29 years. Treatment and cure from twenty-three to thirty-five days. No relapse. In the second case the uterus fell again into retroflexion.

2. Fifty-seven cases of partial involution after confinement or miscarriage, without retention of placenta. All cured after twelve days to two months.

3. Twenty-two cases of parametritis, one of which was the width of two fingers below the navel. All healed after two to six months treatment.

4. Nineteen retroversions. Cure in two cases only. As he saw Brandt had very fine results in this class of cases he explained his lack of success by his inexperience in Brandt's technique. He adds that in fifteen of the cases, retroversion was complicated with adhesions and the massage caused by lessening the latter a considerable subjective improvement, in spite of the continued unfavorable position.

5. Eleven cases of weakness in the neck of the bladder after several confinements. Cure in eight cases. Treatment one to four weeks. One case improved. Two cases unchanged.

6. Seven cases of hydrosalpinx. Cure in four cases. The other three unchanged. Two of the latter have been cured by Dr. Vuillet by vaginal puncture.

7. Menorrhagia in twenty-seven cases, nearly all in connection with the climacteric period, in eight cases of which "curettage" was resorted to, but without result. Cure in twenty-three cases after one to three months; two cases improved; two unchanged.

The above statistics are almost a perfect type of all those given by different physicians of their experience with Thure Brandt's method, and my own experience corresponds to this entirely. As for certain retroversions which *quod situm* show results with little encouragement, but, *quod salutem subjectivam* are very satisfactory, they depend, as already above named, most frequently on the drawing together of a scar after inflammation in the tissues between the bladder and uterus, but also not infrequently on a relaxation, a lengthening of the ligamenta Douglassi. To treat these changes of position with pessaries or operations, with medium fixation in the opposite direction, fills, it seems to me, *indicatio causalis* just about as often as a man could fix the "head erect" in torticollis with bandages or "an operation on the other side;" moreover it should be remembered that as Ziegenspeck demonstrated, even the decreased mobility of the uterus is a form of displacement.

It may look very well to be sure, in such a case as retroversion, to make an incision of an inch in length in the abdominal wall, draw up the ligamenta rotunda with sutures and in this way fix the fundus uteri forward; but the fundus does not constitute the whole uterus and it is not certain that the cervix, isthmus and the lower portion of the uterus lie any more normally after such an operation because the fundus does—so much more uncertain, since we know that the ligamenta rotunda signifies little to the uterus in maintaining its position; so little in fact, that they can be loose and sinuous

as the intestines after, for example, repeated confinements and still the uterus will lie anteverted. Turn the fundus as much as you will and let the cicatrice drawing between the bladder and the uterus remain, then the mobility of the organ will be abnormally diminished and will remain.

Statistics show, it is true, that pain ceases after such an operation but how long? Here they most frequently maintain silence. It is comparatively seldom that displacement itself needs to be attacked, just as in case of chills it is not the shivering one must deal with, but as a rule it is the cause to the secondary displacement which must first be treated. A proof of this lies in the fact that many displacements exist without causing the least inconvenience to the patient, and why? Because the cause of the abnormal position of the uterus is too slight to occasion pain, but sufficient to cause displacement. This is why many retroversions do not cease through treatment a la Brandt, because the ligamenta Douglassi, which are important in the normal position of the uterus forward, have become so lengthened and relaxed that they can not be made to resume their elasticity and normal length, but pains and many other symptoms disappear, nevertheless, because the kinesitherapy could take away the *causa morbi*, i. e., infiltrations or cicatrice contractions. On the other hand, it must be confessed, there are displacements which are the direct cause of pain, etc., which cease almost simultaneously on the correction of false position. I recall, for example, a patient in the third month of pregnancy who was relieved of many inconveniences by a replacement of the uterus which was leaning backward, pressing against the promontorium; also another case, a severe dysmenorrhea which suddenly appeared after two and one-half days painless catamenia, and two hours after eating fried pork and cabbage, which caused great indigestion, cramps and pains with augmented abdominal pressure and which tipped over the neutrally lying uterus; this was changed by replacement, i. e., after a return of free circulation.

The causes of displacement are manifold, and their treatment at present, unfortunately, not less varied. If for one reason or other we can not treat them pathogenetically then it must be symptomatically. Then we must have recourse to pessaries or in preference, operative methods; but this must not be the case in and out of season, but with great discrimination, and not as a rule but as an exception. In a gynecologic practice covering nearly fifteen years, I have seldom used pessaries and then when I did not possess full confidence in Thure Brandt's method; since then the pessary has been laid entirely aside.

To exemplify the value of kinesitherapy still further, the following case of dysmenorrhea yet under treatment may be cited:

Mrs. S. A., 27 years old, married three years, without children, was seized with abdominal pains five years ago, followed by severe catamenia, which so increased from time to time, that during the past year or two she has been compelled to lie in bed five days each month, because of "almost unbearable suffering." On examination two weeks after the last menstrual period, which was as usual, excessively painful, the uterus was found somewhat enlarged, hard and tender, with decreased mobility backward, also in a half retroverted position, the left ovary also somewhat enlarged and slightly tender to the touch. No symptoms from the bladder. The patient had, it may be added, been attended two years by a good gynecologist without result. She was now treated with uterine massage and "uterus liftings," also

strong movements leading the blood from the abdomen. Fourteen days after the beginning of the treatment the menses came, perfectly painless, so that the patient only discovered her condition by accident, "scarcely believing her eyes." The treatment has been continued without interruption and will go on until the uterus becomes as free and mobile as desirable.

Next to a sharp instrument there is surely no gynecologic method so effective, so universally available and yet so reliable as kinesietherapy. When one has become master of the method he can not do harm by its use and all who have tested the methods, choosing their cases with discrimination, agree in their opinion that gynecologic kinesietherapy is of the same benefit as massage and medical gymnastics in their place. Yet it is true that all these diseases are not cured by kinesietherapy. In gynecologic practice it has its own great special field, just as the knife, which it should never over-reach. It may be added that kinesietherapy may be used very often with our other gynecologic methods.

If gynecologic kinesietherapy is used only according to its indications and then only when a thorough knowledge of the method shows it to be the surest and swiftest means to the desired end and when it is applied by physicians only, as a rule, who are gynecologists, then it is certain that even the most prejudiced physicians would be convinced of its advantages. One and all who have, after making themselves competent, tested it, gladly coincide with this opinion.

Professor Jentzer's closing words to the above mentioned paper were: "We call upon our colleagues to exert their influence to have this new therapeutic method introduced into the course of instruction at universities;" though I think at present one must "make haste slowly," and be better content with the admonition to gynecologic specialists not to delay acquainting themselves with a method which has been tested in at least 10,000 cases in different countries, and has never yet been known to injure, but instead, it has only improved and most frequently healed the sick.

## EXPERIENCE OF AN AMERICAN PHYSICIAN IN MEXICO.

BY D. H. GALLOWAY, M.D.  
CHICAGO.

In March, 1893, I received the appointment of assistant surgeon in the service of the Mexican Central Railroad. This road extends from El Paso, Texas, to the City of Mexico, a distance of about twelve hundred miles. The main line and branches make about two thousand miles of road operated by this company. Every employe contributes a certain portion of his wages to the support of the medical department. This consists of a chief surgeon, with headquarters at Aguascalientes, and ten assistant surgeons. There are four hospitals—at Chihuahua, Aguascalientes, the City of Mexico and Tampico. An assistant surgeon is assigned to each, and the others are stationed at intervals along the road. Cases that can be moved and that require hospital treatment are sent to the hospital most convenient to the scene of accident. Should patients desire it, they may be treated in their own homes, but in that case the department furnishes only medical and surgical care and medicine. In case of contagious diseases the company furnishes a house, nurse and everything needful.

I went to Aguascalientes, a city of 40,000 inhabitants, about three hundred and fifty miles north of the city of Mexico and twenty-five hundred miles from Chicago. I remained in the hospital there about six weeks and was then ordered to Silao, a city of 20,000 inhabitants, 126 miles farther south.

The difference between Mexico and the United States is, in many ways, very striking, but in nothing more so than in medical, and particularly in surgical, matters. I occasionally met the Mexican doctors in consultation and at operations, and very few made any pretense of keeping an appointment on time. I met—or tried to meet—one doctor by appointment eight or ten times, and on no occasion did he arrive within an hour of the time appointed. On one occasion I completed a small operation, cleaned my instruments and was leaving the house when he arrived. The Mexican, under such circumstances, never expresses surprise or disappointment. He did not appear to think that any apology or explanation was due me for his tardiness or due him for my having proceeded without him. Mexico certainly deserves the name of the Land of "Poco Tiempo" (in a little time—after awhile).

Chloroform is used almost exclusively, and I never heard of a death from its use. They administer it from a little cone which is made of a piece of stiff paper and filled with cotton. This cone is such as the grocer extemporizes in which to dispense a few cents worth of spice, and is three or four inches long and an inch to an inch and a half across the large end. In this way they will use an ounce to an ounce and a half in getting the patient asleep, but the process is so wasteful that the patient gets but little.

In 1839 a law was passed requiring all applicants for the privilege of practicing medicine and surgery, to pass an examination in medicine conducted in the French and Spanish languages. This does not apply to graduates of Mexican medical schools. This law is still enforced in some of the States of the Republic. There are few medical works in Spanish, and, in fact, not many scientific books of any kind in that language. Therefore the schools use books in French. All well educated Mexicans speak French, and just now there is a strong movement toward the study of English. The Spanish language is also deficient in business terms and so it is necessary to draw on the vocabulary of other languages. English is the great source of supply for this purpose. These words must be made to conform to Spanish rules of spelling and pronunciation, and where any change is made in the former it is always an improvement as that must be "fonetic."

But to return to the matter of registration: There is a possibility of becoming registered in some States without the ordeal of an examination. To accomplish this, it is necessary to proceed as follows: A letter must first be obtained from the President of the college issuing the diploma, stating that the applicant is the lawful owner of the diploma presented. This letter, with the diploma, is to be sent to the Secretary of the State Board of Health. He will make a certificate which will state that the college is a regularly chartered medical institution recognized by the State Board of Health, and that certificates are issued to its graduates on the diploma. This certificate is attached to the diploma and it all goes to the Secretary of State of the commonwealth. That individual certifies that the signature to the

previous document is that of the Secretary of the State Board of Health, and that his official statements are entitled to full faith and credit. This is attached to the others and goes to the Governor. He certifies that the accompanying document is signed by the Secretary of State of the commonwealth and that full faith and credit are due his official attestations. The Governor's certificate is added to the collection and it is then taken to the Secretary of State of the United States. This officer certifies that the document hereunto attached is under the seal of the State of —, and is entitled to full faith and credit. You will notice that each man vouches for the *official* statements of the other, and leaves us in doubt as to whether his private statements are entitled to the same faith and credit.

The package of documents is forwarded to the Mexican Legation, and the Envoy Extraordinary and Minister Plenipotentiary of the United States of Mexico in Washington, certifies that the foregoing signature is that of the Secretary of State of the United States, and the seal that of the department of which he is in charge. Each document bears a gold seal, except that of the Secretary of State of the United States, which is provided with a red seal and blue ribbon. Thus reinforced, the diploma is ready to go to Mexico. Thus far there have been no charges except those of the express company which transports it from place to place. In the City of Mexico it is presented—together with \$10.10 in document stamps—to the Secretario de Relaciones Internas. He certifies that the foregoing signature is that of the Mexican Minister in Washington. The next move is to the Governor of the State in which the applicant expects to practice. He will add—or perhaps he will not—his signature to the illustrious list. The next and last call is on the mayor of the city or town, and possibly this call will have to be repeated once a month and a license fee of \$1 or \$2 paid.

The fortunate—or unfortunate—individual who has thus prepared himself to practice medicine and surgery is now ready for a call. Should two of his *clienteles* get into a fight and one of them have his femoral artery cut, the doctor may be called in, in which case he will—if he is law abiding—wait for the arrival of the mayor or his representative. If that officer arrives in time—and it is not likely that he will—the doctor will receive permission to tie the artery. If the patient is dead, that will not be necessary and the doctor will not have soiled his hands or his instruments. There is in Mexico a law which forbids any one—even a surgeon—interfering with an injured person until the arrival of some representative of the civil authorities. There is, however, a special clause in the charter of the railroad company which makes it lawful for the company surgeon to attend to employees of the road without waiting for such formality. Hence the first inquiry the doctor makes, when called to a case, is: "Is this man's name on the pay roll of the company?" If the answer is in the negative, he returns to his office or treats the patient on his own responsibility and at his own peril. This law dates back so far that its origin is lost in the mist of many decades. It is acknowledged by all to be a bad law, but, as the mayor said: "We are here to enforce not to criticise the law." I will say, however, that while I ignored this provision of the law, I was assured by both the Governor and Mayor of immunity from molestation. They stipulated that I should not

move the patient from the position in which he had been found.

The cost of a funeral is not great. If the body is that of an American tramp or an unknown or unclaimed native, the cost of burial will be \$5.75. A coffin will cost \$2.50, a permit to inter in second yard, second class, will be \$1.25, four *cargadores*, for carrying the body to the cemetery, \$2. A more pretentious burial costs about \$31. Coffin \$16, a permit first yard, first class, \$5, and \$8 for a monument on which is inscribed name, age and place of birth. This secures undisturbed possession of the ground for three, five or seven years. At the end of that time the grave-digger will exhume what is left of the skeleton, the larger bones will be gathered together and thrown into a vault prepared for that purpose. The smaller bones will go with the sand and clay to help cover up the next occupant of that spot. In Guanajuato there is a vault which contains the remains of more than one hundred and twenty thousand human beings. The bones are thrown in here through a kind of a chute and then piled up without regard to any order. The pile of bones is 250 feet long, 6½ feet wide and 12 feet high. The entire vault is 450 feet long. Three sides of the cemetery are lined with tiers of vaults, each large enough for one coffin. At the end of five years these are emptied. Sometimes the body is found to be mummified. In this condition the remains of an adult weigh but about ten pounds. A number of these mummies are standing along the wall in the unoccupied portion of the vault. It is said that persons sometimes recognize the remains of friends in this ghastly gathering. By paying \$100, a grave or vault may be secured in perpetuity, but this is not usually done. The scenes in this "Panteon" ought to make a cremationist of every visitor.

Silao is situated at an altitude of nearly six thousand feet and has a magnificent climate. In the shade, the temperature ranges from 70 to 80 degrees F., and at night from 60 to 70 degrees. The rainy season lasts from May to September. During that time it rains nearly every day. The shower usually lasts an hour or less and it immediately clears off. In eighteen months there were but three "cloudy" days. Silao probably has the finest climate in Mexico, though that of Guadalajara is very similar. Drinking water is kept in porous earthenware jars and a good jar will keep the contents about 20 degrees below the temperature of the surrounding atmosphere. I placed a thermometer on the ground in the sun and it registered 127 degrees F.; moving it four inches, into the shade of a building the mercury went down to 81 degrees F., and in a jar of water it dropped to 61 degrees F. This water is more palatable than ice water.

For several years typhus fever has raged all over the table land of Mexico but has now about disappeared. Smallpox is endemic in almost all large towns and cities. The people think but little of it, and it is quite common to see children on the street in all stages of the disease. Malaria is common but ordinarily yields readily to quinine. There are some cases of the pernicious variety. Next to typhus, pneumonia is the most dreaded of diseases. A very large percentage of cases are fatal and that within forty-eight hours.

Doctors are almost never called to attend in childbirth. Midwives look after this, and blindness from

gonorrheal ophthalmia, is common. The poorer classes are indescribably filthy and consequently skin diseases abound. Many of them never bathe. The shoes of these poor people consist of a piece of sole leather fastened to the foot by means of straps. Their heels crack and these cracks sometimes become infested with bedbugs.

Urticaria is common among the Americans here, but they can not be charged with personal uncleanness. Nasal catarrh is all but universal among the Americans. Pulmonary tuberculosis is not common, and I believe this would be an excellent climate for consumptives if sent here before the disease had made too great progress. Chronic bronchitis is unknown and cases arriving are relieved immediately and soon permanently cured.

Venereal diseases are fearfully prevalent. A Chicago firm is doing a rushing business "curing" syphilis in three days at \$150 per cure. They give twenty-five pills which are guaranteed to contain no mercury. The pills are a drastic cathartic and cause emesis and salivation, the latter so copious that the patient lies with his head on the edge of the bed and allows the saliva to run from his mouth into a vessel. The company claim that every "sore" about the genitals is syphilitic, so their marvelous "cures" are readily accounted for. There have been several cases of insanity reported as a result of this treatment.

A great many people have cancer and other tumors, as might be expected when they are so afraid of the surgeon's knife. The Mexicans have a sure cure for cancer. I have never seen it tried. A live toad is cut open and bound upon the tumor. "In three or four days the cancer comes out, roots and all." For brain fever they similarly cut open a pigeon and apply it to the cranium. There are a few cases of leprosy, to which the authorities pay no attention whatever.

The most common injuries to railroad men are the crushing of fingers and hands between the bumpers of freight cars. These wounds almost always suppurate. Injuries to the hands of machinists almost never suppurate. Their hands are covered with grease and oil from the machinery, and if, when injured, they are bound up without washing they will usually heal by first intention.

If there is to be a surgical operation at the home of a Mexican, all the friends and neighbors flock in to see it. That is, as many of them as the size of the room will admit. They consider the operation as a legitimate entertainment. This is sometimes inconvenient on account of the crowding, and at other times rather disagreeable, because they feel it their duty to interfere when they think the performance has gone far enough. It may be necessary to leave the doors open to the street, if this is the only source of light, as is often the case. These people may not be able to read or write or count to ten, yet they assume to dictate when and where and how much a surgeon shall cut. But why not? The Illinois Humane Society insists on being allowed to assume supervision over operations on animals, conducted by educated surgeons, and all the members of this society can, presumably, read and write and count above ten. Surely the former case is not more absurd than the latter. On one occasion three of us were actually attacked by members of a mob and had to defend ourselves with one hand, so to speak, and operate with the other.

There are many hot springs in Mexico. There is one about four miles from Silao, the water of which contains much sulphuretted hydrogen and has a temperature of 120 degrees F. There are bathrooms maintained here and many people go out from Silao to bathe. The bather will remain—I could not—in the water for five or ten minutes, then come out, wrap in a sheet and lie down. In a few minutes profuse sweating begins which lasts ten or fifteen minutes. At Amanjilla are a number of boiling springs. Owing to the altitude, the water boils at 198.5 degrees F. This water seems to be very pure, apparently containing almost nothing in solution. There is a group of hot springs at Aguascalientes, the temperature in the different ones ranging from 84 to 104 degrees F. These, and some still more famous at Santa Rosalie, are believed by the people to have great medicinal properties. There are still others near the City of Mexico. Some of these places will no doubt become famous resorts in the future.

In a country where one may in an hour pass from the temperate climate of a high altitude to a tropical climate at the sea level, some curious effects are noticed. As one goes down the mountains toward the coast, nasal and pharyngeal catarrh immediately disappears. It comes back slowly on returning to the tableland after a few weeks' stay at sea level.

Pneumonia on the coast is not feared and I could not find that it is ever fatal there. Yellow fever remains the year round at Vera Cruz, but is much worse in summer than in winter. The disease does not invade the mountains, but the people believe that it is fatal to remove a patient suffering with the disease to the elevated table land. The lowland fevers are much dreaded by all who live at a high altitude. I am inclined to think that these fevers could be largely, if not entirely, prevented by sterilization of food and water. I think the name, bad air, (malaria), should be changed to bad water. There are comparatively few springs and the drinking water comes from shallow wells, rivers, or even stagnant pools.

Mexico is essentially a volcanic country and there are a great many places affording grand and beautiful scenery. Probably no railroad on this continent affords more magnificent scenery than that to be seen on the Tampico branch of the Mexican Central. No one making a trip to Mexico should fail to see this wonderful panorama. Nature has here thrown up gigantic mountains and then as if ashamed of her roughness has clothed them to their very top with an impenetrable forest of trees and shrubs and vines. Millions of brilliant tropical flowers of a thousand different varieties, enchant the beholder. Any rock too rugged or bare to support a tree or shrub is covered with a smooth mantle of vines. In many places white flowering vines covered the rocks and trees in such abundance as to look, in the gathering twilight, like drifted snow. On one side of the train you may look down almost perpendicularly 1,500 feet to the river, the water of which is as blue as indigo. On the other side, the same distance up to the forest clad mountain tops. Here you may see at a glance coffee, vanilla, bananas, mahogany, rubber, orange, lemon, sugar cane, and an infinite variety of other trees and vines, making a jungle so dense that a man could scarcely penetrate ten feet from the road. If the fevers of this country can be prevented or overcome, one need look no further for paradise. Here the beggar—the most prominent feature of the high



country landscape—disappears and the thief has gone to keep him company. Here the maximum return is to be had for the minimum of labor. Here nature is kind. Here all creatures—except the plasmodium malarie and the mosquito, appear to dwell together in harmony.

## THE IMPORTANCE OF URINALYSIS IN DIAGNOSIS.

BY A. B. WALKER, M.D.

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Elimination of the worn-out products of tissue change and the unappropriated parts of the food takes place from the body in the expired air, skin, feces and urine. The oxidized carbon of the tissues by the lungs and cutaneous surface, the insoluble *débris* of the food excreted by the intestines, while the urine contains essentially the nitrogenous and other soluble products.

The urine containing the watery constituents of the blood, with some dissolved salts, is one of the most important excretions from the body, and with our present knowledge of urinalysis much can be learned by its examination. The changes which this secretion undergoes in health and disease have been studied since the earliest history of medicine. Hippocrates taught the effects of food and drink upon this excretion, its variation in color, odor and transparency, attributing their changes to disease of the urinary organs. Galen simply added to this knowledge the variations of urine in health.

It was not until after the middle of the seventeenth century that any attention was paid to the chemic analysis of this important excretion; prior to that time attention was only given to its physical characteristics, as its appearance, etc.

Cartungo in 1770 was the first to find albumen; Cruikshanks in 1798 pointed out the connection between its presence in urine and dropsy; still the relation of albuminuria to kidney disease was not appreciated until it was proved by Bright in 1827.

Willis discovered sugar, and Rouelle in 1773 urea. To Steele and Wallaston is due the earliest knowledge of the composition of urinary calculi.

Since these important discoveries very many others have been made, as well as the improved modes for examinations. They have also been so simplified that at present every physician and surgeon can have the apparatus and chemicals in his office and make the necessary chemic examination. But when the urine is pathologic, that is, containing albumen, sugar, uric acid and phosphates in excess, or there is found evidence of pus or blood, a careful microscopic examination should be made by one of experience to ascertain the condition of the urinary organs, and, if possible, to determine the origin of the pathologic product.

If physicians and surgeons would avail themselves of this important aid to diagnosis, much more good could be accomplished to their patients, many a life spared and thousands of dollars saved life insurance companies.

As urinalysis requires but a few moments of time, and the results from it are so positive and true, we feel that no opinion of a case of any importance should be given without there having been made a careful examination of the urine.

Many a case of Bright's disease might be prevented, if, when the first symptoms of the disease manifest themselves, a careful examination of the urine be made and the proper treatment and diet prescribed.

Three years ago a young man at the age of 25 years consulted me, when, upon examination, I found evidence of incipient Bright's disease. There was a small amount of albumen in his urine, with some tube casts and epithelium present. His diet had consisted largely of nitrogenous food, as beefsteak and eggs. A change in his diet to a more liberal use of vegetables and fruits, as well as the cereals, with some medicine to regulate his bowels and thereby relieve his over-worked kidneys, has wonderfully improved his condition, and at last examination, about six weeks ago, his urine was free from excess of albumen or any evidence of disease of kidneys.

Many more cases of the kind might be given, as where there is sugar, uric acid or phosphates in excess in the urine, when, if detected early and their cause as far as possible removed, much good could be accomplished, lives prolonged, and cures very often performed.

When pus is suspected to be present in the urine, the specimen should be examined with the microscope, to ascertain which part of the urinary tract it is from, and, with our present knowledge, this can be done, when the proper treatment can be given. We should not make the mistake a noted physician in one of our large cities did quite recently, that of removing a normal kidney from a man who had suffered with pain in his loin, had frequent chills and passed pus with his urine. A *post-mortem* in this case a few days later revealed the fact that he had had a chronic cystitis. Had the urine in this man's case been properly examined, the diagnosis could have been made *ante* instead of *post-mortem*, this man's life spared to his family and the surgeon's reputation in that community preserved.

When the urine is thought to contain blood, the microscope alone will aid us as to its origin. We have a damage case now in our courts of a man who was injured in a railroad wreck, who at times passes urine that looks as though it contained blood. I had it examined by a microscopist, and he claimed it did not contain blood, as there were no blood corpuscles to be found. I sent him another specimen, with the word that he was certainly mistaken, for nothing else would give it such an appearance but blood. As this case had symptoms of having a floating kidney from traumatism, I was very anxious to know where this blood came from and to trace it to his kidney if possible. His second report revealed no blood corpuscles in the specimen of urine, but that the specimen contained hematine in large quantities, which leaves us to infer, with a considerable degree of certainty, that the blood in this case came from his kidney. The action of the urine on the blood evidently destroyed the corpuscles, leaving the hematine in solution, when if it had been from the bladder or urethra, the blood corpuscles would have been present.

In every case where ether is to be given as an anesthetic, a careful examination of the urine should first be made to determine the condition of the kidneys, when if they show the least symptom of disease, it should not be given, for it is known to exert an unfavorable influence upon them. Many cases of transitory albuminuria are noticed after



ether has been administered, proving that it does affect the kidneys. Then when the kidneys are in an advanced stage of disease, the ether is likely to cause a congestion of the organs and thereby prevent the elimination of urine, when death will surely be the result.

The following case made a lasting impression on my mind—that of a young lady, who had a large ovarian cyst, that I was called by another physician to remove last April, and as there were no symptoms whatever of disease of her kidneys a urinalysis was not made. The operation was quickly done, requiring but a few moments. She took the ether as an anesthetic nicely and came out of its influence in a very short time. Four hours later, about two ounces of urine was drawn from her bladder, which was the last and only urine secreted by her. A *post-mortem* examination two days later revealed both her kidneys in an advanced stage of Bright's disease. The small part of the kidneys that had the appearance of having been physiologic before the operation, was in a highly congested condition. A urinalysis in this case would have undoubtedly shown a large amount of albumen, tube, casts, etc.

I am surprised that all life insurance companies do not require an examination of the urine, even for their small risks. I believe the time is not far distant when they will see the necessity and demand it in all cases. Only last February, one of our local physicians examined and passed a man for one thousand dollars (\$1,000) where a urinalysis was not required, who was in an advanced stage of Bright's disease of the kidneys. At time of examination his urine contained over 30 per cent. of albumen. Six months later this man died from the effects of Bright's disease.

A simple chemic urinalysis would have saved the company this risk, and the physician the embarrassment of having passed such a subject.

45 W. Tuscarawas Street.

# ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Continued from page 84.)

## CHAPTER III.

*Case 2.*—Yellow fever: high temperature, 106.5 degrees in axilla; suppression of urine; black vomit; recovery; treatment, ice water injections to rectum; application of ice to epigastrium; sulpho-carbolate of sodium internally. Dominick Polmisano; age 18; native of Italy. Has resided in New Orleans six years; residence St Anne Street near levee. Black hair, black eyes, dark complexion. Had a slight chill, followed by pain in the head and back and fever. Oct. 14, 1873. Entered Charity Hospital, October 16, at 4:30 P.M. At this time the patient had high fever; hot skin; face very red with great capillary congestion of the surface generally. Capillaries of conjunctivæ, greatly congested and of a yellowish tinge. Body emits an offensive smell. Breath very offensive. Tongue red at tip and edge and coated with light yellow fur shading into brown in the center and root of the tongue. Gums very red. Patient complains greatly of severe pains in heart, epigastrium, lumbar region and lower extremities. At 8 P.M., pulse 106; respiration 28; temperature of axilla 104 degrees.

R. Potassii bromid . . . . . ʒij  
Liquid ammonia acetates . . . . . fʒiv.  
Mix: Tablespoonful every four hours.

October 17, 8 A.M., pulse 100; respiration 28; temperature of axilla 106.5 degrees. Patient restless; complains of intense pain in the head, back, epigastrium and extremities. Nausea. Great congestion of capillaries of face and extremities. Skin presents the appearance of a purplish and scarlet rash. Conjunctiva injected and jaundiced. Tenderness upon pressure over epigastrium. Tip and edges of tongue red, coated in center; gums red. Has passed no urine since entering the hospital; when the catheter was introduced, only one fluid ounce of urine was drawn off, which upon chemic and microscopic examination was found to be loaded with albumen and bile, and casts of the tubuli uriniferi and excretory cells of the kidneys. To control the nausea, an ice bag was placed over the epigastrium. For the suppression of the urine, ice cold water was thrown up the rectum in large quantities. The injections of ice water had the desired effect, and caused the excretion and evacuation of a considerable amount of urine, which was heavily loaded with albumen and granular casts. In order to prevent septic changes in the black vomit if it should be formed, I ordered the following:

R. Sodii, sulpho carbolate . . . . . ʒi

Divide into three parts, one part (20 grains) dissolved in water, every three hours. Brandy and carbonic acid water. Ice and milk, internally in small quantities at regular intervals. Small fragments of ice to be held in the mouth.

At 8 P.M., condition unchanged; jaundice and nausea and restlessness increasing; urinary excretion very scarce. Urine contains albumen, bile and granular casts and cells of tubuli uriniferi. Pulse 98; respiration 26; temperature of axilla 104.1 degrees. Continued ice bag to epigastrium; ice water enema; sodium sulpho-carbolate; iced milk and brandy diluted with carbonic acid water.

October 18, 4 A.M., the patient has begun to throw up black vomit. Continued to eject black vomit at short intervals quite freely until 8:30 A.M. The sulpho-carbolate of sodium appears to have exerted some beneficial effect, as the black vomit is of a brighter color than usual and contains coagula of blood.<sup>50</sup> At 8 A.M., pulse 82; respiration 28; temperature of axilla 102.1 degrees. The supervention of black vomit has been attended by a reduction of the temperature. Great congestion of peripheral capillaries. Jaundice; gums red; tip and edges of tongue very red, center and body of tongue coated with yellow and brownish-yellow fur. Blood oozed from tongue and gums. A small quantity, about half a fluid ounce, of urine drawn off by catheter. Urine loaded with albumen, casts and excretory cells; also contains bile. Patient delirious and very restless. A strong man was ordered to sit by his bed, to keep him as quiet as possible and carefully covered, and to prevent him from rising and getting out of bed.

R. Sodii sulpho-carbolate . . . . . ʒij.

Divide into six powders; one powder every three hours. Inject one pint of ice-cold water into the rectum, at intervals of four hours, until the kidneys act freely. Apply ice-bag to epigastrium. Apply sinapisms to back of neck and lumbar region over seat of kidneys. Administer at regular intervals of two hours, alternately, small quantities of brandy largely diluted with water charged with carbonic acid, and iced milk. Fragments of ice to be placed in the mouth. The brandy and carbonic acid water appeared to increase the nausea and vomiting, and were accordingly discontinued; the sodium sulpho-carbolate, on the other hand, appeared to quiet the stomach, and during the day the black vomit ceased and the patient enjoyed several hours of refreshing sleep. At 6 P.M., pulse 80; respiration 24; temperature of axilla 102 degrees. Patient in much the same condition but not so restless. The injections into the rectum of the ice-cold water were followed by a pretty free evacuation of high-colored albuminous urine. Black vomit has ceased but nausea still continues. Hemorrhage from the tongue and gums still continues. Continue treatment.

October 19. Condition of patient still alarming; great congestion of capillaries; the face presents a deep mottled purplish appearance; hemorrhage from gums and tongue. No return of black vomit. Kidneys excreting urine more freely. Pulse 94; respiration 24; temperature in axilla 100 degrees. Continue sulpho-carbolate of sodium, 20 grains every three hours; also ice-water injected occasionally if kidneys do not act freely. Iced milk at regular intervals; also small quantities of borax and water charged with car-

<sup>50</sup> These results appeared also to be due to the local application of ice to the epigastrium, and the injection of ice-cold water into the rectum, which not only controlled the nausea, but also reduced the excessive temperature.

bonic acid. At 7 A.M., patient apparently improving; intellect clearer; black vomit has ceased; nausea relieved; capillary congestion less; jaundice not so marked. The ice-water enema caused a free discharge of high-colored albuminous urine. Pulse 76; respiration 20; temperature of axilla 100.5 degrees. Continue sulpho-carbolate of sodium, ice-water enema, iced milk and brandy and carbonic acid water; re-apply ice-bag to epigastrium; nourishment of the patient has up to the present time been confined chiefly to iced milk.

October 20, 8 A.M., patient decidedly better; vomiting has ceased; no nausea; free secretion of urine; capillary congestion disappearing and jaundice less intense; pulse 68; respiration 18; temperature 99.5. From this date the improvement of this patient was steady, and on October 22 the capillary congestion had almost entirely disappeared and the coloration of the skin was far less intense. Patient complains that he does not get enough to eat; says that he feels "bully," and putting his hand on his epigastrium says that his "belly is hungry, and cries all the time for something to eat." Continued to improve and was discharged. The following is the record illustrating the relations of the pulse, respiration and temperature in this case:

Date.	Pulse.		Resp.		Temp.		REMARKS.
1873	M.	E.	M.	E.	M.	E.	
Oct. 16		106		28	104	104	Fever.
" 17	100	98	28	26	106.5	104.1	Jaundice, capillary congestion, albumen and casts in urine.
" 18	82	80	28	24	102.1	102	Urinary suppression, black vomit, hemorrhage from gums.
" 19	94	76	24	20	100	100.5	Black vomit, less urine, scant hemorrhage from gums.
" 20	68	70	18	24	99.5	100.1	Vomiting arrested, urine more abundant.
" 21	66	64	20	22	100	100	Improving, hungry, urine abundant.
" 22	62	60	20	19	99	99.8	Continues to improve.
" 23	62	66	20	24	98.9	99.4	Convalescent, sitting up, cheerful, bright expression of eyes.

The restoration to health was rapid and complete.

Case 3.—Yellow fever; sudden rise of temperature; treatment, sulpho-carbolate of sodium and quinin; recovery. Wm. H. Williams; native of New Orleans; age 26. Entered Charity Hospital, Ward 27, on the night of Nov. 8, 1873. Patient states that he has been at work for some two months near the city on dredge boat, cleaning out a canal. On the previous day had a chill, followed by high fever and delirium, and in this condition was brought to the hospital. The patient was ordered tablespoonful of the liq. ammoniac acetates, every three hours. November 9, patient is more rational and complains of intense pain in the supraorbital region, along the spinal column and in the thighs and knees. Conjunctiva of eyes congested. Considerable capillary congestion of surface with marked jaundice. Gums red, inflamed and bleeding; tongue red at tip and edges, furred and fissured in center and bleeding. Body emits a disagreeable odor. M., pulse 84; respiration 30; temperature 98.5 degrees. Ordered 20 grains of the sulpho-carbolate of sodium, every three hours. Evening, patient in much the same condition but restless. Temperature 100.5 degrees; pulse 96; respiration 27.

November 10, urine scanty and loaded with albumen and casts of tubuli uriniferi. Pulse 80; respiration 30; temperature 101 degrees. Ordered continuance of sulpho-carbolate of sodium; also ice-water injections into the rectum. Evening, pulse 144; respiration 40; temperature of axilla 106 degrees. Urine scanty and loaded with albumen; high fever; vomiting. I was unable to account for this sudden rise in the temperature.

November 11, fever has subsided and the patient appears to be much better. M., pulse 96; respiration 36; temperature 98 degrees. Evening, pulse 93; respiration 30; temperature 98.5 degrees. Ordered 10 grains of quinin every three hours. Continue sulpho-carbolate of sodium, 20 grains every four hours. Milk punch and whisky diluted with carbonic acid water.

November 12, pulse 96; respiration 36; temperature 98 degrees. Evening, pulse 108; respiration 34; temperature 99 degrees.

November 13, M., temperature 101 degrees; pulse 78; respiration 24. Evening, temperature 99.5; pulse 78; respiration 24.

November 14, patient improving. M., temperature 97.5 degrees; pulse 69; respiration 21. Evening, temperature 97 degrees; pulse 63; respiration 20. Continue quinin 5 grains three times daily, also sulpho-carbolate of sodium.

November 15, M., pulse 60; respiration 18; temperature

96.5 degrees. Evening, pulse 60; respiration 20; temperature 97 degrees.

November 16, patient improving rapidly; albumen has disappeared from the urine. Temperature 98 degrees; pulse 60; respiration 22. Continued to improve. Discharged December 12.

Case 4.—Yellow fever; high temperature, 106.5; jaundice; slow pulse; treated with sulpho-carbolate of sodium, 20 grains every four to six hours; sulphate of quinia; ice-water injections and brandy diluted with carbonic acid water and iced milk. Recovered. Tully Brown; stout strong man; large muscles; brown hair; dark eyes. Has been in America five years. Has been working on the Mississippi River during the past year; occupation laborer. Patient states that he was seized with a chill Oct. 25, 1873, at 9 P.M. The chill and fever returned October 26 and 27. Admitted into Charity Hospital, Ward 24, Oct. 29, 1873. The following is the record of the pulse, respiration and temperature:

Date.	Pulse.		Resp.		Temp.		REMARKS.
	M.	E.	M.	E.	M.	E.	
1873							
Oct. 29	88	96	20	28	106.2	106.2	Some pain in head and back; skin hot and pungent; peripheral blood vessels congested; conjunctiva congested; bowels constipated; tongue red at tip and edges, and coated with brown fur in center; R. Quinia sulph. 9i; divide into two parts, one every three hours.
" 30	52	90	20	28	100.5	104.2	The quinin, 20 grains, appears to have reduced temp. and frequency of pulse, but not permanently; patient sweating profusely and general appearance improved; tongue less red and coated. Continued quinin; chill at 10.30 A.M.
" 31	78	92	25	26	106.5	105	Urine scant and loaded with albumen and casts, restless, complains of pain in head and back; jaundice; nausea; slept but little during night; quinin; sulph. carb. of sodium and ice-cold enema to bowels; R. Quinia sulph. 3iiss; pulv. rhel. 9i; divide into three parts; one every three hours.
Nov. 1	74	78	24	28	101.5	102.5	Patient no better; not so restless; urine less abundant; ice-water enema appears to have been beneficial; less nausea; skin yellow; capillary congestion of extremities; albumen and casts in urine; continued sulpho-carb. of sodium; urine suppressed; complains of pain in abdomen; repeated ice-water enema.
" 2	76	76	24	24	101.8	101.8	Restless; pain in head and abdomen; urine albuminous but more abundant; continued sulph. carb. of sodium.
" 3	84	72	24	22	102	102	Dull countenance; slept but little during past three nights; bowels constipated; urine scant; jaundice; capillaries congested; quinia and sulpho-carb. of sodium.
" 4	59	70	18	20	100	98.5	Improving; urine more abundant; ice-cold enema appears to have been beneficial.
" 5	64	56	22	20	99.8	98.8	Slept well during night; in profuse perspiration; albumen diminishing in urine, which is more abundant.
" 6	62	58	18	20	100	98.8	Albumen disappeared from urine; continues to improve; passed about 32 fluid ounces urine in last 12 hours.
" 7	62	58	18	20	100.5	99.5	Countenance more natural; improving.
" 8	60	58	20	20	99.8	99.8	Tongue moist and clearing off; appetite good; rests well; skin moist; steady improvement.
" 9	60	54	25	18	100.2	99.5	Improving.
" 10	62	66	20	18	98.8	100	Convalescent.
" 11	60	62	18	20	99.5	99.8	
" 12	64	60	16	16	99.8	99.5	
" 13	62	76	20	20	100	98.8	
" 14	60	58	17	20	99.8	99.8	Discharged November 15.

Case 5.—Yellow fever; jaundice and slow pulse; urinary suppression relieved by ice-water injections; sulph-carbolate of sodium internally. Adolph Kammer; age 21, native of Sweden, has been in America six years, in St. Louis, from which place he came to New Orleans. Resided at 153 Levee Street, near the French Market. Had been in New Orleans one week, when he was attacked with fever. Entered Charity Hospital, Oct. 1, 1873, Ward 13, on second day of disease. Tongue red at tip and edges, and furred in the center; gums red; conjunctiva congested; skin hot and dry; patient restless and complains of intense pain in the head and back. The following is an outline of this case:

Date.	Pulse.		Resp.		Temp.		REMARKS.
	M.	E.	M.	E.	M.	E.	
1873							
Nov. 2	84	82	32	43	104.5°	105°	Skin hot and dry; slight jaundice; gums congested; tongue dry and swollen; kidneys acting imperfectly. Although temp. in evening reached 106°, pulse was only 82.
" 3	86	96	32	34	102°	102.5°	Passed a small quantity of urine by the catheter; urine loaded with albumen and contained many yellow granular casts; resp. rapid and irregular, and patient appears in great danger; ice-water injections per rectum appeared to do good; caused excretion of some urine; in evening complained of pain in epigastrium, which was relieved by ice bag to epigastm.
" 4	72	70	28	36	101.5°	102°	During night hemorrh. from gums; passed urine quite freely towards morning; urine dark colored and loaded with albumen and bile; on 3d patient was placed on sulpho-carb. of sodium, 20 gra. every 4 or 6 hours; milk punch, brandy and beef tea and fragments of ice in the mouth.
" 5	54	48	26	24	98.5°	101°	During 4th perspired freely and appeared to be improving; became much more quiet; aedative water to the surface appeared to quiet him greatly; on 5th passes urine freely, looks more cheerful and is improving; jaundice well marked but less.
" 6	52	50	26	22	98.3°	98°	Passed a very comfortable night; jaundice disappearing; urine abundant; still contains albumen, but amount is diminishing.
" 7	46	50	22	24	97.5°	98.5°	Sitting up; all pain has disappeared; complains of nothing but a cough, which at times annoys him; appetite good; sleep quiet and refreshing; jaundice disappearing.
" 8	45	54	22	23	97.7°	98°	During coughing spat up some dark blood; as there was no congestion of lungs and no rise of temperature, the blood was supposed to have come from mouth and throat. Albumen disappeared from urine.
" 9	52	50	26	27	97.8°	98°	Is up and walking in ward. Continues to improve.
" 10	48	48	20	19	98°	98.2°	Continues to improve.
" 11	52	52	26	24	98°	98.7°	Jaundice disappearing rapidly, very slight tinge in skin and traces of yellow in eyes.
" 12	54	52	24	24	98°	98.2°	Gains strength rapidly.
" 13	52	46	26	24	98°	98.2°	Discharged from hospital Oct. 17.

**Case 6.**—Yellow fever; jaundice; urinary suppression; delirium; treatment, ice-cold injections; sulph-carbolate of sodium; urinary excretion reëstablished; recovery. John Pflum; age 26; native of St. Louis; laborer. Entered Charity Hospital, Ward 25, Oct. 1, 1873. Had a chill succeeded by high fever and pain in head and back. The following observations were made:

Date.	Pulse.		Resp.		Temp.		REMARKS.
	M.	E.	M.	E.	M.	E.	
1873							
Oct. 20	78	74	28	26	104.5°	104.5°	Pain in head and back; nausea; tongue red at tip and edge; coated in center; conjunctiva congested; gums red and swollen; face flushed; capillaries of face, chest and extremities congested; high fever; intense thirst; passes very little urine and with great effort; iced milk and ice in mouth.
" 21	72	76	24	26	102°	103°	Bowels constipated; passes urine with great difficulty and experiences much pain in micturition. Pain in head, lumbar region and lower extremities, nausea and vomiting; tongue very red at tip and edges and coated in center; gums swollen and very red; mind heavy and confused; urine scant, albuminous. Ice water injections and sulpho-carb. of sodium.
" 22	66	72	22	24	101.1°	103°	Gums red, swollen and congested; tongue softer and not so red; urine contains albumen and casts; shows acid reaction; conjunctiva and surface yellow; nervous, restless. Ice water injections and sulpho-carb. of sodium.
" 23	66	70	23	24	100°	100°	Improving; not so nervous; tongue clearing; urine albuminous, but more abundant. Continue sulpho-carb. of sodium, ordered also sulphate of quinia.

" 24	64	70	24	22	100.1°	101.1°	Continues to improve; urine albuminous with casts but more abundant; has some appetite; patient still very weak; continue quinia and sulpho-carb. of sodium.
" 25	62	62	22	20	99.3°	101°	Improving. Sulpho-carb. of sodium continued; 20 grains every eight hours, as before.
" 26	64	60	23	23	99.1°	99.7°	Improving; continue sulpho-carb. of sodium; tongue clearing off; skin clearing off; hungry.
" 27	60	59	22	18	97°	98.5°	Improving; although the urine is still loaded with albumen and casts; urine much more abundant and returns to normal standard; and sat up during the day.
" 28	60	56	18	20	97.6°	98°	Continues to improve; albumen disappears from urine.
" 29	60	76	18	24	98°	98.6°	Tongue clear and very near normal in appearance; urine abundant; is up and dressed.
" 30	60	62	18	24	98.8°	100.5°	Bowels regular; urine abundant; patient says that he feels well; walks about the ward.
" 31	60	60	18	28	99.1°	100°	Patient expresses himself as feeling well.
Nov. 1	68	68	20	20	99.5°	99.5°	Discharged in good condition November 10.

It is of interest to note that on October 22 the injections of ice-cold water were ordered and repeated three times. After the third injection, the patient passed quite a considerable amount of urine and fell into a refreshing sleep. The sulpho-carbolate of sodium, 10 grains every two hours, appeared to relieve the nausea. The patient slept well during the night and was able to drink a cup of milk and another of beef tea.

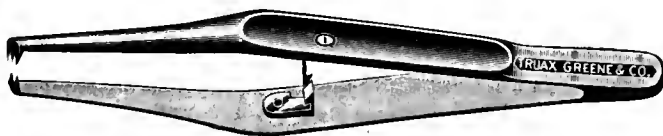
(To be continued.)

## THE AUTOMATIC TISSUE FORCEPS.

BY EMANUEL J. SENN, M.D.

CHICAGO.

The automatic tissue forceps which I have devised, will be found to be an instrument of great utility in operative work and also one of precision. It is made of English steel, and consists of two blades which terminate in teeth. Midway between the extremities of the blades is the catch, which locks and unlocks automatically, synchronously with the grasp or release of tissues.



The instrument is operated with the thumb and index finger of the left hand with the same ease as in the use of the ordinary tissue forceps. Pressure sufficient simply to pick up the tissues is all the force required to lock the blades. This is at a minimum, as the blades possess great elasticity and consequently accommodate themselves to the "bite" of tissue, whether large or small.

To disengage the blades and release the grip, simply give them another gentle squeeze, when the catch unlocks.

This forceps possesses several advantages. In tedious dissecting, the thumb and index finger do not become fatigued, as the case with the ordinary forceps. During an operation, if the hands are necessary to manipulate some other instrument meantime, the forceps can be dropped with its "bite" of tissue intact and ready for subsequent dissection. The mind of the operator or assistant does not have to be con-

stantly concentrated on the instrument in order to insure its hold, the catch fulfilling that office.

The instrument was manufactured for me by Messrs. Chas. Truax, Greene & Co., Chicago.

## SOCIETY PROCEEDINGS.

### Chicago Pathological Society.

*Regular Monthly Meeting, Nov. 11, 1894.*

RANDOLPH N. HALL, President, in the chair.

DR. J. B. HERRICK reported a case of

#### GRAVE ANEMIA.

for which no other cause could be assigned than a severe nervous shock following an injury to the spine. The patient was a woman, 63 years of age, always in good health up to one year ago, leading an active busy life. There was no hereditary taint; no history or evidence of syphilis. In November, 1893, she fell to the sidewalk, hurting her back and left side; she walked home, but almost immediately after this injury became weak, physically and mentally. The legs began to bloat; she easily became dizzy, had fainting spells, was unable to walk for any great distance; became pale. Notwithstanding this, the appetite remained good. The bowels were somewhat constipated. She was admitted to the Presbyterian Hospital. Her complaint of vague pains, of weakness of the arms and legs, of mental deterioration, for all of which she assigned the injury as the efficient cause, coupled with the fact that there could be discovered no evidences of organic lesion to account for such phenomena, and also with the fact that she referred often to a \$2,000 accident insurance claim which she had placed in the hands of a lawyer for collection, led to a suspicion of exaggeration of symptoms, as in traumatic neurosis or railway spine, if not to a suspicion of malingering. The increasing pallor of the skin led later to an investigation of the blood and a more thorough examination of the patient.

The skin was yellowish-white, dry; panniculus adiposus scanty; patient talked slowly; moved hands and legs slowly; seemed weak, unable to walk or stand unsupported; complained of dizziness on being put in the erect posture. Numerous retinal hemorrhages in either eye. Lungs negative; systolic hemic murmur over heart; systolic hum over vessels of the neck; abdomen flabby; stomach resonance apparently increased in extent; stomach when inflated with air apparently enlarged; lower extremities, rectum, pelvic organs, bones, negative. Stomach contents show no free hydrochloric acid, no mucus, no remains of previous meal. There was no vomiting; no disturbance of nervous system. Urine 1012, acid; no albumin, no sugar, no formed elements; amount from thirty to fifty ounces; solids, 660 grains. Blood pale; marked poikilocytosis, microcytes and macrocytes, a few normoblasts, and megaloblasts; leucocytes relatively increased, particularly the lymphocytes. Red corpuscles 666,666; hemoglobin (Fleischl) 25 per cent. Temperature varying during two months of observation from subnormal to 102 degrees. Diagnosis: Pernicious anemia; cause, probably nervous shock consequent upon injury. Atrophy of stomach not positively excluded. Dilatation of the stomach believed to be due to atonic condition of muscular wall consequent upon severe anemia. Dr. Herrick recalled two cases of nervous disease, one a case of cerebral hemorrhage with aphasia and hemiplegia, one a case of sunstroke with marked cerebral symptoms, in which profound and fatal anemia had resulted. He also cited cases reported by others, as, for instance, Curtin, Musser, Schüle, Brigidi, Pokrowski, and others, in which profound—and in many instances fatal—anemia had followed organic disease of the nervous system, or in some instances

severe mental strain or shock. The patient had recently been put upon Fowler's solution, and later developments would, it was hoped, clear up one or two very interesting but as yet misty points. The report had been made perhaps a little prematurely, yet the occasion seemed so peculiarly fitting when other cases of diseases of the blood were to be brought to the attention of the Society, that he had ventured to bring the case thus early to the attention of the members.

VIDA A. LATHAM, F.R.M.S., D.D.S., presented a

#### REPORT OF A CASE OF LEUKEMIA.

Mrs. X., age 52; nativity, Welsh; occupation, housewife. Previous history: Patient has been married for a number of years; has had no children. The family lived in easy circumstances. The patient said she had malaria (?) at school during childhood, and it was prevalent where she lived in the State of Ohio. Duration of illness: General malaise and indifferent bad feelings for one year; she only noticed the enlargement of abdomen three months previous to her death. Clinical signs and symptoms. Night sweats with some temperature of slight degree, usually below 100 degrees, only once rising to 103 degrees. The kidneys were not affected, neither were the liver nor lymphatic glands enlarged.

The bones were not tender or painful. Emaciation was marked, as was the pallor of the face and skin. Some ascites and edema occurred shortly before death. The apex beat was displaced upward. The diaphragm was pushed upward.

The spleen was hard, and extended to within two inches of the right anterior iliac spine, about on a level with it, also across the hypogastric, umbilical and left inguinal regions, the notch of the spleen being about two inches to the left of the umbilicus at its level. There was a marked bulging between the left twelfth rib and the iliac crest and complete dullness on percussion in the left lumbar region posteriorly. There was obstruction of the intestines at one time, but her main symptoms were due to pressure—constipation, dyspnea and pain. This patient lived in the lowest part of A—, where the soil is always wet and drainage poor. During all her sickness—over a year—the street was dug up, for the building of a very deep outlying sewer. There were no other similar cases known. The blood which I examined through the kindness of Dr. Mary J. Kearsley, was spread on covers and examined by various methods, using dry air, fixing by heating on a copper plate, bichlorid of mercury, ether and absolute alcohol, chloroform, and staining in alcoholic eosin, counterstaining with methyl blue, methyl green, Rieder's method of eosin carbol glycerin and Delafield's hematoxylin, Czenzynski's stain, Ehrlich's hematoxylin and eosin, Ehrlich's Biondi triple stain, etc. The following forms were met with: Lymphocytes, especially the polynuclear kind, myelocytes, many with neutrophile granules, eosinophiles and very large mononuclear leucocytes. The red blood cells were paler than normal and variable in size. The proportions were one leucocyte to seventeen red blood cells.

About a month afterwards, I made another examination at the bedside with Dr. Kearsley. The blood with Gower's hemocytometer gave the red cells as 2,000,000 per centimeter or .40 of the normal, taking in each examination 1:600 as the normal blood ratio between red cells and leucocytes.

Hemoglobin with Fleischl's hemometer 18 per cent., taking 85 per cent. as the normal estimate.

The blood was very pale, but greasy, resembling marrow in the way it spread when trying to make the films. Cultures were also made, and round colonies of streptococci



which grew best on glycerin gelatin-agar were obtained. One tube of glycerin agar gave a streaked growth of a grayish-white color, covers from which showed a minute bacillus. The further study was prevented unfortunately through the patient falling into the hands of a quack who suggested an operation as offering a cure. The patient was removed to a private hospital in spite of the family physician's advice, and soon after her arrival the rectal anus was dilated and the patient died in a few hours from uncontrollable hemorrhage of the bowels.

Dr. E. H. TIXEN read a

#### REPORT OF CASES OF LEUKEMIA AND PERNICIOUS ANEMIA.

In the following reports I have to thank Dr. Jas. B. Herrick for valuable suggestions, Dr. E. R. LeCount for aid in the pathologic work, and Dr. D. D. Bishop for excellent instruction:

*Case 1. Leukemia.*—M. K., age 43, female, married. Born in Ireland and lived there until five years ago and since then has lived in America. Menstruated at 16 and was perfectly normal until six months ago, since when it has been absent. Had children's diseases when small. Denies venereal history. Was married at 31; had a miscarriage at third month of pregnancy without any known cause. There was no subsequent pregnancy. Father died at 50 years of age, of some acute illness. Mother died at 30 years of age in confinement. One brother is living and 40 years of age. No brother or sister dead.

*Present Illness.*—Ten months ago was attacked with a sharp and quite severe pain in the left iliac region which persisted for three days, then disappeared only to return again in three weeks. For last two months has been free from pain. During past three weeks, feet and legs have been swollen. She complains only of weakness. There is no pain, vomiting, nausea or fever. Bowels are regular.

*Physical Examination.*—A woman of slight stature, fair complexion, marked paleness of visible mucous membranes and finger nails. Tongue slightly coated. Eyes and ears negative; pulse 166; temperature 102.2; respiration 24. Chest, lungs and heart negative. Liver dullness extends from fifth rib in nipple line to one inch below costal arch. Tenderness over the sternum. Abdomen: There is marked prominence of the left lumbar and epigastric regions. A mass can be felt occupying these regions, its anterior border extending in a curvilinear direction from the eleventh rib downward to the umbilicus, encroaching on the hypogastrium. Over this mass there is dullness, extending to the inferior angle of the left scapula posteriorly. A coarse friction sound is heard over the upper part of the dull area. Vaginal examination revealed nothing of interest. The feet and legs are edematous.

*Urinalysis.*—Specific gravity, 1015; no albumen, no sugar; microscopically negative.

One month later, July 20, 1894, an examination of the blood showed 50 per cent. hemoglobin. An increase in the white corpuscles was noted, but no count made. On Sept. 5 1894, the blood was examined and gave hemoglobin 40 per cent.; red corpuscles 1,650,000 per cmm.; white corpuscles 184,000 per cmm.

*Stained Blood Preparations.*—Cover-glass smears were fixed by heat, absolute alcohol and ether, absolute alcohol, and corrosive sublimate, and then stained by means of solutions of eosin, methylene-blue, dahlia, safranin and Ehrlich's Biondi triple stain. As regards the red cells, there was a variety of sizes varying from normal to twice the normal size. They assumed a variety of shapes—poikilocytosis. There were nucleated red cells of the normal size (normoblasts), and larger ones (megablasts), and many contained more than one nucleus. Free nuclei were seen, having escaped from

the corpuscles and at first appearing as leucocytes. There were a few polychromatophilics. The differential count of the white corpuscles gave small mononuclears 2 per cent., large mononuclears 7 per cent., polynuclear neutrophils 50 per cent., eosinophiles 5 per cent., and myelocytes 36 per cent.

On Sept. 26, 1894, a systolic murmur was detected over the base of the heart to the left of the sternum. On Oct. 11, 1894, the blood examination gave hemoglobin 30 per cent.; red corpuscles 1,134,000 per cmm.; white corpuscles 644,000 per cmm. On Oct. 12, 1894, she rapidly became worse and died at 7 P.M. At no time after admission did she have a temperature above 101.4 F. by mouth.

#### NECROPSY.

Twenty hours after death. Emaciation quite marked. Heart was negative as to valves and walls. Its auricles contained large light chocolate-colored clots. Lungs were negative except an area of broncho-pneumonia in the right middle lobe. There were firm adhesions about the spleen and liver; liver weighed 3,650 grams. Its section was through a fairly resistant though friable tissue; its lobules were indistinct having dark centers and light peripheries. Bile passages were patent. The kidneys together weighed 350 grams. There was a small infarct in the right one, but otherwise they were negative. The spleen weighed 1,850 grams, and measured 23x11x13x10x7 cms. There was a scar on the right lower border (4x2½ cm.) limited to the capsule. Over the upper and posterior part was a yellow area of depressed tissue measuring 10x5 cms. On section it was seen to extend into the spleen a distance of three cm. There was a similar but smaller area on the anterior aspect of the organ. These areas on section had the appearance of cream cheese. Otherwise the section of the organ was uniformly grayish-red. The bone marrow was pale and the bone soft.

*Microscopic Examination.*—Tissues were hardened in alcohol, imbedded in celloidin, and the sections were stained with hematoxylin and eosin, also with eosin and methylene blue. Pancreas: Great excess of leucocytes in vessels, none in the tissues. Liver has an alveolated appearance, the network composed of rows of liver cells, the meshes of capillaries in a state of extreme dilatation. The relation of liver cells to capillaries is as 1 to 2. All the capillaries and smaller vessels are completely filled with leucocytes, no red cells or remains of red cells being seen. There is pigmentation of liver cells with brown pigment, also there are hemosiderine granules about the central veins. The liver cells show degenerative changes to a small extent, staining markedly with eosin, and cells being seen with well stained, faintly stained and unstained nuclei. In areas there is marked compression of liver cells, the rows of cells being no thicker than sixteen micromillimeters and lying between dilated capillaries. The portal sheath connective tissue and vessel walls are invaded by leucocytes which stain deeply with hematoxylin. Kidneys: There is a slight brown pigmentation of under layer of capsule. The glomeruli fill the capsules, as a rule, and contain an excess of nuclear elements. This excess is apparently due to small irregular darkly staining cells. In the capillaries there is a condition corresponding to that in the liver, the tubules being compressed and rarely possessing a lumen. There are a few degenerative changes in the epithelium of the convoluted tubules. There is also an excess of leucocytes in the larger vessels, and some of the medium-sized vessels are filled to distension with leucocytes. There are no leucocytes in the collecting tubules. Excess of connective tissue in the pyramids in the shape of hyaline intertubular framework is noticed. Spleen: There is an increase of the connective tissue confined mostly to the finer network. The capsule is



thickened and just beneath it the tissue contains brown pigment. Malpighian bodies are few and smaller than normal. There is almost an entire absence of red blood corpuscles. There is a small amount of golden brown pigment in the form of granules lying in the connective tissue framework and at times in the spaces or in the cells.

**Lungs:** There are areas of tissue where the spaces are entirely filled with darkly staining cells, other areas in which the lung structure has entirely disappeared, and in still others the alveolar walls can be seen. Between such areas there are regions of compressed and deformed alveoli, filled with a faintly staining granular substance. In the areas of consolidation the cells are large and show no signs of fragmentation or degeneration. In the areas where alveolar walls still remain, the alveolar contents are mostly polynuclear leucocytes with here and there in the peripheries large cells with a single nucleus. The alveoli with granular contents show heavier walls than usual, due to the dilated capillaries. Bronchioles when seen are filled with granular homogeneous material in which are large numbers of leucocytes.

**Heart muscle:** It presents a peculiar appearance due to rows of nuclei separating the muscle fibers. The muscle fibers are compressed by dilated capillaries. Poor staining of the muscle is marked and general. In many places there are alternate rows of muscle fibers and leucocytes, frequently the row of fibers is only one or two fibers wide.

*Case 2. Leukemia.*—W. T., age 19; male; teamster. Father died of "paralysis," otherwise family history is negative. Venereal history denied. Uses alcohol moderately. One month ago he received an injury to his right leg, which was followed by suppuration. An incision was made and there is still an open wound. Four days before admission had an attack of diarrhea and vomiting. Has no pain. Has shortness of breath and palpitation of the heart.

**Physical Examination.**—Body is emaciated, conjunctivæ injected, tongue slightly coated and moist, lips and gums pale. Chest: Lungs are negative. The heart is very slightly enlarged and a blowing systolic murmur is heard just to the left of the sternum in the third interspace which is not transmitted. Abdomen: The liver dullness extends in the mammillary line from the sixth rib to one inch below costal arch. Spleen is easily palpable, extending forward to left parasternal line at the costal arch and below one inch below the umbilicus. A small notch is felt in its anterior border. It is moved by posterior pressure. No enlarged glands; no tenderness over bones. Blood examination gave red corpuscles 3,064,000 per cmm., white corpuscles 848,000 per cmm. The hemoglobin was not estimated. The differential count of the white corpuscles gave small mononuclears 3 per cent., large mononuclears 8 per cent., polynuclear neutrophils 60 per cent., eosinophiles 6 per cent., and myelocytes 23 per cent.

A few days later he left the hospital and passed from observation.

*Case 3. Leukemia.*—H. H., age 37; male; farmer; admitted Nov. 1, 1894. Family history good. Born and raised on a farm in Wisconsin. Does not use alcohol or tobacco. Venereal history denied. Had typhoid fever twelve years ago, pneumonia three years ago. One year ago was kicked in ribs over spleen. Present illness: For some time he has complained of weakness and inability to endure heat. Three weeks ago was attacked with headache, weakness, and sensation of fever sufficient to cause him to stay in bed. A few days later he noticed a swelling in the abdomen, and a yellowness of the skin. He now complains of shortness of breath at times and palpitation of the heart. He has had no hemorrhages.

**Physical Examination.**—Body fairly well nourished; con-

junctivæ slightly yellowish; tongue pale and coated. Skin has a yellowish tint and on cheeks are several petechiæ. Heart, not enlarged. A blowing systolic murmur heard equally well in all areas and not transmitted. Lungs were negative. Spleen, extends from eighth rib at inferior angle of the scapula to the median line in front and one inch above the umbilicus, with a distinct notch just above the umbilicus. Liver extends from sixth rib to one inch below costal arch in mammillary line. All the lymphatic glands are enlarged, the post-cervical exhibiting the enlargement to the greatest degree.

**Blood Examination** shows hemoglobin 20 per cent., red corpuscles 1,050,000 per cmm.; white corpuscles 108,324 per cmm. The differential count of the leucocytes gives small mononuclear 3 per cent., large mononuclear 8 per cent., polynuclear neutrophils 64 per cent., eosinophiles 6 per cent., and myelocytes 19 per cent.

He left the hospital in a short time and further study became impossible.

*Case 4. Pernicious Anemia.*—M. O., age 50; female, single; Admitted Oct. 23, 1893. Mother died of stomach trouble. Several of the family suffered from rheumatism. Menstruated at 16, and was always regular until present attack when they stopped. Does not use alcohol. Venereal history denied. Has had no previous illness. Present illness: Four months before admission she suffered from headache, pain in the epigastrium especially following the ingestion of food, anorexia, vomiting, diarrhea, edema of the legs, feet and eyelids.

**Physical Examination.**—Nourishment is poor; skin a waxy color; tongue moist; all visible mucous membranes pale. Lungs are negative. Heart. Area of dullness is increased; apex beat is two inches below nipple in nipple line. A murmur, systolic in time, is heard at the apex and transmitted to the left axilla. Liver dullness begins in fourth interspace and extends to border of costal arch. There is tenderness in the epigastrium. Feet and legs are edematous. Pulse 104, temperature 99.4, respiration 20.

**Urinalysis.**—Dark and cloudy, specific gravity 1027; considerable albumen. No casts found. A little later granular casts were found. During the year from admission until Oct. 1, 1894, her symptoms were those resulting from her nephritis, but they improved with the improvement in the renal condition. The latter part of the year, albumen and casts were absent, except for a short time before death when a trace of albumen was present. During the year there was considerable trouble referred to the stomach, especially after eating.

**Physical Examination** on Oct. 16, 1894: Lungs negative. Heart, the apex is in the fifth interspace in the anterior axillary line. Liver dullness extends a little below costal border. There is extreme tenderness in the region of the gall bladder also in the epigastrium. Spleen is not palpable. Eyes: Retina is pale, otherwise negative. Gastric contents after test breakfast revealed no hydrochloric acid, very slow digestion, great excess of mucus.

**Urinalysis.**—Twenty-four hour specimen—clear, specific gravity 1010, slight trace of albumen, no casts, total solids, 297 grains.

**Examination of Blood** shows hemoglobin 30 per cent., red corpuscles 738,000 per cmm., white corpuscles 8,000 per cmm.

In stained preparations were noted well marked poikilocytosis, and large and small nucleated red corpuscles. There was a slight increase in the white corpuscles.

The patient gradually grew weaker and died Nov. 7, 1894.

#### NECROPSY.

Peritoneal, pleural and pericardial cavities filled with a transparent yellowish fluid. There is slight hypertrophy of left ventricle and a little thickening of the aortic

valves at their bases and of the mitral valves at their free margins. The lungs were negative. The liver weighs 1900 grms. and the surface is granular at its edges. The cut surface is granular, the lobules having pale centers and dark peripheries. There are no large bands of connective tissue. Gall passages are patent.

*The Spleen* is slightly enlarged, its cut surface being mottled from the presence of perceptible whitish Malpighian bodies. The kidneys showed marked atrophy of the cortex with some yellowish streaks, the glomeruli not being visible.

*The Stomach* has no rugæ, the level of the mucous membrane is below that of the esophagus, and is very thin.

*The Intestines* were negative. There was injection of the internal layer of the dura mater, and a covering of fibrinous exudate. There was atrophy of the cerebral convolutions. The general muscles were very pale and flabby.

The microscopic examination is left for a later report.

#### DISCUSSION.

DR. I. N. DANFORTH—I can add nothing to what I have stated in a paper which has been published lately with reference to pernicious anemia. I will say, however, that I am experimenting on the treatment of pernicious anemia, or rather anemia of various types, in my wards in St. Luke's Hospital, and hope by-and-by to report the results, but for the present I have said everything I know in the paper already published. I have been greatly interested in the papers tonight, and as the papers by these younger men were being read I was thinking how we have moved along in the past ten years. It is about ten years ago when this Society met in my parlors, about half a dozen of us, to bury the Society, to hold a funeral service over it, but instead of doing that they elected me President, and from that time the Society began to flourish as several of the members rallied around me, and it has now grown to be this large and flourishing body. The papers read tonight evidence the growth of the Society and it is very pleasant indeed to me to meet these younger men, to see how they are pushing things along and to listen to these learned and exhaustive papers on leukemia and the anemias. The writers of the papers did not say anything about the presence or absence of the plasmodium of malaria. I suppose that the blood was examined for that; if not, I should regard it as rather an oversight and would suggest that it be done, because I believe it to be a very important factor in the diagnosis. But the most important thing in practice is the treatment of these anemic cases.

DR. G. F. BUTLER—The pathology and diagnosis of this disease has been thoroughly discussed, and as the natural bent of my mind is towards the therapeutic side of the case I will only discuss the therapy. From recent literature I have read on the subject of pernicious anemia and leukemia, it is evident to my mind that bone marrow now leads the procession in the medicaments for pernicious anemia. Whenever a new remedy is announced, the agent is applied to the treatment of disease and a verdict often rendered which gives an erroneous impression as to its true value. The first formulas are often given forth by physicians who are more enthusiastic than logical and more sensational than exact. So numerous are the fallacies of experiment and clinical experience that the painstaking therapist must read carefully the testimony in all of these cases, and examine with the same jealous care into the efficiency of the new remedy as the old. We all know that a true understanding of the therapeutic art must be upon an exact etiology and pathology, but at the same time a great many empirical facts are well founded upon professional experience and these well established facts should not be overlooked. I am therefore not prepared to disparage bone marrow as a remedy in pernicious anemia, but I would ask, Is the curative

value of bone marrow a well established fact in the treatment of pernicious anemia, and indeed I would ask if there is anything in the recent literature on the treatment of pernicious anemia or of leukemia that is new? In every case I have read about, arsenic has been given in conjunction with bone marrow. We know that arsenic has been a valued remedy in the treatment of anemia for many years and there are many recorded cases of recovery under its use. Is it not quite possible that these reported cases of recovery have been due as much to the arsenic as the bone marrow, and even more? When a genuine case of pernicious anemia continues to rapidly improve upon bone marrow alone, then I will be ready to class it as a valuable remedy in this disease; when bone marrow has to its credit as large a number of recoveries as arsenic, then I will be ready to accord to it the virtues claimed for it by its enthusiastic supporters. Since bone marrow has struck Chicago there have been more cases of pernicious anemia reported than ever before in its history. I have found, not in my own practice, but by information from other doctors, a number of cases of anemia this last week, which some have claimed were pernicious, that have rapidly improved under the administration of bone marrow, and arsenic with iron on the side. I have had quite a number of cases of simple anemia and chlorosis that improved upon a mixture of the three chlorids of mercury, iron and arsenic, with codliver oil, and it seems to me if I had given kumyss with the other remedies I might have boomed that in connection with this disease. I am inclined to think that kumyss is as good a remedy as bone marrow. It is nutritious, easily digested and an intestinal antiseptic, and if given in connection with arsenic and good hygienic treatment it is a combination which will prove as useful as bone marrow and arsenic. I think thus far there has not been a case treated by bone marrow alone, at least I have not learned of any, and I am inclined to think that this remedy is perhaps of very little more value in the treatment of this disease than the so-called animal extracts which have been recently introduced. These extracts, given with the view of curing disease, appear to me to be about as sensible as to attempt to increase the weight and fiber of a tree by manuring it with fresh sawdust. I think bone marrow nothing more than a nutrient fat and it possesses no more advantage than cream or codliver oil. It seems preposterous to me, even admitting for the sake of argument that the structural disturbance of the bone marrow is the origin of the disease, that by eating calves' or hog's marrow it will escape the gastro-intestinal ferments and penetrate the bone substance and make good rich blood. On the supposition that the spleen is the seat of the formation of the red blood corpuscles, I would not be surprised to see calves' spleens given in whisky and glycerin. In conclusion, I would say that with arsenic, the best remedy we have to-day, we often fail because we do not push it to the limit. In my opinion it should be given in medium doses of Fowler's solution and should be increased in half drop doses until decided symptoms of arsenical poisoning appear, then the administration should be stopped for a time. Combined with a laxative we may continue to give this valuable drug with decided benefit in some cases.

DR. D. R. BROWER—I desire to say a word in emphasis of a point made in the paper of Dr. Herrick. This point I would emphasize, as it is of vast importance; that is, the factor of mental disturbance, of shock. The last case of pernicious anemia I saw, was a young woman from Wisconsin. A shock was the beginning of the disease. She was in a railway carriage and was severely shaken up, but with no particular marks of injury that could be found at the time. Then her health began to fail and six or eight months after the accident she came here, when a diagnosis of pernicious anemia

was made, and like all the others, she passed to the other side. I have never yet seen a case of pernicious anemia recover, even after protracted doses of arsenic, or with other treatment. Cases of ordinary anemia that are so common, are frequently the result of shock and mental disturbance. I saw a case last spring in which Fleischl's hemometer gave 20 per cent. of hemoglobin. It was a young man who was troubled about his examinations soon to occur, and his blood deteriorated until it made a record of 20 per cent. There was nothing else but his intense mental worry and excitement and feeling of apprehension. The point I wished to make was to emphasize Dr. Herrick's suggestion of shock and mental disturbance having very much to do with the causation of many of these cases.

DR. H. N. MOYER—I was, fortunately for myself, invited by Dr. Herrick to see his very interesting case and I had the privilege of going over with him very carefully the clinical history and making an examination of the nervous functions. It was to me a case of rare interest because it was the first one I had seen of so grave an anemia apparently associated with nervous shock. The literature of the subject while in a way meager, in another way is comparatively rich; the older writers contain many references to anemia of a nervous origin, *marasmus nervosa*, it was termed, and they seemed to recognize very clearly the etiology factor in many of these cases. These older observations have not the value they would have, if the present method of examining the blood had been in vogue. As to the relation in Dr. Herrick's case, between the disease and injury, as he has pointed out in his paper, all other things are not excluded and they probably can not be unless the patient should die. Regarding the treatment of pernicious anemia which has been mentioned, I would not agree with Dr. Butler as to the inefficiency of bone marrow. I do not think it has been demonstrated and I do not think that one can *ex cathedra* say it will not be of benefit. He says that extracts of tissues, the spinal cord, muscles, heart and other parts have failed. That is true, but it is not true of all extracts; there have been extracts of glands used that have proved to be of great value. I think the value of the thyroid extract in the treatment of myxœdema is established without doubt, and it is possible that in bone marrow we have a structure analogous to glandular structure, a secretion of cells going on which is of great therapeutic value. I agree heartily that arsenic is one of the very best remedies to employ in these anemias, particularly the forms that result secondarily to some trouble with the nervous system. But the method I have employed is the use of arsenic under the skin. It is very much less toxic than when given by the mouth and enormous doses can be used in this way in absolute safety. It is my common practice to give an initial tory injection with an equivalent of 22 minims of Fowler's solution, and I frequently reach an equivalent of 75 and in some cases 100 minims, 1 grain of arsenite of potassium in a single dose, without toxic symptoms. These large doses of arsenic act more efficiently than when given by the mouth. The liver has a strong elective affinity for arsenic and it is absorbed through the alimentary canal with great difficulty. The toxic action expends itself almost wholly upon the stomach and upper end of the intestine. The hypodermic use of arsenic acts the same as injections of mercury in specific disease; it is distributed immediately to all parts of the system by the circulation. I have estimated the toxicity of arsenic to be five or ten times less when administered under the skin than when given by the mouth. The arsenite of sodium is free from any objection; it never causes the least sign of irritation. Fowler's solution can not be used in this way as it almost invariably causes an irritation and very frequently an abscess, but the arsenite of sodium may

be injected, so far as local symptoms are concerned, with the same impunity as water.

DR. E. R. LECOUNT—With reference to the specimens of Dr. Tinen, I have to say that the heart muscle in the case of leukemia, presented a very peculiar appearance under the microscope. I did not see it in the fresh specimen. The heart muscle fibers were marked out by the leucocytic invasion of the capillaries between the fibers, very much as the capillaries in the liver were filled with leucocytes dividing the rows of cells. Although I had seen microscopic specimens of cases of leukemia before, this condition of the heart muscle was the most extensive and remarkable I have seen. In the case of pernicious anemia there was a distinct atrophy of the mucous membrane of the stomach. This could be easily demonstrated by taking a portion of the mucous membrane and spreading it with the peritoneal surface down upon the hand, and lightly moving the mucous membrane on the deeper layers, it being united to the deeper layers by a loose submucous tissue which allows ready motion. It could thus be seen that there was nothing there but a thin membrane making up the mucous coat.

DR. F. J. DEWEY—In connection with Dr. Herrick's paper and the influence of nervous shock in anemia, I recall a case I have under treatment at present, a young lady stenographer who works in one of the courts. Whether this anemia is pernicious or not, I am not able to say, but that the excitement of her occupation has a great deal to do with her condition I have no doubt. She is taking testimony from different lawyers and it must be absolutely correct and she must be able to read it at a moment's notice during a controversy. After she has had a most exciting time in court she always gets worse. She exhibits all the characteristic symptoms which have been brought out in the papers tonight, and it occurred to me, while Dr. Herrick was reading his paper that this nervous excitement was the cause of her trouble.

DR. J. M. PATTON—In connection with the etiology of pernicious anemia, Dr. Herrick mentions one case where sunstroke was supposed to have been the cause. Last summer I had under my care for a short time a woman 58 years of age who had always been in perfect health, had always had a good home, with every comfort and the most hygienic surroundings. She had never had any nervous troubles or shocks that could be found out, with one exception. Three years ago she suffered from sunstroke while in California. Last summer she came here to attend the World's Fair and shortly after her arrival she came under my care for hemorrhage from the gums. She stated at that time that she had not been very well for two years. She had a bad appetite, a good deal of gastric distress, the skin was of a light lemon color, the conjunctiva was pale and slightly injected, the retina looked normal. She had no trouble with the sight and beyond the gastric disturbance and trouble with the gums she knew of nothing from which she suffered. About a week after that she had a severe hemorrhage from the nose. These hemorrhages continued several days and the anemic condition seemed to be rapidly advancing. An examination of the blood at that time showed a very marked decrease in the number of red corpuscles and also of the hemoglobin. She gradually grew worse and died about three weeks after coming under my care. I mention this case because of the almost complete history of a number of years with absolutely nothing that could affect her in any way except this sunstroke.

DR. E. A. TINEN—I have to say that malaria was excluded from the four cases reported. The case of glandular leukemia had a history of injury over the spine. Taken in connection with Dr. Herrick's case it seems worth while to take note of that.

DR. J. B. HERRICK—It seems evident from the discussion that there is no clinical distinction between cases of primary and secondary anemia and chlorosis. Many of the cases of anemia that recover could not be called pernicious. There is a great distinction between chlorosis and pernicious anemia, that was merely hinted at in the paper, but in the examination of the blood no one should hesitate to recognize a case of chlorosis. Chlorosis is first of all a reduction in hemoglobin. Some patients are very pale, suffer from syncope and from most marked palpitation. Some who are dizzy and incapacitated for work may have a normal number of red blood corpuscles or the reduction be very slight as compared to the enormous reduction in the hemoglobin. In a case I saw about four years ago there were 34,500,000 red blood corpuscles and only 20 per cent. of hemoglobin, an enormous reduction. That was a case of chlorosis. In pernicious anemia, on the contrary, the marked reduction is in the number of red blood corpuscles; sometimes we find one or two million, and even less than one million; in one case it was 143,000. Many cases are reported where there is less than half a million red blood corpuscles found, but the proportion of hemoglobin is great. In the case I reported there was 13 per cent. of red blood corpuscles and 25 per cent. of hemoglobin. If it was a case of chlorosis there would probably be 25 per cent. of red blood corpuscles and 13 per cent. of hemoglobin. So I think many cases of anemia that recover can not be set down as pernicious unless a careful examination has been made. Chlorosis will recover with proper hygiene, the administration of arsenic and iron; anemia, secondary to some gastric disturbance may recover; anemia secondary to renal disturbance may recover, at least temporarily, but a clinical distinction should be made between cases of pernicious anemia and chlorosis, and ordinary secondary anemia. Recoveries from pernicious anemia seem to me to warrant us in excluding that term, "pernicious," which practically implies fatality. It is unquestionably true that there are cases which, after a careful examination are found to be clinically perfect as primary essential anemias, recover. Osler, out of twenty cases, has had two recoveries, the patients living ten or fifteen years. Some of Osler's cases which apparently recovered, died four or five years afterward, so that a fatal result may come from a relapse.

DR. V. A. LATHAM—In the cases of leukemia I have seen, both in this country and in England, most of them had a malarial history. In the case reported to-night the plasmodium was carefully looked for but not found. In some recent researches I was looking over, I was rather astonished to note the rarity of leukemia. In some statistics gathered by prominent German and English authorities there was only 1 case in 60,000.

DR. D. D. BISHOP, Chicago, read a paper on

#### STAINED BLOOD PREPARATIONS.

In a routine examination of the blood as performed in the hospitals to which the laboratory staff of Rush Medical College has access, the following observations are always made:

1. A count of the number of red and white blood corpuscles per cubic millimeter.

2. An estimation of the percentage of hemoglobin present.

3. A cover-slip preparation of fresh blood is examined concerning the following possible conditions:

(a). Apparent changes in the color of the red blood corpuscles.

(b). Changes in the size of the red blood corpuscles, noting whether there be present corpuscles much smaller than normal, microcytes, or those larger than normal, macrocytes.

(c). Changes in the form of the red corpuscles, poikilocytes.

(d). The presence or absence of Laveran's organisms of malaria.

(e). A number of spread cover-slips are then taken and preserved for subsequent examination by the color-test as recommended by Ehrlich.

The Thoma-Zeiss blood counting apparatus is used in estimating the corpuscles; with this the red corpuscles are easily counted and with almost absolute accuracy. The limit of error with careful observers being placed at 2,000 a cubic millimeter. If there be leucocytosis, the white corpuscles may be counted in the same manner as the colored, but if the leucocytes be few, Toison's solution may be used as a diluent in place of the salt solution ordinarily used. By this means the nuclei of the leucocytes will be stained blue and may be easily separated from the red corpuscles. Again a  $\frac{1}{2}$  per cent. acetic acid solution may replace the salt solution when the red corpuscles will be destroyed and only the leucocytes remain.

Ehrlich's color test has attracted much attention of late years, for by its use a great deal has been added to the knowledge of the histology and pathology of the blood. In making this test the following methods are pursued:

The skin of the finger tip or the lobe of the ear is well washed with sterilized water, and pricked with a needle or fine lancet. The first few drops of blood are wiped away and a small drop as soon as it has escaped from the puncture is received upon a perfectly clean cover-slip held in forceps. Another slip, also held in forceps, is dropped immediately upon the first one so that the drop of blood may spread out in a thin layer between the two. They are then quickly but carefully separated by a sliding motion without pulling them asunder, and allowed to dry in the air. No delay should occur in the manipulations lest the corpuscles become crenated. Before staining, the dry slips must be fixed, by which means the corpuscles are firmly glued to the glass and the hemoglobin rendered unabsorbable by the dyes. Fixing is best done by Ehrlich's method, the slips being heated upon a copper bar to 120 degrees C., for one to two hours. Another easily applied and quite satisfactory method is to place them in either absolute alcohol alone or absolute alcohol and sulphuric ether, equal parts, for from one-half to twelve hours. The staining process: Ehrlich has divided the dyes used into three varieties, "acid," "basic," and "neutral." An acid dye is one in which the acid portion of the compound is the active principle in the staining process, an example being eosin, while a basic dye is one in which the basic side is more active, as methylene blue. A neutral dye is one formed by mixing previously prepared solutions of acid and basic dyes with the acid slightly in excess; an example being a mixture of acid fuchsine and hematoxylin solutions. In general, a basic dye stains nuclei while an acid dye stains the cell body. We shall see, however, that certain granulations found in the protoplasm of the cell body of leucocytes act in a definite manner toward the different dyes, and upon this the classification of leucocytes as given us by Ehrlich is based. The study of the varieties of leucocytes furnishes the greatest fascination of any part of this work, for by this classification there is spread out before the clinician a field from which much has been added to the more careful diagnosis of disease.

Fixed specimens of blood may be stained for five minutes or longer in a fairly strong, aqueous solution of eosin, washed, dried between two layers of filter paper, and again stained for three to five minutes in a concentrated aqueous solution of methylene blue, washed, dried as before, mounted in Canada balsam and examined with a one-twelfth oil immersion lens. In such a specimen a very interesting picture will be seen. Of the leucocytes one sees the following:

1. Small leucocytes, a little smaller or a little larger than



a normal red corpuscle with a spherical nucleus nearly filling the cell and staining deeply with the "basic" dye. Some of these show only a slight rim of protoplasm about the nucleus, while others show quite an appreciable amount which may or may not be slightly tinged with the red "acid" dye. These, Ehrlich has called the small mononuclear leucocytes or lymphocytes. They form about 15 to 20 per cent. of all leucocytes in normal blood.

2. Leucocytes considerably larger than the last, also having a roundish, oval or ovoid nucleus, which stains fairly well with the "basic" dyes and shows a relatively well developed rim of protoplasm about the border. These he called the large mononuclear leucocytes.

3. Leucocytes, much like the last but showing an indentation in one border of the nucleus. Ehrlich believed these were in transition stage from the last variety to the polymorphous nucleus of the next, hence spoken of as transition forms. Forms 2 and 3 constituting 6 to 7 per cent. of all.

4. Leucocytes, somewhat smaller than the largest mononuclears, with a polyform nucleus, staining lightly with the basic dyes, while the fine granules in the protoplasmic body of the cell will be lightly tinged with the "acid" dye. These were called the polynuclear leucocytes and because the protoplasmic granules stained well with the "neutral" dyes they are spoken of as having neutrophilic granulations. They are often called neutrophils. The term, polynuclear, is misleading as it implies the presence of many nuclei in each corpuscle. This is not true as all leucocytes have but one nucleus. It is more proper to speak of them as leucocytes with polymorphous nuclei. These constitute 70 to 75 per cent. of all.

5. Leucocytes with polymorphous nuclei staining quite well with "basic" dyes and showing large rounded or ovoid granules in the protoplasm that stain dark red with "acid" (eosin) dyes, hence called eosinophiles. These granules always stain with the "acid" dyes and with no others. The eosinophiles constitute about 5 per cent. of all. Five different granulations behaving differently toward dyes have been described by Ehrlich, but as only three are found in human blood these only will be considered.

The eosinophilic or A—granulation is found only in the eosinophiles; the neutrophilic or E—granulation found in the majority of polynuclear leucocytes, and the B—granulation. The last is applied to those granules staining only with the "basic" dyes—basophilic. Such are found in the "mastzellen" of normal bone marrow.

The red blood corpuscles will be colored light red by the acid dyes and the blood platelets will also appear in small groups tinged with the same stain. If one uses the triple stain of Biondi-Ehrlich which contains orange G, methyl-green and acid fuchsin he may get the effect produced by an acid, basic, and neutral dye at one and the same time. For such work one may employ the stain prepared by Grübler in the powdered form and use a saturated solution in water 6 parts, alcohol 1 part, and glycerin  $\frac{1}{2}$  part. This should be left in contact with the specimen three to ten minutes, washed, dried and mounted in balsam. Here one finds the red corpuscles yellow from the orange G, the nuclei of the leucocytes, the nucleated red corpuscles green from the methyl-green, and the neutrophilic granulations violet. The eosinophilic granulations will be stained a dark red.

So much for the normal blood. As to the relations of these varieties to each other, and their origin, there are two views. Ehrlich, on the one hand, claims that the small mononuclear forms are derived from the lymph glands and have no developmental relation to the other forms, while the large mononuclears and polynuclears are derived from the spleen and bone marrow. The eosinophiles also having their ori-

gin in the bone marrow. He believes that from the large mononuclear forms the transitional and polynuclear leucocytes are developed. The polynuclears, he says, are the only variety that possess amoeboid movements, are oftenest found remote from the vessels, that they divide by karyokinesis, and perhaps by amitosis as well. This differs from the view held by Virchow that all other varieties are developed from the lymphocytes. Ouskow has lately supported this view, he having found upon examination of fresh juices from the blood forming organs, small mononuclear elements in not only the lymph glands but in the bone marrow. He believes karyokinesis occurs in the lymphocytes and continues up to the polynuclears, after which it can no longer occur. The tendency to-day is to accept this mode of development. Ouskow classifies the leucocytes as young, ripe and over-ripe forms corresponding respectively to Ehrlich's lymphocytes, large mononuclears, and polynuclears. If one examines stained smear preparations of bone marrow blood he finds several cells not seen in the circulating normal blood. These do appear, however, in certain diseases, in the circulation.

1. Of the red corpuscles one sees nucleated corpuscles of normal size, Ehrlich's normoblasts, again corpuscles considerably larger and nucleated, the megaloblasts of Ehrlich and Hayem. Their nuclei stain deeply with the basic dyes. These elements appear in the blood of pernicious anemia, the secondary grave anemias and leukemia. They are generally considered as rapidly developing young forms.

2. Large cells with a rounded or ovoid single fairly-staining nucleus, about the size of the large mononuclear leucocytes, but containing neutrophilic granulations—the myelocytes. These are of very infrequent occurrence in normal blood but are present in spleno-myelogenous leukemia.

3. The "mastzellen," much like the large mononuclear leucocytes, but showing coarse "basophilic" granulations in the protoplasm, are seen in bone marrow blood and in the circulating blood of spleno-myelogenous leukemia.

The application of the color test has been found of great service in determining the different varieties of the so-called blood diseases. It is only natural to expect that other important aids to diagnosis will be established as further accurate observations proceed. Already some important facts relative to the varieties of leucocytosis found in the different specific fevers have been discovered by the able researches of Ouskow and Khetagurow and confirmed by Thayer and others. The blood of several cases of malaria has been lately exhaustively studied by Billings, of Johns Hopkins Hospital, who has pointed out some very interesting and important facts relative to the leucocytes in that disease. It is to be hoped that we shall yet learn the true etiology of those diseases in which there are such profound blood changes, now so mysterious.

## Proceedings of the First Meeting of the American Academy of Railway Surgeons.

*Held at the Grand Pacific Hotel, Chicago, Ill., Nov. 9 and 10, 1894.*

*(Continued from page 94.)*

THIRD SESSION, FRIDAY, NOVEMBER 9, 8 P.M.

DR. H. J. MAYNARD in the chair.

The Committee on Constitution and By-Laws, through its chairman, Dr. C. K. Cole, made the following report, which was adopted at Chicago, Nov. 9, 1894:

## CONSTITUTION AND BY-LAWS OF THE AMERICAN ACADEMY OF RAILWAY SURGEONS.

### NAME.

1.—The name of this organization shall be the American Academy of Railway Surgeons.

### OBJECTS.

2.—The objects of the Academy shall be the improvement



and advancement of Railway Surgery by means of the study of the subject in general, and especially by the study and investigation of clinical, medico-legal and sanitary matters relating thereto; by the reading and discussion of papers in convention, and the cultivation of closer fraternal relations among those actively engaged in this special work.

#### MEMBERSHIP.

3.—The members of this organization shall be known as Fellows, and shall be divided into two classes, namely, Active and Honorary. The list of Active Fellows shall be limited to two hundred (200) Railway Surgeons, and shall be restricted to those in actual service as such at the time of their election.

No Fellow shall continue as an Active Fellow after having severed his connection with a railway company, but he may become an Honorary Fellow by a vote of the Academy as herein provided. Honorary Fellows shall have the same privileges as Active Fellows, excepting the right to vote, hold office and participate in the Executive Sessions.

The list of Honorary Fellows shall at no time exceed one hundred (100) and shall be composed of such surgeons and physicians, as may be elected at any regular meeting by a two-thirds ( $\frac{2}{3}$ ) vote of the Academy, provided that after the year of 1894 not more than five (5) Honorary Fellows shall be elected at any annual meeting.

#### PENALTIES.

4.—Upon a sufficient showing that a Fellow has been wilfully guilty of gross violation of the laws governing the Academy, or any form of professional misconduct, the Executive Board may recommend that his resignation be requested, or move his suspension or expulsion. A majority vote of the Fellows present, at an Executive Session, being necessary to fix the penalty.

#### OFFICERS.

5.—The officers of the Academy shall consist of: A President; two Vice-Presidents; a Secretary; a Treasurer; an Editor; an Executive Board of seven (7) including the President, the Secretary and the Treasurer, who shall be *ex-officio* members thereof.

#### ELECTIONS.

6.—Applications for Fellowship shall be made in writing to the Executive Board signed by three (3) Active Fellows who are personally acquainted with the candidate. Upon a favorable report by the Executive Board a ballot shall be ordered, when if not more than three (3) negative votes appear, the candidate shall be declared elected.

The officers of the Academy shall be elected on the last day of each annual session by ballot; a majority vote of the Fellows present being necessary to a choice.

#### MEETINGS.

7.—The annual session of the Academy shall be held at such time and place as shall be designated by a majority vote at the previous annual session; and each session shall continue for three (3) days, unless otherwise ordered by the Academy.

An executive session for the transaction of business shall be held on the morning of the first day of each session, none but active Fellows of the Academy being present.

#### BY-LAWS AND RULES OF ORDER.

1.—The President shall preside at all regular meetings of the Academy, sign all official documents, and perform the ordinary duties appertaining to his office. In his absence one of the Vice-Presidents shall occupy the chair in the order of seniority; or if both of them are absent, by a Fellow elected by the Academy.

The Secretary shall keep a correct record of the proceedings of the Academy, give notice of the time and place of all meetings, receive the signatures of Fellows, sign official

documents and take charge of all property of the Academy not otherwise provided for.

The Treasurer shall receive all money paid into the Academy and disburse it upon the authorized order of the President and Secretary. He shall make a full report, and his accounts shall be audited by a select committee appointed for that purpose at each annual session.

The duties of the Editor shall be those ordinarily pertaining to such an office. He shall edit all the papers and discussions, and see that they are published as directed by the Academy. He shall act as a member of the Publication Committee, consult with said Committee regarding the publication or exclusion of any paper or discussion submitted to him for publication, and assist in securing papers for each annual meeting and the proper arrangement of the same on the program, and such other duties as may be assigned him by the Committee on Publication.

#### EXECUTIVE BOARD.

2.—At the annual session of the Academy in 1894, four Fellows of the Executive Board shall be elected; one to serve one year, one to serve two years, one to serve three years and one to serve four years; at each annual session thereafter one member of the Executive Board shall be elected to serve four years. The functions of the Executive Board shall be both judicial and executive; it shall have the general supervision of the affairs of the Academy; it shall recommend candidates for membership in the Academy, and it alone shall have the power of moving their expulsion or suspension for any alleged offense against the Constitution or By-Laws. It shall act as a Committee on Credentials, hold any necessary meetings in the interval between sessions, and its action shall be deemed the action of the Academy unless reversed by that body.

#### COMMITTEES.

3.—Committee on Transportation. At each annual session the President shall appoint a Committee on Transportation consisting of three (3) Fellows. It shall be the duty of this Committee, as far as possible, to arrange with the various railway companies for the transportation of the Fellows of the Academy to and from the annual session. They shall cause the publication of a list of railways granting transportation, and other necessary information.

Committee on Publication. The President, Secretary, Treasurer and Editor shall constitute a Committee on Publication to which shall be referred all papers, reports and other matter suitable for publication by the Academy.

Committee of Arrangements. A Committee of Arrangements, consisting of three (3) Fellows, shall be appointed by the President at each annual session, the Chairman of which shall reside in the place where the next annual session is to be held. This Committee shall confer with the Committee on Publication in the preparation of the program for the next annual session, a copy of which shall always be sent to each Fellow at least one month before the opening of the session; and shall make all necessary preparation for the meeting of the Academy.

#### SCIENTIFIC WORK.

4.—The scientific work of the Academy shall be divided into: 1, surgical; 2, medico-legal; 3, sanitary.

All papers and reports of discussion shall become the exclusive property of the Academy, subject to such disposition as shall be ordered by the Committee on Publication.

#### MEMBERSHIP FEE.

5.—The admission fee shall be five dollars (\$5), to be paid when the application is made. Should the applicant fail of election this fee shall be returned to him.

#### DUES.

6.—The annual dues shall be five dollars (\$5) payable on or before the last day of the annual meeting. Neglect or

failure on the part of any Fellow to pay his dues shall forfeit his right to vote or receive the perquisites of the Academy, until his dues are paid, and the failure to pay his dues after the annual meeting shall forfeit his Fellowship.

#### QUORUM.

7.—Any number of Fellows present at the appointed time of the annual session shall constitute a quorum for the transaction of ordinary business, but for the election or expulsion of Fellows, or for altering the Constitution and By-Laws, twenty-five (25) Fellows shall be required to form a quorum.

#### ORDER OF BUSINESS.

- 8.—1. Call to order.
2. Addresses or other special exercises as prepared by the Committee of Arrangements.
3. Reading minutes of previous meeting.
4. Report of officers and committees.
5. Miscellaneous business.
6. Announcements.
7. Reading reports of cases and exhibitions of patients, specimens, apparatus, etc.
8. Reading and discussion of papers.
9. Unfinished business.
10. Election.

#### RULES.

9.—Roberts' Rules of Order shall govern the deliberations of the Academy.

#### AMENDMENTS.

10.—Proposed amendments to the Constitution and By-Laws must be offered in writing, at a regular session, and shall not be acted upon until the next ensuing annual session, when a two-thirds ( $\frac{2}{3}$ ) vote of the Fellows present shall be necessary to adopt.

On motion of DR. R. HARVEY REED, the report was considered, section by section.

On motion of DR. WEBB J. KELLY, the amended Constitution and By-Laws were adopted as a whole.

On motion of DR. R. S. HARNDEN, the appointing of a Committee on Nominations was dispensed with.

DR. R. HARVEY REED reported that an option had been offered the Academy from the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, whereby said JOURNAL would furnish the Academy a department, and would permit of the Academy's appointing its own Editor; and that he would furnish to the Academy a bound volume of the transactions of the Academy, bound in cloth, price not to exceed \$1 per volume.

On motion of DR. R. HARVEY REED, the Academy accepted the proposition from the Editor of the JOURNAL, and the chair appointed a Committee, consisting of Dr. R. Harvey Reed, Columbus, Ohio; Dr. John E. Owens, Chicago, Ill.; and Dr. C. K. Cole, Helena, Mont., with instructions to close said contract and the committee was further instructed to make a contract with the Editor of the JOURNAL for three hundred (300) bound volumes of the Transactions, the price not to exceed one dollar (\$1) per volume.

On motion of DR. C. D. EVANS, the election of officers was made the special order of business at 2 P.M. Saturday.

On motion of DR. F. H. CALDWELL, the banquet was abandoned.

Adjourned until Saturday morning, 9 A.M.

(To be continued.)

### Louisville Academy of Medicine.

The second regular meeting of this society was held in its rooms in the Fonda Building, Monday evening, January 7, its President, DR. T. L. McDERMOTT in the chair. The subject occupying the attention of the members was a continued discussion of Dr. Bailey's remarks at the last meeting: "Shall

the antiseptic vaginal douche be a routine procedure in obstetrical practice?"

DR. W. H. WATHEN stated that when a woman is healthy and in labor her vagina is practically aseptic; the vaginal secretions have a cleansing effect, and if there is any septic material in the vagina or uterus it must have been conveyed there by the attendant. If the douche is adopted as a routine practice it will cause twenty-five cases of sepsis where it will prevent one. Since the general adoption of this practice it has killed ten where it has saved the life of one. He asserted that he was positively opposed to the douche as a routine practice, and that it should never be used save where sepsis is suspected, and then not only as a vaginal but also as an intra-uterine douche, since if infection is in the vagina it is also in the uterus, because of the intimate relationship of the parts and the likelihood of absorption by lymphatics. Puerperal sepsis is nearly always exogenous.

DR. H. A. COTTELL stated that when the aseptic and antiseptic midwifery craze struck the country he reviewed an article in which the stand was taken that the antiseptic precautions should begin as early as the sixth or seventh month, and it called forth a comment from him. Should not the spermatozoid be made aseptic before being allowed to go on its way? He took the ground that labor is a physiologic process, and not pathological, and when this factor enters into it then is the time to use antiseptic precautions. The woman in the parturient condition is in a physiological condition not a surgical. Nature protects the case by making a glazed surface of granulations over these rents and tears which occur in all cases, and the germs are not absorbed, but pass over them; give a douche, however, the granulations are broken up, and absorption occurs. He does not believe in auto-infection, and believes this new theory of sepsis being due to the bacterium coli communi, simply an excuse, that it is not probable that these bacteria enter the vagina from the anus, and it is impossible for them to penetrate the tissues. In catheterizing lying-in women, he could not help but say a word of warning against the introduction of the catheter by the sense of touch. Expose the patient, cleanse the parts about the meatus, then introduce a clean catheter.

DR. J. B. BULLITT.—Nowadays there are few advocates of the douche following labor, except when there is sepsis, then an intra-uterine douche, preceded by a curettement and followed by packing for drainage. In Germany, very radical measures are used, and the mortality is much reduced. If a douche be given, it must never be given save by the doctor or trained nurse. The whole question could be settled by discouraging vaginal examinations. Keep hand out of vagina but follow the progress of labor by external palpation.

DR. HENRY E. TULEY stated that in order to refute one or two statements of Dr. Wathen's, he would relate his experience as resident at one of the large maternity hospitals of the East. Sloane Maternity Hospital, New York, where vaginal douches of bichlorid, 1 to 5,000, were a routine practice. Immediately after admission, the patient was given a full bath and a vaginal douche, if not in labor. When labor began, she was given a douche, and an enema, followed by a douche directly after labor. Then many examinations were made, by the students as well as the nurses, and of the 222 cases delivered during his three months residence there were only 3 cases who had temperature which could not be explained as being due to other causes than sepsis.

DR. TULEY exhibited before the Academy a douche nozzle, the same as used at Sloane; it is made of glass, smaller than a Chamberlain tube, with a small curve at the end, and

near the other end a bulb, blown in the tube, which serves as an index as to where the tip of the tube is, it being on the same side with it. Though so successful in hospital practice with the vaginal douche, both before and after labor, Dr. Tuley stated that in his opinion the douche in private practice was impracticable.

DR. FRANK stated that in his opinion the douche in private practice as a routine, was inadvisable. Labor is a normal condition, and may become surgical. In obstetrical surgery as version, the douche is advisable. The secretion of the vagina and the amniotic fluid tend to rid the vagina of any bacteria present. If bacteria are resident in vagina they must be gotten rid of, but this can be accomplished, not by the douche alone, but only by scrubbing the same as would be done before any operative work upon the uterus or vagina. He spoke of the method of ballooning the vagina, which he had been unable to find mentioned anywhere, in giving the douche, which is accomplished by introducing the fingers with the tube, which acts as a plug, the water accumulates and distends the vagina.

DR. BAILEY, in closing the discussion, stated his appreciation for the liberal remarks made. He said that the secretion of the vagina takes care of most of the bacteria present, neutralizing their effect, but if they are present in the uterus he advised a douche, as the uterus secretion cannot do the same thing. He called attention to some remarks made in his paper, in regard to a vaginal douche given before labor, preventing the blindness which is so common in children. He disagreed with Dr. Frank as to the ballooning the vagina of a lying-in woman by distending it with water, owing to the possibility of forcing some of the dislodged septic materia through the patulous or into perhaps an aseptic uterus.

At the conclusion of the discussion, the Academy was entertained by the address of its President, Dr. T. L. McDermott.—(See page 109.)

## BOOK NOTICES.

**Blood Serum Therapy and Antitoxins.** By GEO. E. KRIEGER, M.D. With illustrations. CL., pp. 69. Chicago: C. H. Colegrove & Company. 1895.

This timely monograph is an excellent *resume* of the existing state of knowledge and current literature on this subject. The contents are as follows:

Chapter I, Blood Serum Therapy; II, Toxins and Toxalbumins; III, Tetanus; IV, Diphtheria. The author has produced a well-written book; there are a few errors of proof reading and some of orthography, such as "chaolin" instead of kaolin, page 18; "paralize" instead of paralyze, page 26, and some sentences which betray the German idiom, but these are minor defects and do not materially detract from the great merit of the work. We hope to chronicle the fact that this little book has passed to its second edition, and as there is great need of the special information contained in it, we feel sure that the hope will be realized at an early day.

**Myxœdema, Cretinism and the Goitres with some of Their Relations.** By EDWARD T. BLAKE, M.D., M.R.C.S. Paper, pp. 89. Bristol: John Wright & Co. 1894.

The author in this brochure seeks to establish the septic or infectious nature of the disease and the propositions he endeavors to establish are: 1, that Graves' disease in women is an autotoxis, most frequently caused by absorption of purulent products; that process being *aided*, rather than *induced*, by the toxins of terror and shock; 2, the same products lead to the production of rheumatism in males, by acting in the same locality, viz., the medulla oblongata; 3, if these products abolish the functions of the thyroid, we

may get myxœdema; 4, if these products invade the cortex, in large quantity and abruptly, we get a psychosis, as for example, mania or some neurosis such as epilepsy; 5, if the invasion be more gradual and the poisons more diluted, we get chorea.

The brochure is well written and extremely interesting.

## NECROLOGY.

DR. BENJAMIN FREEMAN FESSENDEN, the subject of this sketch, was born in Plymouth, N. C., Sept. 16, 1818. His father came from Massachusetts. Early left an orphan, he was brought up by a conscientious guardian, who took excellent care of his early education.

Having completed his preparatory studies, he entered the University of Pennsylvania, and graduated with honor in 1842. His thesis on graduating was "Unguentum Hydrargyri Nitratis vel Unguentum Citrini." Under the head of "Citrine Ointment," in Wood & Bache's "Dispensatory," Dr. Fessenden's thesis is mentioned and his methods approved.

The Doctor married early, and practiced his profession in his native place until the War of the Rebellion broke out. He was at once made Surgeon-General in the Confederate Army and was Medical Director of the State of North Carolina, all through the war.

After the war, in 1865, he moved to Brooklyn. Then began an acquaintance between the Doctor and the writer of this sketch that ripened into the firmest friendship, broken only by his death. Dr. Fessenden was a man not easy to become acquainted with; but when once well known he was highly appreciated for his sturdy virtues and the excellencies of mind and heart which he possessed. Living opposite me for nineteen years, I was in his house, or he in mine, almost every day. I have been with him by the bedsides of his sick and dying loved ones, and he has been with me on similar occasions. His courage, cheerfulness, sweet and manly resignation to the Master's will have compelled my perfect admiration. His words and acts of solace and comfort to me have touched my heart and made me love him as a brother.

Dr. Fessenden was sometimes brusque in manner, never fond of show, and all kindly in heart. He was a great student of literature and could repeat many portions of Shakespeare; nearly, if not all, of Pope's essays, especially the "Essay on Man," and would often amuse and delight his friends by his excellent recitals of some of them.

In the sick chamber he required strict obedience, and rewarded it with kind, constant and skillful attention. He made it a point to be kind and helpful to the younger members of the profession; and so honest was he that, as he often told me, he early made it a rule of his life—from which he never swerved—never to take a patient from any other doctor, if it were possible not to do so; but always to have some good word to say, or some reason to give, why the patient should continue with the doctor he was then employing. This reputation he enjoyed to the last.

He was positive in character, and for this reason his friendships were ever faithful and deeply rooted, and his dislikes equally pronounced. Many men, women and children learned to love him, and many have told me how much they miss his pleasant smile, his kind, cordial, gentle, yet decisive advice.

Dr. Fessenden was one of the first members of our Association and he took a great interest in it. He was, I believe, the first to be taken from us by death. In years, he was one of the oldest physicians in Brooklyn.

For more than a year he has occasionally complained of vertigo, which he believed to be due to the inactivity of his liver and kidneys. This, however, generally readily yielded to treatment and passed off. It was not until early in July last, when the Doctor had an attack that seemed to him like a light stroke of apoplexy, that he felt the necessity of calling in a physician. When I saw him first, he seemed to appreciate his condition; but was not at all alarmed and professed himself ready. His disease was fatty degeneration

of the kidneys, and in spite of the best medical care and the most careful and loving nursing, he sank into a deep coma, and on the 27th of July quietly and peacefully passed away, to join his loved ones in the land where sorrow and sickness and parting never come.

He has left a clean clear record, and many, very many, sorrowing friends, who will never forget him. We are among these.

"His fight is fought, his battle done;  
The victory of his life is won;  
The peacefulness of his rest begun."

Published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION by request of the Kings County N. Y. Medical Association.

NATHAN CARTWELL, M.D., died in Tustin, Orange County, Cal., Jan. 3, 1895, suddenly, of neuralgia of the heart. He was born in Nelson County, Ky., and went to Louisville when a boy. Wrote in the clerk's office under Worden Pope and was a student in the Medical College. He located in Union County, Ky., where he lived many years, engaging successfully in the mercantile business and later in banking. In 1883 he removed to Waco, Texas, and entered into the banking business with a former partner, under the old name of Cartwell, Higginson & Co., but the climate not suiting his always delicate health, in January, 1887, he sought Southern California, where his last years were peacefully passed on an orange ranch. In January, 1869, he married Llewellyn, eldest of Judge Huston of Morganfield, who with seven children mourns his loss. Dr. Cartwell was a man of unquestioned integrity, and a devoted member of the Episcopal Church.

D. D. BELKNAP, M.D., of Whitewater, Wis., January 15, aged 75.—Frank M. Trude, M.D., of Chicago, January 14, aged 26.—Stephen Roof, M.D., of New York, January 10.—Myron Leslie Baxter, M.D., at Derby Line, Vt., January 8, aged 55 years. He was a brother of the late Surgeon-General Baxter of the Army.

## SOCIETY NEWS.

**Burlington County (N.J.) Medical Society.**—The Burlington County Medical Society held its annual meeting at Mount Holly January 15. The following officers were elected: President, F. G. Stroud; Vice-President, J. H. Pugh; Secretary, A. W. Taylor.

**Oakland County (Mich.) Medical Society.**—The Oakland County Medical Society held a regular meeting at Pontiac January 9.

**Montgomery County (Pa.) Medical Society.**—The Montgomery County Medical Society held its annual meeting at Morristown January 9. The following officers were elected for the ensuing year: President, J. L. Weaver; Vice-Presidents, J. R. Care, of Worcester, and S. R. Hunsberger, of Skippack; Recording Secretary, H. H. Whitcomb; Corresponding Secretary, J. K. Weaver; Treasurer, S. N. Wiley.

**American Association of Obstetricians and Gynecologists.**—This Association will meet in Chicago next September.

**Medico-Pathological Society.**—The annual meeting of the Medico-Pathological Society of York City, Pa., was held January 10. The following officers were elected: President, I. H. Betz; Vice-Presidents, W. H. Minnich and G. E. Holtzopple; Secretary, S. K. Pfaltzgraff; Treasurer, J. F. Klinedinst. The annual banquet of this Society will be held February 14.

**Will County (Ill.) Medical Society.**—The annual meeting of the Will County Medical Society was held January 10. The following officers were elected: President, Wm. Richards; Vice-President, R. G. Rulien; Secretary and Treasurer, Wm. Dougall.

**Newport (R. I.) Medical Society.**—The Newport Medical

Society held its annual meeting January 16. Honorary President, N. H. Storer; President, Francis H. Rankin; Vice-President, C. F. Barker; Secretary, Mary E. Baldwin.

**Chicago Ophthalmological and Otological Society.**—Regular meeting held Dec. 11, 1894. Dr. Hotz in the chair. There were twenty-six members and visitors in attendance.

On motion, the reading of the minutes of the last meeting was omitted.

DRS. MARY HOLLISTER, Paul Guilford and F. E. Gavin were elected members.

The application of Dr. W. E. Gamble was read and referred to the Committee on Membership.

DR. GRADLE showed a specimen of tumor of choroid, presumably sarcoma, preserved in formalin. The colors and transparency were life like. He also referred to an article by Beer, in *Archiv für Physiologie*, on the accommodation of fishes' eyes. The rest of the evening was occupied by Dr. Meyer of Kankakee, with an essay on "Cranial Nerves."

On motion the Society adjourned.

103 State Street.

C. P. PINCKARD, Secretary.

## SELECTIONS.

**A New Constituent of the Atmosphere.**—The proportional parts of the essential constituents of the atmosphere, oxygen and nitrogen, were determined with much accuracy more than one hundred years ago. For an almost equal length of time it has been thought that these gases with three others—carbonic acid, ammonia, and water vapor, which occur in very small quantities, were the only other all-persistent components of the atmosphere, that is, components not due to local causes. It was, accordingly to be expected that the announcement of a new constituent of the atmosphere would be received with surprise and interest. This announcement was made at the last meeting of the British Association for the Advancement of Science, in August of this year. The suggestion of a new constituent came to Lord Rayleigh in 1893, while determining the densities of the principal gases. In these investigations he discovered that the nitrogen obtained by the decomposition of ammonia was lighter than nitrogen obtained from the air. He at first thought that this might be due to the existence of an allotropic form of nitrogen, similar to the modified form of oxygen known as ozone. By April, 1894, Lord Rayleigh had determined the density of nitrogen obtained from ammonia, from nitrous and nitric oxides, and from ammonium nitrite—and it was found to be the same in each case, but different from the density of nitrogen obtained from the atmosphere. After this result was reached, Lord Rayleigh satisfied himself that the difference could not be due to the presence of any known gas likely to be present. He then, in conjunction with Professor Ramsay, removed both the oxygen and nitrogen from a certain volume of air and found that a substance was left that was neither oxygen nor nitrogen, as was proven by its spectrum; the oxygen and nitrogen were removed from air by different processes, and in each case the new substance was left. Since the announcement of the discovery, no investigations tending to throw light on the nature and properties of the new substance have been published, and it is not known whether it is an element or a compound. According to the discoverers it constitutes about 1 per cent of the atmosphere. Professor Dewar had previously noticed that liquefied oxygen and nitrogen gave a clear liquid, while the liquefied atmosphere was turbid, and it has been suggested that this new constituent of the atmosphere may have caused the turbidity; but Professor Dewar says that the substance producing the turbidity can not amount to 1 per cent. It may be confidently assumed that if there has been no mistake, the discovery will soon be verified and the properties of the new substance determined.—PROF. S. E. TILLMAN, U. S. M. A., in *Cosmopolitan*, January, 1895.

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

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This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Henry P. Newman, Venetian Building, Chicago, Ill., sending him a certificate or statement that the applicant is in good standing in his own Society, signed by the President and Secretary of said Society. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership.

On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the Editor, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 86 Fifth Avenue, Chicago.

SATURDAY, JANUARY 26, 1895.

ADVICE TO YOUNG OCULISTS.

Since the extraction of cataracts without iridectomy has been reintroduced into ophthalmic practice, there has scarcely ever been a meeting of oculists at which the question of cataract operation with or without iridectomy has not been debated. But as usual in medical discussions, the main question is generally lost sight of and each speaker dwells upon some pet hobby—some little modification or so-called improvement in the operative technique, which he insists is very essential to the success of the operation; and the longer the question is debated the farther the opinions seem to drift away from each other. Upon the experienced oculist these discussions make no impression; as HANSEN GRUT said at the Ophthalmological Congress at Edinburgh, they only show what was known before, that cataracts can be successfully extracted in various ways. But the young oculist who hears or reads these conflicting views, is in danger of losing all confidence in himself and of feeling entirely at sea as to the proper method of operating.

For these young oculists, DR. HERMANN PAGENSTECHE, of Wiesbaden, has recently published in the *Klinische Monatsblätter für Augenheilkunde* a short paper full of good, sensible and practical advice: "The young oculist should never try experiments, but adhere to those indications and to that operative method which experience has shown us to be the easiest in execution and the safest in restoring the sight. And this method is the extraction with iridectomy, because it can be employed in all cases, while the simple extraction is limited to certain kinds of cataracts whose proper selection is very difficult, even after long experience.

"We can operate without iridectomy in all cases in which we can with certainty expect that we take no chances of a subsequent protrusion of the iris. Unfortunately, this is not always possible, and it is this weak point which will frustrate all efforts of making the extraction without iridectomy, the operation for all uncomplicated senile cataracts. Even the most expert operator is never able before the operation, to tell with absolute certainty that he will operate on this eye without iridectomy and without risking a prolapse of the iris. This fact alone is to me sufficient to advise every young oculist not to operate without iridectomy; for to excise *lege artis*, the iris after the removal of the lens requires a far greater dexterity than the iridectomy before the extraction." DR. PAGENSTECHE concedes the operation without iridectomy has some advantages; it preserves the natural round pupil, and usually the eyes show less irritation during the healing process. But it also has its serious drawbacks; cortical remains can not be thoroughly removed; hence posterior synechiæ and secondary cataracts are more frequent than after the extraction with iridectomy; but the chief drawbacks are the incarceration and prolapse of the iris, of which even the most expert operators report 8 to 10 and more per cent.; these accidents always retard the healing process, produce a hideous distortion of the pupil, and sometimes have caused the loss of the eye by suppuration or irido-cyclitis. "This is a sad experience and too dear a price for even the greatest series of nice round pupils."

But if such disastrous results occur in the practice of a surgeon having an unusually large experience, so much more reason for the beginner, in the interest of his patients and for his own good, not to practice the operation without iridectomy. He shall first acquire experience and the greatest manual dexterity with an operative procedure by which he can operate upon *all* cataracts (and this is the operation *with* iridectomy); then, he will, by-and-by, find out for himself when and how much he may with safety depart from his accustomed practice.

MEDICAL EDUCATION.

The present is a period of evolution in methods of medical education. Colleges have nothing to lose and much to gain in enforcing honest high grade work. Up to a period of the last few years the profession as a whole, was notably indifferent as to the character of work being carried on in the various colleges although societies passed the usual perennial resolutions. The number of truly high grade institutions could be counted upon the fingers of one hand. They were not supported by the profession with that unanimity that their efforts merited; indeed, in a few instances these schools were for years upon the verge of starvation.

Through stress of circumstances and with the con-



currence of the indifferent preceptor, the student selected that college wherein he could secure his degree with the greatest ease. The result has been to flood the country with a profession, a large number of whom are not as well educated as the average man in other walks of life. In consequence the medical profession as a whole has suffered. To-day, however, the situation is quite changed. As the result of an aroused professional and public sentiment, we have in sixteen States in this country, medical laws that fail to recognize the diploma as an equivalent evidence to entitle the holders to practice medicine. These persons are required to prove their fitness to practice by undergoing a personal examination upon all the branches included in the field of medicine. The work of these boards can not be hidden. A series of statistics published, covering over two thousand examinations indicate that one-fourth of all applicants fail to pass their examinations. In an additional paper about to be published a similar condition of affairs will be found to exist, thus bringing the statistics down to January of the present year. Like the first paper it will be found that in making a comparison of the proportion of alumni, successful before the different boards, that those schools exacting good work rarely fail, upwards of 95 per cent. of all applicants being successful, while the graduates of the schools of the second grade suffer in alarming proportions, viewing the question from the standpoint of the disappointed student. In analyzing the work of these boards as applied to the medical colleges of the country but one conclusion can be inferred: It is, that the proportion of graduates of the individual colleges will accurately and impartially indicate the character of medical instruction being afforded by each school at the time of conferring the degree.

The influences that have been at work in bringing about the wide medical legislation of this country being so recent are familiar to all; suffice it to say that it was accomplished without the assistance or even the coöperation of the faculties of the medical colleges of the country; with a few exceptions, where the faculties of some of the high grade schools joined with the promoters of the proposed legislation.

It is our opinion that notwithstanding the far reaching influence of the medical press, and the support of the various medical societies of the country, medical legislation alone caused the healthy reform. It is also apparent that the enforcement of efficient medical legislation in a few States will do more in destroying the dangerous work of the low grade college than all other factors combined.

The history of reform in methods of medical education in this country is about as follows: The Constitution of our ASSOCIATION provided for a standing committee on medical education, and the ASSOCIATION

took the initiative, and as far back as in 1847 the faculty of the University of Pennsylvania made an ineffectual effort to bring about needed reforms in methods of teaching. After a prolonged trial it was abandoned. In later years, Bellevue Hospital Medical College suffered a similar experience; the first Association of American Medical Colleges was disrupted through the action of the representatives of a few of the low grade schools and a similar effort was made to disrupt the work of the present college association but fortunately without success. Up to the period of establishing efficient medical legislation, about five years ago, the low grade college seemed to thrive. About this time those colleges that had adopted the change from the two- to the three-year course observed an increased attendance instead of the falling off that was really expected by the deans of each school. It was at this time that the present Association of American Medical Colleges was organized, and aided by the efficient work and influence of the various State boards was the precipitating influence in bringing about the adoption of the three-term requirement by the fifty-four schools that subscribed to its by-laws the year of its organization. The change from the three to the four years course is being accomplished much in the same way. It is the experience of the schools that anticipated this great reform and are now working under the four year curricula, that they have an increased attendance. As affecting the colleges themselves there is but one interpretation, looking at this question from the college standpoint: It is that the time has arrived when the student seeks the doors of that institution that affords the best facilities for instruction. Our boys do not care to be limited in their practice to those States not blessed with laws regulating medical practice, but upon the contrary recognize that the day of the low grade medical college is on the wane, and that disgrace faces the work of all such institutions, and will continue to do so, so long as we have efficient medical practice laws.

The action of the Association of American Medical Colleges in adopting the four year curriculum at San Francisco last year will prove to have been the precipitating factor in stepping from the three to the four year's requirement by the colleges of the country. We hear nothing but good news in this direction. The provisions of the four year's curricula goes into operation with all new matriculates beginning with this present calendar year, who are members of the College Association or of the "Homeopathic" College Association. The resolutions adopted by the AMERICAN MEDICAL ASSOCIATION on this point become operative with all matriculates of the present year; and in the future if they ever hope to become members of this body. It is reliably re-

ported that at the present writing, forty-two medical colleges, members of the College Association have indicated their intentions favorably on the new regulations of this body. Unless all signs fail, about every college situated in the Northern States will require of the 1895 entering class, attendance upon at least four courses of medical lectures, in different years, before conferring the degree of M.D. Reports from the other medical colleges are not so favorable. We are of opinion, however, that the profession of the other States will not long tolerate lagging upon a question of this character. The colleges working under the four years' requirement at the present time have an increased attendance in their freshman class. They will open their doors the coming fall with still further increase of attendance, while those colleges which fail to grasp the situation and adapt themselves thereto, will be placed in an embarrassing position, as well as the extreme probability of having for their class of new matriculates an inferior quality of men. The time is near at hand when the faculties will be looking into the work of the coming session, and the question of the adoption of the new standard will be the all-important question of policy, if not already decided upon. In view of the emphatic resolutions adopted at several sessions of the ASSOCIATION under whose auspices this JOURNAL is published, we are reminded that this is an opportune time to discuss this subject. There is no known excuse why the colleges should not at once unanimously adopt the four-year requirements. If any exist, we will gladly give space for their citation in these columns; on the contrary, we believe the arguments in favor of the proposed change to be many and imperative, and until the action shall have been rescinded, we shall advocate that policy, in impressing upon the representatives of these schools the necessities of continued reform in medical education. With the adoption of the four years course we will hear less upon this subject from Europe, and we will be able in the near future to point to a profession whose general information is upon a par with that of any European nation. We shall look for the receipt of the usual grist of 1895 announcements with additional interest.

#### THE NAVAL RE-ORGANIZATION BILL.

The young officers of the line of the Navy have concocted a new scheme for speedy promotion, which, if worked through Congress as at present framed, will do the Medical Corps great harm.

The new bill is neither in the interest of economy or efficient service, and as already intimated, was apparently born of a desire to secure promotion without regard to the great injustice inflicted upon the staff, or to the older officers of the line who are unfavorably affected by the bill.

One section alone of this iniquitous bill shows its true nature quite clearly. It is that which provides for ten additional rear admirals. We now have six, to command the 8,500 enlisted men of the Navy, when the Army of 25,000 enlisted men are satisfied with three major generals, (having the same rank as rear admiral). It is well known there are only five stations which require rear admirals; if this bill should pass there will be eleven rear admirals on shore to help increase the deficiency in the treasury. There are now 719 line officers on the active naval list of whom more than half are on shore, if we leave out of the count those on coast survey duty, and count them as at sea.

The reserve list created by Section 14 of this bill puts out of active service some of the ablest men in the Navy, and operates to reduce the pay of the Medical, Pay and Engineer Corps, simply that some young line carpet knights below the rank of lieutenant-commander may be promoted.

"Why," asks the correspondent of the *Brooklyn Eagle*, "should a doctor's pay be diminished because of any change in the line? His value does not depend upon the line. The market value of a doctor does not depend upon the supply of ensigns. He comes from civil life, and his pay should be fixed at what good men of his profession are worth. What has a paymaster's pay to do with the line? His bond of \$25,000 and his responsibilities in handling thousands of dollars, his business instincts and training are what should be considered. These men have educated themselves, and no officer of the staff can reach the ultimate high pay of the line or hope for the remarkable promotion provided for the line by this bill. Any one can see who reads this bill that it is a line measure and a measure for only a part of the line. It degrades the staff and makes it the servants only of this part of the line. It makes a plaything of the Navy for their benefit—a costly plaything. It creates in its provisions for promotion what might be called the lottery scheme for the line of the Navy. The senior lieutenants, lieutenant commanders, commanders and captains either draw prizes or are turned down. Commanders who feel quite certain of selection say that they fully expect to be rear admirals within two years of the passage of this act, many lieutenants will be commanders and ensigns lieutenants. This bill benefits those in the line who profit by the reserve list. All other officers are tributary to them, and either lose all prospect of a better future or contribute directly to the support of those fortunate enough to be rapidly advanced. A minority desire ultimately to profit tremendously. It is the active aggressive minority which is endeavoring to push to the wall all who are in the way. This lottery scheme of the Navy has by its very proposal already done much to injure the morale of the service. The people of this enlightened country will never understand this mixture of extravagance and injustice.

"Another feature of this reserve list is that it is perpetuated. It does not die with the ninety-five men blacklisted. Section 12 provides that there shall be each year sixteen promotions in the list of sea-going officers to the grade of commander, and twenty promotions to the grade of lieutenant commander, and that when this number does not occur naturally it is to be created by forcing a sufficient number of officers from these grades on the reserve list. This blacklisting and scramble is to go on indefinitely, and for every man so degraded another enters to keep the line corps up to 720. No such firebrand as this bill has been cast at the Navy since 1855. It is a mistake to think that this bill is wanted by the service at large. It is opposed by 90 per cent. of the line officers of and above the grade of lieutenant commander and by every member of the Medical, Pay and Engineer Corps. Along with the desire to kill the ambition of the best part of the line, there is woven in this bill the intention to hold down and oppress the staff corps. It treats the Medical, Pay and Engineer Corps, as if designed expressly for the purpose of destroying their efficiency, humiliating their members and making them the servants of the line

branch rather than of their country. Such a bill as this is devoid of every sign of justice and fair play. The Medical, Pay and Engineer Corps are absolutely essential to the efficiency of the naval service."

It seems impossible that such a wholesale plunder of the public treasury would or could pass Congress. We read of the forty admirals now on the retired list, and we have read of the forty thieves. We sincerely trust that the zeal for promotion of the young midshipmen, will not lead to the general belief that the terms may become synonymous.

#### "SUNDOWN DOCTORS AND EVENING COLLEGES."

In our Washington news of January 5, note was made of an order of the Commissioner of Pensions preventing clerks in the Bureau, who are physicians, from practicing medicine after office hours. In this branch of the government service, as well as in others, there are a number of graduated physicians who attend patients after office hours and are known as "Sundown Doctors." This item has been recurring frequently to our mind since it was published, and always coupled with the idea that if there were no evening colleges in Washington, D. C., there would be fewer "sundown" doctors in that city. A medical man may find practice unremunerative or uncongenial to him and may accept a place in the government service, particularly in the Bureau of Pensions, the Record and Pension Division of the War Department or the Office of the Surgeon-General of the Army, Navy or Marine-Hospital Service, where his medical knowledge would increase his clerical efficiency and status. There would, therefore, always be found in these offices a certain number of medical graduates, most of whom, however, would be satisfied with their official position.

The Federal Capital is almost the only city in the United States where are to be found medical colleges with a lecture program which begins no earlier in the day than 5:30 P.M. The object of these late lectures is evidently to gather in from the Departments those ambitious young men who feel that they were made for something better than the routinism of departmental office work. Medical study and, with due respect to the faculties, medical teaching, to be efficient, should put to use all the mental energy of the individual. Night classes, therefore, can not be productive of as good results as day classes. The clerk, who has studied and graduated at a night school hesitates to cut adrift from his clerkship to undertake the responsibilities of life in his new profession and he practices, as he studied, after sundown. The medical colleges of Washington point with pride to their record and their lists of graduates to show their status; but since they do so well now, it is evident that they would do better and stand on a much higher plane if all the brightness of the day instead of only the dullness of its fag end

were devoted to the work of education. One night college is enough for the needs of those who can not afford to give the day to study. The other colleges of the Federal City should call for the best energies of their students and support their curriculum with the best energies of their teachers. With the four years' course which is now required, with their able professors and well-equipped laboratories, and all the facilities which Washington offers for medical study there is wanted only day classes to make that city an educational center of national importance.

#### THE WEATHER BUREAU AND SANITARY CLIMATOLOGY.

Last year the Chief of the Weather Bureau sent out a letter to sanitarians and others, inviting opinions on the best means of making the weather service of the United States of benefit to sanitary science. The Editor of this JOURNAL among others sent a rather lengthy letter dated Jan. 20, 1894, giving suggestions in detail. We are therefore greatly pleased to see that the Bureau has moved in the matter, and we feel sure that its action will be sustained by the medical profession generally. The great influence of climate in the etiology and as well in the therapeutics of disease, has been so little studied, that it is very gratifying to see that the Agricultural Department is prepared to start the movement.

The following circulars are self-explanatory:

##### Circular No. 3. Sanitary Climatology.

{ U. S. DEPARTMENT OF AGRICULTURE,  
WEATHER BUREAU.  
WASHINGTON, D. C., Jan. 2, 1895.

*To the Editor:*—At the instance of the Honorable the Secretary of Agriculture, the Weather Bureau will extend the scope of its work, as set forth in the accompanying circular.

As there are doubtless many persons who may be interested in the proposed investigation and willing to coöperate and whose names are not known to the Bureau, I would be pleased if you would give notice of this investigation in the columns of your publication.

Very respectfully,

MARK W. HARRINGTON, Chief of Bureau.

##### Circular No. 1. Sanitary Climatology.

{ U. S. DEPARTMENT OF AGRICULTURE,  
WEATHER BUREAU.  
WASHINGTON, D. C., Jan. 2, 1895.

The interest manifested by every class of people in the subject of climate and its influence on health and disease has determined the Honorable the Secretary of Agriculture, through the medium of the Weather Bureau, to undertake the systematic investigation of the subject.

It is hoped to make the proposed investigation of interest and value to all, but especially to the medical and sanitary professions, and to the large number of persons who seek, by visitation of health resorts and change of climate, either to restore health or prolong lives incurably affected or to ward off threatened disease.

The study of the climates of the country in con-

nection with the indigenous diseases should be of material service to every community in showing to what degree local climatic peculiarities may favor or combat the development of the different diseases, and by suggesting, in many instances, supplementary sanitary precautions; also by indicating to what part of the country invalids and health seekers may be sent to find climatic surroundings best adapted to the alleviation or cure of their particular cases.

The hearty coöperation of the various boards of health, public sanitary authorities, sanitary associations and societies, and of physicians who may feel an interest in the work, is asked to achieve and perfect the aims of this investigation.

No compensation can be offered for this coöperation other than to send, free of cost, the publications of the Bureau bearing upon climatology and its relation to health and disease to all those who assist in the work.

Coöperation will consist in sending to this office reports of vital statistics from the various localities. That these reports may be of value, it is evident to all that they should be accurate and complete, and be rendered promptly and regularly. Blank forms of reports have been prepared so as to occasion as little trouble and labor as possible on the part of the reporter, and will be furnished by the Bureau on application.

At the very beginning of the investigation it is not possible to outline precisely the channels through which the results obtained will be made public, but it is hoped to publish soon a periodical devoted to climatology and its relations to health and disease. The publication will probably resemble in size and general appearance the present *Monthly Weather Review*, the subject matter being, of course different.

More detailed information will be furnished on application.

MARK W. HARRINGTON, Chief of Bureau.

#### ANONYMOUS COMMUNICATIONS.

We beg to announce once more to correspondents that anonymous communications can not and will be noticed or published in the JOURNAL. We have received a number of them in the last two weeks. A gentleman writing a communication attacking any one, should be willing to put his name to it for the information of the editor, even if not for publication. Some of those recently received we would have printed in the Correspondence column with pleasure, but as the author did not give any clue to his identity we were unable to use them.

### CORRESPONDENCE.

#### Medical Medals—Request for Assistance.

NEWPORT, R. I., Jan. 15, 1895.

To the Editor:—In the course of an enumeration of the medals illustrating medicine that have continuously appeared in the *American Journal of Numismatics* since January, 1889, several questions have occurred which I have failed to settle, and concerning which I shall be very glad for aid.

British America: Dr. Richard Noble Starr, of Caradoc, Canada. What were his dates of birth and death? Dr.

Orrin C. Wood, of Montreal. His middle name, and dates?

Central America: Dr. Perfecto G. Bustamente, of Gaudajajara, Mexico. His middle name, and dates?

South America: Dr. Alacombe, Puerto Cabello, Venezuela. Who was this person? If a medical man, his dates and full name? Dr. Pedro Ascarrinus, of Bolivia. His dates and city of residence? Dr. Juan Adriano Chasas, of Asuncion, Paraguay. Was he a physician or a lawyer? If the former, his dates?

The United States: Dr. C. P. Bronson,\* an apparently irregular ophthalmologist. What were his full name, his dates and his residence?

Dr. Selleck, connected with Chesebrough, Stearns & Co., of New York. Who was he and what his full name and dates?

United States Medical Colleges: The medals have been described of the Medical College of Alabama, (Nott); Medical Department of Yale University, (Campbell); Harvard University, (Boylston); one of those of Medical Department of Long Island, C. H. (Dudley); one of the two of Medical Department of Rutgers College (Rutgers); College of Physicians and Surgeons, N. Y. (Harsen); University of City of New York (Mott, 2); Sterling Medical College; Jefferson Medical College (Toner); Alumni Medical Department, University of Pennsylvania; Anat. and Phys., Amherst College (Sawyer); Hahnemann Medical College of Philadelphia (2); Eclectic Medical College of New York (Newton); Missouri Dental College (J. Hunter); and New York College of Dentistry (2).

Of the following, descriptions are desired. Where, instead of being wholly "struck," they are partially or entirely engraved the fact should be stated, as the last of these conditions is not recognized by numismatists: Medical Department of University of California; Medical Department of University of Louisville; Missouri College of Medicine; Baltimore Medical College; Medical College of Virginia; Medical Department of Hampden Sidney College; Medical Department of Long Island C. H. (second medal); Medical Department of Rutgers College (citizen's medal. Who was this "citizen of New York?"); Woman's Medical College of Chicago; Woman's Medical College of Baltimore; Columbia Veterinary College, New York; California College of Pharmacy; Maryland College of Pharmacy; Philadelphia College of Pharmacy; Cincinnati College of Pharmacy; Alumni St. Louis College of Pharmacy; College of Pharmacy, City of New York; and Pharmacal Department of Vanderbilt University.

United States Hospitals: The medals have been given of St. John's Guild Floating Hospital, New York, (2); German Hospital, New York; Methodist Episcopal Hospital, Philadelphia; United States Naval Hospital, Portsmouth, Va.; National Asylum, Augusta, Me.; Boston City Hospital Training School for Nurses; Bellevue Hospital Training School for Nurses, New York; Mt. Sinai Hospital Training School for Nurses, New York; Philadelphia Woman's Hospital Training School for Nurses; University of Pennsylvania Training School for Nurses; Waltham, Mass., Training School for Nurses; St. Barnabas (Nurses') Guild; Nederland Israelitish Sick Fund, New York; Washington Kranken Unterstutzungs Verein, New York; Medical Charities, Philadelphia; and of the United States Sanitary Commission the following: Citizens' Volunteer Hospital, Philadelphia (2); Union V. R. S. Fair, Philadelphia, 1863; Nantucket, Mass., Fair, 1864; New York Fair, 1864; Philadelphia Great Central Fair, 1864, (4); also Howard Association, Norfolk, Va., 1855; Savannah Banner Association (Yellow Fever), 1876; and Howard Medical Corps, Memphis, Tenn., 1878.

United States Medical Societies: I have given the medals of AMERICAN MEDICAL ASSOCIATION, (2); Ninth International Medical Congress, 1887, (2); Columbian Dental Congress,

Chicago, 1893; Louisville Medico-Chirurgical Society; and American Pharmacal Association (Block House, Pittsburg). There is another of the last of these institutions, and one of the Medical Lyceum, Philadelphia, 1808, about which I am still in doubt. Concerning that of the World's Hygienic Exposition, Chicago, 1893 (struck in Belgium), I have but recently ascertained.

Information concerning any medical medals, not indicated above, will also be duly valued.

HORATIO R. STORER, M.D.

\* C. P. Bronson, M.D. Lived in Louisville, Ky., was a traveling lecturer on Elocution, and published a book on the same.—ED.

### Department of Public Health.

CHICAGO, ILL., Jan. 22, 1895.

To the Editor:—It is hoped that the present session of Congress will make suitable provision for substantially carrying out that portion of the President's suggestions embodied in his message in December last, wherein he recommended that a "National Health Bureau be established." And it does not seem that any very great amount of additional argument should be necessary to bring about this important step of legislation.

In a few weeks, the present Congress will be "history." Before its demise, it might do something in the way of genuine reform in public health matters, and the well-known maxim, "*Salus populi suprema est lex*," prevail.

If, on the other hand, the present Congress should interpose dilatory objections and pass this measure by, without creating such a branch of our federal government, for obvious reasons it appears to the writer, legislation with the delays liable to occur in future that will be necessary to carry this through to a successful termination, may require two years longer before it is done. This not improbable delay therefore may involve serious consequences to the national health, as well as prove disastrous and detrimental to the commercial interests of our country, of which enough of the latter has already occurred to satisfy the people for generations to come. In a word, then, it is a condition that confronts us as members of a noble profession having at heart the welfare of the nation.

More than ten years ago (*vide* Proceedings of the Chicago Medical Society, September and October, 1884) expediency and timely action was urged upon our National legislators in this direction. It appeared then, as it does now, that there is a sanitary work which can be done and exacted by the National government, *pro bono publico*, of local or municipal boards of health who can not be made to comply, or who will not comply with the request of another board of equal importance, as has been the case a number of times within the past few months, in at least one of our large cities where the chief executive officer of the Health Department refused absolutely to furnish reports regarding smallpox. What good was to be gained by suppressing the truth concerning this greatly dreaded malady is beyond my comprehension.

This proposed department of the government, with a medical secretary of the same, will not only be in concord with, but coöperate in friendly professional intercourse with other health organizations, sanitarians and scientists, and in a more methodical manner it is believed it will be the means of preventing an outbreak of any of the pestilential diseases throughout the country, as well as to prevent the introduction of them in the larger cities or in different portions of the States of the Union. Or, in case any form of disease of a contagious or infectious nature should get a foothold, efforts to suppress it if it be of endemic character, or epidemics of all kinds would be more thoroughly accomplished

and sooner brought under control. To accomplish this, the secretary of this proposed department should be clothed with, or granted full power for the investigation of epidemics and preventable diseases, and be provided with necessary funds for this specific purpose.

Last year, Prof. C. B. Comegys, M.D., of Cincinnati, was obliged to resign the chairmanship of the special committee of the AMERICAN MEDICAL ASSOCIATION appointed for the above purpose. For four years he labored assiduously and did much toward bringing about this greatly desired end. Dr. Comegys is entitled to great honor and credit for his diligence and painstaking labors in this matter, and he is still an active member of the committee. The committee which has had this subject under consideration has profited by the experience of its former chairman and his colleagues and now has at its head a gentleman who is equally well known in sanitary matters as his predecessor, Dr. Jerome Cochran, of Montgomery, Ala., who with the assistance of his coadjutors if all signs point correctly, will ably present this important subject to the Baltimore meeting in May next. Unless the medical profession, and the press, both medical and secular throughout the United States work hard and speedily impress upon Congress the necessity of passing the bill prepared by Dr. Comegys and his fellow-committee men, or at least secure favorable report from the committees appointed by both branches of Congress, this measure will be lost.

Why can not Congress gracefully create this apparently inexpensive branch of the government with a medical secretary of same, and a grateful country will be their reward.

Let the profession be united on this subject and invoke the press and its efforts and appreciation of the country's need in this direction. I doubt if there be any who deny that such a law should be enacted. By so doing, consistent agitation on our part will not have been in vain.

Very truly yours,

LISTON H. MONTGOMERY, M.D.

### PUBLIC HEALTH.

**Disinfection of Barbers' Tools.**—Blaise remarks, in *Annales de l'Hygiène*, that as certain diseases are transmitted by the tools used by barbers and hair-dressers, it is important to wash and disinfect them each time after being used. As to the agents—carbolic acid kills the microbes effectually but its disagreeable odor precludes its use; boiling water rusts the instruments, even if nickel-plated, since the cutting edges are not plated. Blaise thinks the best method is to dissolve 10 parts of carbonate of potash or soda in 100 parts of hot water and immerse the instruments in this solution; they leave this bath brilliant and free from oil. Some of the essential oils may also be used, as many of them possess well established microbicidal properties. There are also creolin and benzoic and thymic acids, whose use is widespread and their antiseptic powers incontestable.

**The Antitoxin in France.**—Preparations on a very complete scale will be completed by the close of this month, whereby the whole of France will be furnished with an adequate supply of the Roux-Behring serum. The State has voted an annual sum of 100,000 francs to the *Institut Pasteur*, 20,000 of which are allotted to the vaccination department of the Academy of Medicine and the remainder is to be used for the propagation and gratuitous distribution of the diphtheria antitoxin to charitable institutions. It is estimated that a stud of from 130 to 140 horses will supply all the serum required for the entire population of the country; that the entire cost of their care and maintenance, the preparation



of the serum and postage upon the tubes, will not exceed 180,000 francs—of which sum the State appropriation contributes 44 per cent., leaving 100,000 francs to be made up by the sale of the serum to those able to pay for it, and by municipalities and departments who will defray the expenses of maintaining one or more animals at the *Institut*—the department of the *Bouches du Rhone*, for example, will maintain six horses for its own supply. The annual expense is computed at 1,000 francs per animal, and this will secure a monthly supply of 150 injections of 20 c.c. each.

**Contagious Diseases.**—Except influenza the contagious diseases seem to be on the decline throughout the country generally. In isolated localities diphtheria is as prevalent as in the closing months of last year, but its epidemic tendency in the large cities has subsided. So too with smallpox; Secretary Wingate of the Wisconsin State Board of Health, reports only 13 new cases, with no deaths, during the week ended January 19; in the State at large during the same period, 3 cases, 1 death, were reported at Mishicott, 4 cases in Gibson Tp., 2 cases at Two Rivers, 1 case, 1 death at Fond du Lac and 1 case in Fountain Tp. Dr. F. W. Reilly, who has been placed in charge of the Contagious-Disease Bureau of the Chicago Health Department, reports the total number of new cases in that city for the first twenty-two days of January, as follows: Reported by physicians and inspectors, 129; found by inspectors and not previously reported—convalescent, 2, dead or dying, 6; total, 137. Of this total, 128 cases were removed to the isolation hospital; 1 case was isolated at residence; the 2 convalescents were disinfected and the dead and dying were taken charge of by the inspectors, the premises disinfected and the exposed vaccinated. The hospital statistics for the month are as follows: Remaining at midnight, Dec. 31, 1894—84; admitted, Jan. 1—22, inclusive,—128; total to be accounted for, 212; discharged convalescent, 78; died, 32; remaining, 111. Mortality per cent., 15.5.

**Sanitary State of Calcutta.**—The report for the year ended March, 1894, of Dr. N. J. Simpson, Medical Officer of Health for Calcutta, contains some interesting facts. The barometric pressure during the year oscillated between a minimum of 29.58, in July, and a maximum of 30.04, in December. The mean temperature for the twelve months was 76.95 F., with a maximum of 88.55 and a minimum of 63.95. While all the months of the year are remarkable for a very marked degree of humidity, the months from May to September are the true rainy months. There was much more rain than usual—in December only was there no precipitation. The births reported numbered 13,492 or 19.7 per thousand; this is higher than for the preceding five years, during which it varied from 18 to 18.6 per thousand; the Mahomedans are always the least prolific. The deaths numbered 20,113—a rate of 29.5 per thousand for the year, as against 20,180 for the previous year. The different populations as indicated by these figures of births and deaths—*Journal d'Hygiene*—will not be overlooked. The number of births and the birth rate indicate a population of 365,592; the number of deaths and death rate indicate a population of 593,333. In the Mortality Table of Foreign Cities, *Abstract of Sanitary Reports*, the population of Calcutta is estimated at 681,560; Mulhall (1892) reports the population by the official census of 1891 to be 840,130. Separating the city from the suburbs the following are the death rates from 1889 to 1893: Urban Calcutta, 26.4 per thousand (25.9 in 1893-4); suburban Calcutta, 37 per thousand (37.1 in 1893-94). It is worthy of note that the deaths from cholera in 1893-94 numbered only 273.

**School Diffusion of Infectious Diseases.**—In an analysis of deaths from diphtheria in London during the last thirty years, Mr. Shirley Murphy has shown that, comparing the ten years, 1881-90, with the previous decennium, there was an increase of diphtheria mortality at all ages, but most marked at the 3 to 10 years age-period. Mr. Malcolm Mor-

ris, the newly appointed editor of the *Practitioner*, adds that this general indication—that the ominous increase of fatal diphtheria has taken place mainly among children of school age—is further borne out by the mortality statistics of 1891-2-3. Comparing 1891-93 with 1861-70 it is found that the diphtheria mortality has risen 196 per cent. taking all ages; but while the increase is only 53 per cent. at ages over 10 years and 173 per cent. at ages under 3, it is no less than 309 per cent. at ages from 3 to 10. A connection is established between this increase and the operation of the Elementary Education Act of 1871, and Mr. Morris says: "It is clear that part of the price which has to be paid for the inestimable boon of universal elementary education is an increased facility for the diffusion of certain infectious diseases, a facility which has not been entirely neutralized by all the precautions which the several authorities concerned have been able to bring to bear, even with the assistance of compulsory notification." The discussion and comments add weight to the recommendations which the health authorities of Boston, Chicago and some other cities in this country, have tendered to school boards and boards of education. In brief, these are that all interior surfaces of school buildings which children are likely to touch should be washed at least once a week during the school year with the mercuric chlorid solution; that the use of slates and pencils and of slate sponges should be abandoned for pencil and paper—the wetting of the pencil tip with the tongue or the putting of the pencil in the mouth to be forbidden; and that the floors of school rooms, passages, stairs, etc., should be strewn before sweeping with sawdust wet with the disinfecting solution and the sweepings burned at once.

**Creosote Poisoning by the Therapeutic Dose.**—A fatal case of creosote poisoning by the therapeutic dose is reported, the result being attributed to the use of milk as a vehicle. The drug was prescribed for a female patient who took three 6-drop doses in twenty-four hours. Soon after the third dose she exhibited symptoms of intense gastro-intestinal irritation, accompanied by anesthesia and partial paralysis of the soft palate and vocal cords, and, moreover, presented erosions of the buccal and pharyngeal mucous membrane, albuminuria and signs of heart failure; her breath had a strong odor of creosote and she died in a week. The necropsy revealed extensive bloody suffusion of the stomach and intestines and ulcerations of the esophagus and of the pylorus, fatty degeneration of the liver, acute nephritis and hyperemia of the brain. Zanolski, who reports the case in the *Centralbl. f. Inn. Med.*, thinks the poisoning was due to the mode of administration; creosote is insoluble in milk, and acts as though given alone. He asserts that no other case of idiosyncrasy for the drug has been observed, but advises to begin its exhibition with doses of one or two drops and proceed to larger doses with caution.

**Influence of Etherization upon Temperature.**—Angelesco reports a series of observations in *Le Progres Medical* which he made on fifty patients in Professor Chaput's service. He arrives at the following conclusions: 1, the temperature is lowered during the whole of the anesthesia; 2, this lowering presents an oscillation much more pronounced at the beginning of the anesthesia—in the first hour the decrease varies between 2 degrees and 2.5 degrees, in the second hour it is less marked, only some tenths of a degree, and this difference between two consecutive temperatures is most marked in the first and second quarter hours, 0.7 to 1 degree in the first, and 0.4 to 0.5 degree in the second quarter; 3, the decrease continues very slightly during the profound sleep following anesthesia, varying between 0.1 and 0.3 degree; 4, after waking the temperature rises, following an inverse curve to the first. The oscillations, feeble at first—0.1 to 0.3 degree—become stronger as consciousness is regained and when this is nearly restored the oscillation means are 0.7 to 0.8 degree. Besides all other causes producing lowered temperature after anesthesia the author thinks that the diminished temperature,—lower with ether than with chloroform,—points to a very marked vasodilatation in the former case. The face of a patient under ether narcosis is nearly always congested; chloroform, on the contrary, produces vaso-constriction, as proved by the pale face.

## MISCELLANY.

**A Curious Legacy.**—A Parisian artist recently attempted, unsuccessfully, to commit suicide. He left a will bequeathing his body to the Zoölogical Gardens for food for the lions and tigers. The next attempt was successful. This time he left his body to the Academy of Medicine, which refused the legacy, and the body was turned over to the family.

**Chloroform the Favorite.**—*Les Nouveaux Remedes* has compiled the statistics of 52,475 administrations of anesthetics, with the following results: Chloroform, 33,083; ether, 11,669; A. C. E. mixture, 3,896; bromid of ethyl, 2,986; Billroth's mixture, 750; nitrous oxid, in dentistry, 91. Chloroform was used in 63 per cent. of the total administrations; ether in 22 per cent., and all others combined in 15 per cent.

**A Sign of Hereditary Syphilis.**—At the French Congress of Dermatology and Syphilography (*Rev. Int. de Med. et Chir.*), M. Jullien mentioned a malformation of the jaws which seemed to him to be characteristic of hereditary syphilis. It consists in the projection of the upper jaw beyond the lower, either all around or only in front. He has observed this ten times; in nine cases it was connected with manifestly hereditary syphilis; the tenth case was simply suspicious.

**Faculty of Medicine of Vienna.**—In this winter's semester the Vienna Medical Faculty contains (*L'Union Medicale*) twenty-eight ordinary professors, thirty-nine extraordinary professors and eighty-two privat-docents and assistants. In the last semester there were 2,427 medical students—nearly half the students in the whole University. Of these 1,584—119 less than for the corresponding period in 1893—were ordinary students, 322 extraordinary and 521 special.

**French Congresses of Surgery and Internal Medicine.**—The ninth session of the French Congress of Surgery will be opened Oct. 21, 1895, in the Faculty of Medicine. The topics for discussion are: 1, surgery of the lung (except the pleura); 2, on early or late operative interference in solutions of bony continuity (except the cranium). The second session of the Congress of Internal Medicine will be held at Bordeaux, either in August or September, 1895. The subjects are: 1, On infectious myelitis; 2, the relations of the liver and the intestine in pathology; 3, on analgesic anti-thermic agents.

**Toxins Treatment of Sarcoma.**—In a study of a few suggestive cases (*Medical Recorder*) Dr. Edmund Andrews details two cases of sarcoma treated with the mixed toxins of streptococcus erysipelatosus and of the bacillus prodigiosus. He concludes that these two cases, with some others similarly treated, show that these toxins have a power analogous to that of tuberculin; that as tuberculin is capable of causing the death of tuberculous tissue, so the toxins have the same effect on sarcoma. Nevertheless, "so far as these two cases go, it would seem that the destruction of very large sarcomata by these means in weak patients is apt to terminate in fatal exhaustion." The writer thinks that probably tumors of medium or small size might give more successful results.

**Anatomy and Art.**—Dr. Robert Fletcher discussed the relation of these subjects in an able and interesting way in his annual address as President of the Philosophical Society of Washington, D. C., December 12, last. Every paragraph of his essay, now published in pamphlet form, scintillates with notes, suggestions, references and anecdotes drawn from the history of art. Taste in art is not inherent in man; its culture requires long study, close observation and familiarity with the best masters. By its brief review of the work of these masters, Dr. Fletcher's address will do much for the

cultivation of artistic taste in those who give it the attention which it merits. His conclusion, that an acquaintance with muscular anatomy by dissection, though to be recommended as useful, forms but a comparatively unimportant part of artistic anatomy, is fully borne out by the consideration that, "The noble works of Phidias and his contemporaries or successors were in existence long before the time when Hippocrates began the work of rescuing medicine from the priests and made a first imperfect sketch of anatomy."

**Expressions of Pain as Evidence.**—It is well settled, declares the Appellate Court of Indiana in the case of *Anderson v. Citizens' Street Railway Company*, decided Nov. 27, 1894, that whenever the bodily or mental feelings of a person are material to be proven, the usual expressions of such feelings made at the time are original evidence. The statements or representations of a sick person of the nature and effect of a malady or injury under which he is laboring, or expressions of existing pain, it therefore holds, are admissible as original evidence; and this is so whether they be made to a medical attendant or other person.

**Liability to County for the Support of Insane in New York State.**—It has been held in New York (*City of Albany v. McNamara*, 117 N. Y. 168) that a person receiving aid as a poor person from the officers of the poor in a city or county, in the absence of any representations on his part as to his responsibility or physical condition, incurs no liability to repay the amount expended on his behalf. That doctrine, the general term of the Supreme Court now holds in the case of *Oneida County v. Bartholomew*, decided November, 1894, applies, in the absence of any statutory provision to the contrary, where an insane person is supported at the county insane asylum as a poor person. Under such circumstances there is no liability on the part of the person receiving the support, or on his estate, to repay to the county the expense.

**Therapeutic Value of Seine Water.**—An item has been extensively copied in medical journals of late, giving the number of animals found in the Seine, which reminds the *Gazette Medicale De l'Algerie* that in 1775 a work was published entitled, "Physical, Chemical and Economical Dissertation on the Nature and Salubrity of the Seine Water, by M. Parmentier." This author declares that there is no materia medica or dictionary which does not say something on the properties of the water from the Seine. Some authors also mention it in their works. The Count of Forbin, among others, says in his memoirs that, being affected with violent colics in Paris, he only found relief and a cure by the abundant use of Seine water, by baths and drinking it. "Many officers of rank were only cured of insupportable headaches, phlegms, and nerval affections, by taking by my advice a pint of the water, cold, early in the morning." Our contemporary thinks the Faculty should bring this remedy to the notice of the profession.

**Can Patients Smoke?**—Jankau (*Zeitsch. f. Krankenpflege*) thinks that patients may be permitted the moderate use of tobacco, especially if they are used to it. All those with surgical disorders he says, may smoke, except those convalescing from operations on the bladder or abdomen. It should be forbidden in affections of the eyes, nose and pharynx. Among patients with medical disorders, those with peritonitis and typhoid affections should not use tobacco. In gastric diseases they may smoke if the smoke is filtered. In cardiac affections very little smoking may be allowed. It is sometimes indicated in pulmonary affections and also in syphilis. In nervous affections it is difficult to say—sudden stoppage of tobacco is inconvenient and, on the other hand, in cardiac neuroses smoking is to be permitted only when the smoke is filtered. The author says smoking should not be permitted in wards with many patients and that the best time for it is several hours after meals.

**Treatment of Chloroform Asphyxia.**—At a recent *seance* of the Paris Academy of Medicine, reported in the *Bulletin of the Academy*, Labbé said that in apparent death, from chloroform, he was firmly convinced that artificial respiration

should be persevered in for a long time and instanced many cases in support of this advice—particularly one in which he had kept up artificial respiration for twenty-seven minutes and was finally rewarded with a remarkable success. Lately, however, he had used rhythmical traction of the tongue, suggested by M. Laborde, in the case of a child who, soon after beginning the chloroform inhalation, became asphyxiated. Death seemed absolute, the pupils were dilated to the utmost. As soon, however, as he began the rhythmical traction of the tongue the patient returned to life with marvelous rapidity; it was a genuine resurrection. He believes this method is preferable to artificial respiration, as it is easier and much quicker. Professor Verneuil said that for some time he had used only lingual traction, alternating with flagellation of the epigastrium with a wet towel.

**A Proposed Hospital for the Homeopathic Insane.**—A bill has been introduced in the Illinois Legislature providing for the establishment of a hospital for the insane to be managed on "homeopathic" principles, whatever they are. The existence of the "homeopathic" sect shows some mental aberration, but this is the first public admission we have seen that any considerable proportion of them required confinement. There is nothing infinitesimal about the proposed appropriation, as the bill provides for an expenditure of \$400,000.

**Journal of the American Public Health Association.**—No. 1, volume 1, of this *Journal*, published quarterly, lies on our table. It has a handsome face, and like all of the publications of the Association is well printed. The papers in this issue comprise the larger proportion of those read at the Montreal meeting, which have been fully abstracted in this *JOURNAL*. We congratulate the Association upon their handsome publication, and believe that it will have a great field in the advancement of sanitary science on this continent.

**The Absorption of Guaiacol.**—The question whether the quantity of guaiacol eliminated by the urine in a given time, is the same when the drug is employed pure, or when mixed with glycerin, has been studied by O. Sturbe, whose tests were made in a series of skin paintings. That observer has found that pure guaiacol is absorbed more quickly than when mixed with glycerin or oil of almonds, and that the glycerin embarrasses absorption considerably and uniformly retards it, notwithstanding that the oil of sweet almonds retards absorption at first, but left alone, absorption is effected in from one and one-half to two hours easily enough.—*Courrier Médical*.

**The Proposed Testimonial to Sir Henry Acland.**—The friends of Sir Henry Acland propose to take the opportunity of his retirement from the Regius Chair of Medicine to "mark their appreciation of the great services which he has rendered to Oxford and the country at large and the kindness he has done to individuals. To him is mainly due the foundation of the schools of natural science in the University, the initiation of teaching in biology, and the high standard maintained by the Oxford medical degrees. There are few persons who have not profited by his labors in the study of sanitary requirements and of the laws of public health."

Subscriptions will be received by Parsons & Co., Old Bank, Oxford; London; and County Bank, Oxford; Wooten & Co., Oxford, and Gillette & Co., of Oxford. It is proposed to make provision from this subscription for the increased usefulness of the Sarah Acland Home for Nurses.

**Relation Between the Physician and the Pharmacist.**—Mr. Wm. J. Evans, of New York, made the following response to the toast assigned him at the banquet of the Mississippi Valley Medical Association, at Hot Springs:

"When the ultimate Jenner, Lister, Pasteur, Koch, Behring, and Roux in the ultimate institutions of preventive medicine have developed that which shall be ultimate materia medica and pharmacology, it may be found that the last

branch of study to approach an exact science will have given its fuglemen such fame as to prove that it was certainly not the least among their notable achievements.

"In representing the chemist and the pharmacist, I feel obligated to say for them that they are conscious that no man liveth unto himself. Their occupation may be one which they like or dislike, but it is an occupation second only to that of the practice of medicine in the matter of making society possible. The public health is public wealth, and the grandest aggregation is the possession of valuables by the valiant. In expecting that the medical men will adopt the motto, let the standard be so high that he who fails may say, 'What I aspired to be and was not, comforts me.' The chemists and pharmacists are more than happy in adopting the motto, 'There is no office in this needful world but dignifies the doer if well done.' Will it be too much for the patient to expect, who is our nearest and dearest relation, that both schools shall adopt the motto of the great painter, who said: 'Whatever of strength, whatever of dignity we have within us, will dignify and make strong the labors of our hands. Whatever littleness degrades our spirit will lessen them and drag them down; whatever noble fire is in our hearts will burn also in our work; for as we are, so our work is, and that which we sow in our lives, that without doubt we shall reap for good or ill in the strengthening or defacing of whatever gifts have fallen to our lot.'

"Gentlemen, I have much pleasure in asking you to enlist with the chemist and pharmacist in a pledge to contribute to that which shall live after the fads and fallacies of pharmacy are forgotten."

**Tours of Duty in the Army Medical Service.**—The following circular was issued, Jan. 9, 1895, from the office of the Surgeon-General of the Army:

The tour of duty for medical officers below the rank of Major at the following stations will hereafter be two years, which time will be considered as equivalent to a full tour of duty in the Military Department in which the several stations are located.

This, however, must not be considered an absolute rule, as the interests of the service may frequently call for a change of station within the department or to another department before the regular tour of duty has expired, and circumstances may sometimes make it advisable to extend the tour of duty of a medical officer beyond the time specified.

Alcatraz Island, California.  
Fort Brown, Texas.  
Columbus Barracks, Ohio.  
Fort Columbus, New York.  
Fort DuChesne, Utah.  
Eagle Pass, Texas.  
Fort Hamilton, New York.  
Fort Hancock, Texas.  
Fort Mason, California.  
Fort McIntosh, Texas.  
Camp Merritt, Montana.

Fort Myer, Virginia.  
Fort Porter, New York.  
Fort Ruggold, Texas.  
San Carlos, Arizona.  
Fort Thomas, Kentucky.  
Fort Trumbull, Connecticut.  
Fort Wadsworth, New York.  
Fort Warren, Massachusetts.  
Washington Barracks, D. C.  
Washington, D. C.  
Fort Wayne, Michigan.

GEO. M. STERNBERG, Surgeon-General U.S. Army.

Approved:

DANIEL S. LAMONT, Secretary of War.

Outside of the announcement by Surgeon-General Sternberg in 1893, that those captains of the Medical Department who were nearing their examination for promotion would be assigned for a year as attending surgeons in certain cities, to afford them facilities for study and professional improvement, the circular just issued is the first formal intimation given to Army medical officers of the probable length of their tour of duty at any specified station. Since the close of the civil war, it has generally been understood that the Surgeon-General in assigning officers to duty considered the locality and character of their previous service. A tour of duty in the West has usually been followed by an assignment to an Eastern post; service in the field or at an isolated post by service at some military station near a city where the refinements of civilization with opportunities for professional culture might be enjoyed. The length of the tour at one post or in one department was four years, except for junior officers whose service in the East was limited to two years at a time. The circular just issued modifies this by restricting the two years term to twenty-two stations, among which are included the best of Eastern and the worst of the Western posts. Instead of moving the junior officers from all the Eastern stations, after two years service those only

will be moved who have enjoyed the advantages presented by the vicinity of large cities; and instead of having a four years tour for all the Western posts, the young officer who has endured the discomforts of such places as San Carlos and the Texas posts, will be relieved at the end of the two years term of service. By this arrangement the number of moves and consequent expense of transportation will be lessened, and the advantages of the good stations and the disadvantages of the bad ones will be more equably distributed than by the method previously in force.

**Statistics of Intestinal Resections.**—E. Becker publishes in *Zeitsch. f. Chirurg.* the statistics of resections of the intestines in Trendelenburg's clinic at Bonn for the last ten years. They number thirty-three, as follows: Five for strangulated hernias, eleven for artificial anus following strangulated hernias, two for ileus, one for appendicitis, four for fecal fistulae following perityphlitis, one for fecal fistula from a ruptured colon, three for cicatricial strictures due to tuberculosis and six for tumors. These thirty-three resections resulted in twenty-one cures. An examination of these statistics shows that an artificial anus gives better results than intestinal resection in the treatment of strangulated and gangrenous hernia. Also that in the Bonn clinic it is the rule first to create an artificial anus and if necessary later to resect the intestine.

**Association of Agricultural Chemists.**—The Proceedings of the Eleventh Annual Convention of the Association of Agricultural Chemists, has just been issued from the Government Printing Office, Washington, D. C., as Bulletin No. 43, of the Division of Chemistry of the Department of Agriculture, the Chief of this division, Dr. H. W. Wiley, being the able secretary of the Association. The meeting of which this is the record was held in Washington, D. C., in August last. The objects of the Association are to secure uniformity and accuracy of the methods, results and modes of statements of analysis of fertilizers, soils, cattle foods, dairy products and other materials connected with agricultural industry; and to afford opportunity for the discussion of matters of interest to agricultural chemists. The original constitution adopted in 1884, proposed as well to secure uniformity in legislation; but two years later the Association considered it best to confine its work to matters of a purely scientific character. Its field of inquiry, as shown by the present volume, covers all branches of agricultural chemistry. Uniformity in analyses is obtained by the adoption of methods which have stood the tests of coöperative investigation by committees and full consideration by the Association, which methods are thereafter regarded as official. Processes for the estimation of phosphoric acid, nitrogen, potash, sugar, foods and feeding stuffs, butter, milk and fermented liquors were adopted at the last meeting and are given in full in the report, which contains also many interesting papers on laboratory work on these same subjects. A valuable part of the volume is the report of the Abstract Committee which in 629 abstracts gives the substance of all important articles published during the past two years in the chemical and agricultural journals of the world. The volume thus forms a most valuable addition to the laboratory not only of the agricultural but the sanitary chemist.

**Abandonment of Mount Vernon Barracks, Ala.**—Mount Vernon Barracks, Ala., one of the nine posts recently abandoned under War Department orders, was situated twenty-nine miles north of Mobile, on a hill three miles west of the Mobile River and 150 feet above its level. It was established in 1873 by troops from Mobile barracks in view of danger from yellow fever at the latter station. Thirty-five acres of the reservation were inclosed by a brick wall, sixteen feet high, within which most of the buildings belonging to the post were aggregated. The barrack building was of a more imposing character than those of any of the other recently

abandoned posts. It was a substantially built three-story brick structure, 120 by 40 feet, with a tower four stories high and a porch with stairways affording entrance to each floor. The second and third stories were used unpartitioned as dormitories, giving over one hundred square feet and 1,000 feet of space to each man of their average occupancy. The ground floor was used for kitchen and mess hall purposes. The officers' quarters consisted of one- or two-storied brick cottages, each with an inclosed yard. The offices, guard house and magazine also were of brick. The storerooms were frame buildings on brick piers. The hospital, a frame structure, excellent in its appointments, afforded space for fifteen beds, few of which were ordinarily occupied. The dry earth system of sewage disposal was in use, with iron draw boxes in outhouses; but had the existence of the post continued for a year or two longer a sewerage system would no doubt have been introduced following the new water supply which is described in the report of the Surgeon-General for the past year: "The hydraulic ram has been replaced by a steam pumping engine, by which the water is raised to an iron tank of 36,000 gallons' capacity on the summit of the hill occupied by the buildings of the garrison. This tank is elevated fifty feet from the ground and 150 feet above the level of the pumping station. From this the water is conducted by four-inch mains to the barrack rooms, kitchens, officers and non-commissioned staff quarters and the men's water-closets and bath-rooms; also to the barracks of the Indian company and to hydrants in the camp of the Indian prisoners."

Some notoriety was given to this post by its selection as the place of imprisonment for Geronimo's band of Chiricahua Apaches. At first little attention was paid to the condition of the prisoners, but the high death rate prevailing among them led to inquiry as to its cause. Consumption among the older members of the community and diarrheal affections among the younger, occasioned the mortality, aided by the gross ignorance of the people and in many cases by their efforts at cure. Every endeavor was then made by the officers in charge to reduce the mortality. Excellent quarters were built for the prisoners. The frame cottages constituting the Indian village, about three-quarters of a mile from the post, were arranged in streets on each side of a central square. Each cottage was twenty-eight feet square by twelve feet to the eaves, detached by a considerable interval from the others, provided with a cooking stove, beds, tables and chairs and kept in a condition of thorough cleanliness. At one angle of the camp was the barrack of Company "I" of the Twelfth Infantry, composed of male Indians of the military age—represented in official reports as a model of order and neatness outside and inside. There was also built for the village a frame hospital of twenty beds, one-storied, shingled and with an inclosing veranda with green blinds. At first the hospital had little patronage, the Indians preferring to be sick in quarters and prescribed for by their own wise women and medicine men, but in progress of time they became as much accustomed to the hospital and the doctor as to the wash basin, bathing pond and cooking stove. Nevertheless, the death rate did not fall. During the first five years the rates per 1,000 living were 55, 51, 110, 146 and 110. They increased notwithstanding the care given to the sanitation of the camp. The Surgeon-General of the Army considered the mortality due to change of habits and that if the Indians were permitted to live on a larger reservation, preferably in a mountain country, their death rate would probably fall to its normal of about 40 or 50 per 1,000. The Indians were moved to Fort Sill, Indian Territory, and the post of Mount Vernon Barracks was abandoned December 4, last.

**The Organs and Functions of the Cell as Described by Watase.**—We are learning to look to the cell as a highly intricate organism with organs of complex structure set apart for the performance of definite functions. The boundaries of morphologic injury have, in the last few years, passed beyond the cell into the problems of the cytologic organs. Many suggestive questions of this line of research have been dis-



# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, FEBRUARY 2, 1895.

No. 5.

## ORIGINAL ARTICLES.

### THE ELEMENT OF HABIT IN GYNECIC DISEASE.

Read at the Seventh Annual Meeting of the American Association of Obstetricians and Gynecologists, at Toronto, Canada, Sept. 19, 20 and 21, 1894.

BY GEO. F. HULBERT, M.D.

ST. LOUIS, MO.

IN CHARGE OF DEPARTMENT OF GYNECOLOGY AND ABDOMINAL SURGERY, WOMAN'S HOSPITAL.

"The situation has never yet been occupied by man; That has not its duty; its ideal. Yes; here in this poor miserable actual, Wherein thou even now standest; here, or Nowhere is thine ideal. Work it out, therefore, and in the working Live, believe, be free."

#### THE ARGUMENT.

1. The national endowment and conditions.
2. Primitive type to standard type.
3. The law of conservation of energy operates for, and necessitates the operation of, the "element of habit."
4. The law of conservation of energy, operating in conjunction with original endowment, insures persistence of the "element of habit."
5. The operation of the law of continuity.
6. Variation in type, acquired by change in environment operating on primitive type.
7. The law of conservation and continuity necessitate the operation of the "element of habit" in the variation in type.
8. Application of the argument.
9. Report of cases illustrating the variation in type and the "element of habit."
10. Atavism the law of therapeutics.

In the evolution of truth accomplished by the finite mind it became necessary, from the very nature of things, that the beginning should be in the simple and often error-laden method of observing, collecting and arranging those incidents termed facts, and from these by various processes of proving and testing, arriving at the knowledge of the thing sought for.

In all this there has, and always will be, the personal equation; and our experience and knowledge of this element clearly demonstrates a positive variation in type in all conditions and circumstances so universal that one is forced, if he be a seeker after truth, to become skeptical and stand askance on presentation to the results attained. While it can be readily and easily established that this variation is obedient to a universal law and order, it is not always a matter easily demonstrated that to the personal equation in large degree, if not wholly, the variety in conclusion we seem to be so abundantly blessed with, and that, too, in relation to the same facts, methods and the et ceteras of our work, must we attribute much of our delay, undoing and contradictions. If we will eliminate this factor, to the extent of abolishing the conscious acquired ego, and permit the unconscious acquired capacity, evolved from hard honest work for truth to prevail in us, there is a law in the universe, the discovery of which was, has and will ever be the greatest of all ages, that of continu-

ity or uniformity, that will harmonize all confusion and lead hard and close to the truth. This has long since been recognized by the naturalist, physicist, mathematician, astronomer and real scientist, but the larger mass of the medical world, and many of the leaders, seem to have little conception of the great blessing at hand. What a brilliant, tragically earnest demonstration the discovery of the planet Neptune was of this thought, where the independent work of four men, who reasoned in accordance with this law, resulted in at last being able to turn the lense upon the very spot in space where the planet was fixed.

We do not wish to be understood as belittling in any sense the marvelous work and progress that has been made in the past in our profession, but simply call attention to a few truths which if fully and reasonably comprehended must necessarily lead to less waste of valuable time and energy, and brush away much unnecessary and seemingly incessant contradiction and confusion. In the consideration of our theme we shall, therefore, endeavor to so approach and consider it that this philosophy may be manifest; and at many places we all can find common ground of agreement and thereby insure profit in what may follow at your hands.

As a first evidence of this, we wish to call attention to the striking suggestiveness that words convey in the consideration of any subject; and always when rightly used point to truth. We are all familiar with the words, natural, normal and standard, and I dare say many of us use them more or less interchangeably, when in truth, while allied in meaning, they are and should be specific, and when so used lead to entirely different conceptions and enforce the truths contained in no uncertain way.

Natural, is derived from *natura*, meaning *born*, *produced*, as the adjective means pertaining to the constitution of a thing; belonging to native characteristics; essential; not assumed, put on or acquired. Normal, is derived from *norma*, rule; as the adjective means according to an established course, rule or principle; conformed to a type or regular form; acquired. Standard is derived from *extendere*; to spread out, extend; and is used in the sense of that which is established as a rule or model.

Now in the comprehension of the natural conditions and endowments of the human organism, to which horn of the problem are we at once led? Manifestly, not to the normal or standard complete human organism, but to the born, essential characteristic of this organism, if we wish to find common ground of agreement: for here all elements of confusion and error are most completely eliminated and at once do we deal with that which contains within itself, in the primitive type, every energy, function and structure that in larger and more complete expression we find in the acquired organism, the human



body. In short, we can, all of us, come together at the *natura* of the acquired organism, comprehend and appreciate in common the natural endowments and conditions; and from these rise into the larger, acquired, established rules and principles, and agree at last in the spread out and extended expression.

It is entirely unnecessary before this body of intelligent and skilled minds to review and present what is the natural endowment and condition of the mass of protoplasm, or the germinal cell, save to say that therein do we see in its primitive type every energy, function and structure that later we find in larger and more extended expression in the normal or standard type; but for our purpose it becomes necessary to trace the mode, method and causation of this; for therein is contained that to which we wish to refer and especially emphasize, namely, the element of habit in gynecic disease.

We affirm, and have elsewhere in a suggestive way, more elaborately presented, that the energy at work in the primitive type is chemical, and is a direct transmutation from the energy of heat, operating upon known forms of matter, under conditions that have passed from inorganic to organic. These conditions characterized by an independence or freedom under appreciable laws; these being the law of continuity conjoined with the law of conservation of energy. So that, given chemical energy under these conditions of freedom or independence, operating under these laws of continuity and conservation of energy, upon definite elements or forms of matter, the product is protoplasm. This is the causation.

The mode and method is evolution and its conditions, under law. This implies that in the product, protoplasm, the primitive type created by the cause assigned, we must have the germ of every form of energy or activity that may subsequently be manifest in the acquired normal or standard type. The law is the same as for causation; that is, continuity and conservation. Hence to the mode and method of evolution and its rules and principles, previously termed conditions, at work under the primary laws of continuity and conservation, in conjunction with chemic energy and its manifest and latent potentials under the same laws, must we assign the products, function and structure. The necessary product from the first, therefor, being protoplasm in primitive type, from this in conjunction with the second, we must have a still higher product, the germinal cell, and from this as the name implies, obedient to the operation of the same cause, mode and method and the persistent application of the laws of continuity and conservation must we find a product of larger and more complete expression, the differentiated cell, and from this the acquired, fully expanded and spread out expression, the human organism; with all of its contained activities, functions and structure. In short, the normal or standard type.

We affirm, therefor, that the natural endowment and conditions are formed and correctly appreciated only in the primitive type; that the normal and standard are an acquired extended expression and fullness of these; that causation, mode and method being under law and productive of the primitive type, so also on account of law must the normal and standard, the acquired and extended type be a product of this natural endowment and conditions and must be obedient in all activities, functions and structures to the same law and order.

From this we can, without further argument, state our second proposition: That from the primitive to the normal and standard type, the laws of continuity and conservation must hold true, and be ever present, and in conjunction with chemic energy, operating through evolution and its conditions, stand in the relation of causation mode and method, for every activity, function and structure that may find expression in the progression from one to the other.

The law of the conservation of energy briefly stated, declares that the sum of all the energy in a system remains constant and is unaltered by any transformations arising from the action of one part of the system upon another, and can only be increased or diminished by effects produced on the system by effects from external agents; in short, a question of quantity.

On account of the position taken, it is apparent that, as far as the primitive type is concerned, in the effect observed in relation to causation there is no change; it is still, in the progression to the normal and standard, chemical; and in all the transmutations as into heat sensation, assimilation, digestion, excretion or reproduction there is no change in the sum of either individual or collective energy; they are fixed and for its system unchanged. There is change in structure and this alone, but in each do we find the exact reproduction of the primitive type, and this, as before implied, is due to the rule and principle of evolution, but involves no change in the law of conservation. The product contains no more energy or sum and is not altered by any transmutation in it, and there are no added transmutations of energy except what were in the original; it is the exact pattern and type. Evolution calls this conformation to type; but evolution is the mode and method of the product; we are dealing with the causation and the product itself. It is the operation of the law of the conservation of energy, necessitating a mode and method in conformity to what preceded. Parent and progeny are and must be exact and alike in all details and generalities, continue and extend the process and under law every parent to every progeny will be alike indefinitely.

The word habit, comes from *habitus*, meaning state, dress. Do we violate any law of logic or reason when we identify the above progression from cause to effect, by saying that herein do we find the element of habit in relation to protoplasm. We think not; and state our third proposition, that the law of conservation of energy operates and necessitates the operation of the element of habit.

The law of continuity declares that nothing passes from one state to another without passing through all the intermediate states. Such being the case in the progression from the primitive type to the acquired normal or standard type, the law of the conservation of energy must pass to the normal and standard, and operating therein must necessitate the operation of the element of habit.

The element of habit we conceive, therefor, to be that state or dress of protoplasm manifest and observed in any and every stage of the progression from the primitive to the acquired type, as related to energy, function and structure; which insures the repetition or recurrence at any given point in the progression of the attained energy, function, and structure typical of the stage selected. In causation this is chemical in its varied potentials. In mode

and method it is the law of natural selection and, mark you, selection not simply in structure but also in energy and function.

Having traced causation mode and method in the natural endowment and conditions; identified them therein; shown their presence in and from the primitive to the standard type; stated the laws of conservation and continuity, and shown their operation and necessity therefor; identified the element of habit not only in the primitive, normal and standard types, but its necessary presence in each, and at every point in the progression from one to the other; and this necessity and operation being due to the influence of the laws of continuity and conservation; and shown that the element of habit is not only found in relation to causation, mode and method but necessarily passes to the product itself, protoplasm, and is found therein and in relation to energy, function and structure, obedient to the same law and order; the element of habit must therefor be persistent.

This leads to our fourth proposition, that the law of conservation of energy, operating in conjunction with the natural endowment and conditions, namely, evolution, insures persistence of the element of habit, due to the operation of the law of continuity; and not only must be found in and through the progression from the primitive to the standard type, but also in every and any variation that may occur.

From the foregoing, it is evident that in the further consideration of our theme we are confined to that position which considers disorders or disease, be it gynecic or otherwise as a variation in type, in relation to the natural normal or standard, and that this variation is not simply that of structure but also of energy and function. If we apply this to the standard organism or the so-called normal we do so with a certainty of plunging into complexities and confusions that are unending and lead to inconsistencies and contradictions. If we bear in mind the meaning of words, as natural, normal and standard we at once see that we must turn to the *natura*, the natural, in order to find common and sure footing in our conception of variation in type or disease. This may seem simple and unscientific, but certainly the *natura* is the thing itself; is omniscient and omnipresent, and we challenge the objection by saying that it was only when the medical mind evolved the departments of histology, microscopic pathology and bacteriology, that light was manifest and our knowledge of real utility.

Furthermore, we know that the only possible means that are capable of accomplishing a variation in type is that law of evolution termed "change in environment." If this is to be applied, either in theory or practice, to the normal and standard type, we are thrown back into the mysticism and empiricism of the "dark ages" of medicine and are compelled to comprehend cause and effect by symptoms; these may be real or counterfeit. Keeping in mind, therefore, that we are dealing with energy, function and structure as expressed in the primitive type, we state our fifth proposition, that disease is a variation in type acquired by change in environment operating on the primitive type, and that this variation and effect of change in environment is not simply in and on structure, but also in and on energy and function.

This leads to another concept, viz., that an absence of change in environment insures a persistence of the *natura*, or the acquired type, and necessitates a

persistence in progression of the type acquired through the stages of evolution to which the organism is or has become adjusted. We perceive, therefore, that the element of habit is and does become a potent factor, and that it is not only to be found in the *natura* in relation to the primitive type, but also in the acquired, be it normal or standard, and in relation to those conditions termed health or disease.

In the application of the foregoing we must keep in mind that it is in relation to energy and function, as well as structure, that our concept is to be utilized. This may seem an unnecessary refinement in diagnosis, yet without it we gain nothing in reconciliation of apparent contradictions and explanations of the enigmas of our experiences.

Who of us is not familiar with those general divisions of disease called functional and organic, and does not feel in the attempt to explain and point out differences that only a part of the phenomena are accounted for? Who of us has not witnessed those gradual modifications and alterations under the effect of some external or foreign agent in which structure or function may or may not be involved, and yet all the symptoms of the most intense organic change be manifest, and are sought and not found? and who of us has not done careful and effective work in removing evident causes for evident effects, and been non-plussed at the persistence of the phenomena we believed would disappear?

We believe the difficulty lies in the fact that we have been contemplating structure; that we have not comprehended the "trinity" of the human organism, energy, function and structure, and have not recognized the possibilities of a variation in type within the limits of the freedom or independence possessed by each in its relation to the others, as well as without. Take, for instance, the first, energy. This, we affirm, is chemical. Witness the lithemic condition; what mild or protean phenomena may be evolved from this chemic variation, and how long it may continue with only a variation in function. Witness the drugging (morphin, chloral, cocain, alcohol) the human organism has sustained, and how long continued this may be and structure remain intact. For function, witness the over-exertion, excessive changes in environment, abuses and excesses in all directions of function, and energy and structure remain typical and competent. For structure not so much can be allowed, but observe the hypertrophies, hyperplasias and atrophies, and not quantity but type and competency remain. And what part or locality in the human organism furnishes greater possibilities, or is richer in observed phenomena in any of these, than the gynecic?

Here better than elsewhere in the primitive, normal or standard type is observed continuity, conservation and evolution from the simple primitive undifferentiated, up to the completely expanded expression, working out the progression with a marvelous capacity and reserve, in all its adjustments; fulfilling law and order in its widest and most exacting demands, to the complex differentiated expression of the trinity; abiding for a season, thereby insuring persistency in law and order and type; thence back again; obedient through all to continuity, conservation and evolution. A poem in energy; a symphony in function; the culmination of a cosmos in structure. And yet there are men in the highways and byways in this day of light and possible liberty from error, whose

concept of gynecology is a speculum, a probe, absorbent cotton and iodine; a pessary; a knife; electricity; drugs; an idea or authority.

Further, in order that we may avoid misconception and confusion in considering the argument, the element of habit, from what has preceded is defined as the adjustment of any one or all the elements of the trinity—energy, function or structure, to the circumstances or conditions operating or quiescent at any given time. It is not the causation, mode or method, but is involved therein; is not the law of continuity, conservation or evolution, but a sequence thereof; being an adjustment in and due to the above, at any given time in circumstance or condition of protoplasm, either as primitive, normal or standard type, it remains in our application to show how this is manifest and accomplished. In this we do not consider it necessary to review what you all have observed and no doubt appreciate in that condition called health, and are acquainted with the variations in type within the limits of the condition, health; but to transfer this whole plan and argument into the domain of disease in every detail may not at first seem correct; yet this is precisely what we must do if we accept law and order in the universe, conceive disease to be a variation in type and believe continuity, conservation and evolution as laws in relation to causation mode and method necessarily passing to energy, function and structure. There must be analogy (we use the word with its specific meaning) or contradiction. If analogy, then truth; if contradiction, then error.

We have said that disease is variation in type; this implies change in environment. Look at bacteriology; here we have presented organisms analogous in all respects to the human organism as far as being a part of the same cosmos; with a natural endowment, obedient in causation, mode and method, energy, function and structure to the same general laws in which the culmination in expression is to a *natura* molded for and adjusted to the same objective point—self; but whose mold and adjustment is a variation in type in its trinity from that of the human organism. These, coming into relation with the *natura* of the human organism (and if we had continued observing the acquired normal standard type they would be still unknown), made possible by the analogy, there is accomplished a change in environment to the *natura* of the human organism, and this change in environment is not simply to the structure but to energy and function, and as a result of this change there is and must be a variation in type in the *natura* of the affected organism.

This variation may be confined to one, two or all of the elements of the trinity; when energy is simply modified there may or may not be any modification in function or structure. It may be transient or sustained, and may not pass beyond the confines of the capacity or reserve which needs nothing else to dispose of or tolerate the variation. In this variation we place the benign and some possibly pathogenic organisms, and find by this that our analogy carries us direct from health to disease. Passing from the pathogenic organisms that may at some time accomplish only variation in type in energy, to those that always do, and that in a degree beyond the freedom for individual variation in type, we fully enter the domain of disease and find the continuity of the progression unbroken, and the conservation in

energy absolute. Accomplish the change in environment as you may, either by direct contact of organisms, agents operating upon the acquired type through the mental, nervous, muscular, excretive, secretive, digestive, assimilative or reproductive tracts; or by agents chemical or physical, the modification is received and spent on and at the *natura*, and the effects accomplished may or may not be transient or sustained and the variation in type in energy can be likewise traced into and from the condition termed health into the condition termed disease, and not a break found in continuity and conservation, and not a single rule or principle of evolution violated. So, also, study function and structure, but time forbids. We think it correct, therefore, to say that change in environment produces variation in type. We see that disease is due to change in environment and that it invariably affects the *natura* of the human organism either in energy, function or structure or in all, and consequently is variation in type.

It is manifest, therefore, if we apply this variation to structure we have only organic disease comprehensible with always function and energy involved. This we know is not true if applied to the acquired normal or standard type; is true if applied to the *natura* or primitive type, but only in relation to each individual cell affected; for we know that structure may be seriously modified in the first, energy and function remaining typical and competent. Apply this to function, and we comprehend functional disease with or without variation in energy or structure. If applied in relation to the acquired type, we have no means of differentiating when energy and structure vary, and have no conception of the possibility of the disorder passing from the domain of the functional to the organic; applied to the primitive type this is readily appreciated. Apply the variation to energy at work in the *natura* and conceiving all the various activities of the acquired type as being transmutations from this, and much of the now incomprehensible functional domain becomes clear; immunities from and predispositions to disease are explained; acquired modifications protecting from or predisposing to variations once experienced are tangible; soil, diathesis, resistance are appreciable; the mysticism and ignorance involved in the neuroses is largely brushed away; slight ailments will obey attention; hysteria, neurasthenia, hypochondriasis, many forms of melancholia, and a host of disorders that the careless medical mind attributes to the "fool patient" will become realities; the possibility of a variation from the condition of health to that of disease, and that, too, without any appreciable cause from without will become manifest; and while we at this time can not give the variation in formulas and may not be able in all cases to correct the variation, we can, until this field has been better explored, in hearty accord with our German co-laborers, make a more correct diagnosis, and damn the therapeutics.

Appreciating disease as a variation in type, we present the last point in our argument, and that is, that the possibility always exists in disease as well as in health for the variation in type to become fixed or adjusted in its relation to the *natura* and its trinity to such a degree that it is more or less persistent. This necessarily implies a persistence if the change in environment is more or less perfect, and so long as this more or less perfect persistence of the change is operative there can be only more or less operation of

another principle of evolution, that of atavism or reversion to the original type, and consequently the disorder must be more or less persistent and appreciable.

The conclusion we reach from this is, that habit being the state or dress or adjustment attained in the *natura*, either in one, two or all of the elements of the trinity, it necessarily must pass to and be present in disease and be one of the elements in pathogenesis, pathology and pathisotherapie.

In illustration, and for the practical part of our paper we wish to present the following, the first of which is variation in type in relation to energy:

Miss A., aged 25, school teacher; five feet four inches; 115 pounds; menstruated at 13; always more or less trouble and for last six years sufferings severe; nostalgia more or less continuously; malaise and ready fatigue persistent; constipation; cephalalgia of top and back of head; vertigo at times; gastric disturbances slight, but explosive at times during menses; heavily coated tongue; skin flabby but not anemic in color; uterus in complete retroversion; density greatly modified, so much so that flexion can readily be produced in any direction; no evidence of any structural changes save slight enlargement of left ovary and moderate fixation of right; easily released; no history of any inflammatory attack at any time and no discharge save at menses; this is normal and good color. The dislocation is marked; uterus at first examination was found impacted between the utero-sacral ligaments, which was readily relieved; the patient declining operation a pessary was introduced, well fitted, gave no discomfort and apparently relieved the relaxation manifest at cervix. This patient has been under observation now for over a year, and only during the last four months has there been any evidence of improvement in the relaxation and persistent slopping of the uterine body over upper arm of pessary. Every means possible was utilized; all symptoms met; tonics and the et ceteras of the gynecologic armamentarium were exhausted and no appreciable benefits attained.

The environment was pernicious, monotonous, effective, and the variation in type was likewise persistent. It was not until we comprehended that this was in energy that we found the key to the situation; structure was certainly unchanged; function was to some extent, but when considered in relation to the *natura* it was not; the type was there but the *power* for active function through structure was not there. Considering, therefore, that the variation was in energy we could find nothing to fit the case unless it was that the chemic modification was that of lithemia. Acting upon this, and persisting for three months, we were rewarded by the first and only evidence of relief, that of general systemic well-being and decided improvement in the relaxation of the pelvic tissues, to the extent at this date of a more normal density of uterine tissue and the pessary now sustaining the uterus in position. But all along the reversion to the original type there was and is now a more or less constant tendency to return to the full expression of the variation. This, we consider, the element of habit. The adjustment of the *natura* to the variation had been so long in operation, so fixed, that in spite of the activities at work, by presentation of changes in environment within the lines of health toward this end, that it is continuously showing itself. The law of natural selection has passed from the limits of health to the domain of disease and is at work in the new adjustment; and we expect to have to contend with this element of habit until such time as the environment for health shall have been in operation so long and forcibly that the *natura* has been brought back entirely to the adjustment of the original type, and the element of habit for disease has become the element of habit for health.

Variation in type in relation to function in pure and simple expression is not frequent, but is usually met after variation in energy and structure has complicated the process, standing in relation of cause to the former and sequence to the latter.

The following case illustrates with a considerable degree of purity the type:

Miss A., age 27; single; brunette; five feet four inches; weight 115 pounds. Gives clean bill of health up to 21 years of age, at which time, following severe mental and physical strain, began to have leucorrhea, backaches, gastric reflexes, cephalalgia; pains the day before and first day of flow, gradually changing to three days before and the several days of the period. Save at the menses and the leucorrhea feels perfectly well, capable for her duties and enjoyments, and would to the casual observer be considered a healthy woman. Examination of the gynesia revealed nothing tangible or without the domain of health in relation to structure or energy. But at the menstrual epoch the picture was radically changed. There was hyperesthesia; decided enlargement of uterus and ovaries; mobility diminished and all the evidences of general pelvic stasis and hyperemia; in short, the type was congestive; here with energy typical and competent, structure unchanged, the action or function passed far beyond the type and we had all the phenomena of the first stage of an inflammation.

The variation in type had reached the point where energy was beginning to yield and this accomplished, structure would not belong in joining in the progression. Those who have had this type to deal with know full well the fixed character of the variation; how the tendency to recurrence is frequently exhibited and how slight changes in environment send the subject back again and again. Here do we see the element of habit.

As illustrating variation in type as related to structure, we point to the traumatisms, and lesions accomplished after long continued operation of variations in type of energy or function. Particularly is it observed in that class who have gone through long experiences of organic disturbance, in which evolution in structure has been accomplished, which in many instances remain more or less permanent. Even in those in which reversion to the original type has been most perfectly accomplished, do we see manifest repeated and persistently recurring attacks in which the type is again and again more or less fully expressed, and that too in the absence of the specific agent that at first produced the variation. This we consider the element of habit responding to the variation in structure. The new state, dress or adjustment is repeatedly showing itself on account of the persistent change in environment maintained by the variation in structure. We wish it understood that in this we do not lose sight of the active specific agents that in beginnings and for periods afterward, and possibly to the end, stand in the relation of cause to effect; but these die out, are disposed of and leave sequences. These sequences are the variations in type in structure which may or may not pass away that we note; and these in this type are the real factors that keep in operation the new adjustment and the element of habit.

For instance, look to the hypertrophies, atrophies, hyperplasias, adventitious and heterogeneous changes in structure, and study the element of habit therein. Who has not observed the aches and pains; the functional activities, the recurrences, the lapses from apparent states of health to disorder after more or less continued experiences of disorder, and after the removal of apparent causes and conditions for the same; the radical therapeutics of the day and in



most instances the gradual and final reversion to the original state and condition of health? How many sensations, aches and pains we meet; the persistence of the menstrual flow and menses, when we know beyond doubt that the agents for these activities have been absolutely done away with? How often we see the gynesia after prolonged diseases become restored to conditions that the skilled sense of touch knows are within the domain of the normal or standard type, when, with some reasonably sufficient cause the swing back into the domain of the previous experience is so sudden and aggravated that the observer is non-plussed? Who is not familiar with the phenomena of heredity and the climacteric? These are all kindred and can not be interpreted or comprehended save but by the element of habit; and in the progression of disease during the active stages, the host of experiences and evidences that are readily reconcilable and can be intelligently explained are many, and correctly appreciated lead to safe therapeutics. Appreciating the element of habit in health and its possibility and processes in gynecic disease, and comprehending the entity to be a variation in type either in relation to energy, function or structure, one, two or all, and these as related to the *natura* of the organism affected, obedient to continuity and conservation, we are led in the solution of the problems presented, to the rules and principles of *atavism* or reversion to the original type.

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## SOME MEDICO-LEGAL FEATURES OF THE SCHNEIDER CASE.

Read before the Medical Society of the District of Columbia, Oct. 10, 1894.

BY IRVING C. ROSSE, A.M., M.D., F.R.G.S.

WASHINGTON, D. C.

With the softening influence of time, which modifies all things, our minds are prone to assume the blank state so necessary for calmness of thought and dispassionate consideration that should always be brought to bear on all questions of forensic medicine. It is in this frame of mind, I trust, that we now approach the consideration of a case that was attended by much public excitement.

On Jan. 28, 1893, I visited the district jail, in company with Dr. Godding, of Washington, to examine into the mental condition of a young man under sentence of death for the murder of his wife. Certain features of this celebrated case, but more especially the lunacy inquiry, came within the unfortunate category of those prejudged by public sentiment, regardless of calm consideration of the attendant facts. But the question of guilt or innocence being no concern of mine, judgment may be suspended on this point. Whatever a culprit may be from the special pleader's point of view, to the physician a patient is only a patient whether he be saint or sinner, and the judicial aspect of such cases in no way concerns us, unless the medical facts relate to the law or tend to promote the ends of justice.

As far as I could ascertain the prisoner's antecedents he had led an irregular eccentric life, was addicted to the abuse of alcohol and tobacco, and was unhappy in his domestic relations. A near blood relative had died of spinal disease, another was hemiplegic, another had nystagmus, and the father was a senile dement, being insane before and at the time his son was begotten. The prisoner had a poor common school education and his family were Lutherans.

From the jail attendants and the physician it was learned that the prisoner had undergone a marked change in conduct; from being neat in his personal appearance he had become slovenly and filthy; his manner of talking, from being quick and sprightly, had become slow and hesitating; when addressed he would be apparently forgetful and have difficulty in concentrating his mind upon matters as to which

he was interrogated, and before answering would repeat part of the question in a stupid way after the manner of echolalia. He refused food for fear of poisoning, suffered from prolonged insomnia, talked incoherently, especially about a wonderful electrical machine he had invented; frequently yelled in the night that persons were entering his cell, throwing acid upon him, and making attempts on his life.

I found on entering the cell a man of unkempt appearance with pallid complexion, long hair and beard and a morbidly suspicious manner. First inspection showed slender trunk and limbs and thin cigarette-stained fingers. He constantly and aimlessly picked and scratched his hands and wrists after the manner of many patients one sees in asylums. Palpation of the head gave no result, nor was there any marked peculiarity in its shape beyond a slight plagio-prosopia of the right side. There was a slight ptosis of the right eyelid, irregularity of the lower teeth, a narrow palate arch, and an extensive ranula. The superficial veins appeared healthy. There was a brown scar on the left of the glans penis. A quantity of urine passed in our presence showed a large excess of phosphates on analysis.

Various tests for the motility, sensibility, reflexes and special senses were applied. Exaggeration of the patellar tendon reflexes was present, and the prisoner either could not or would not distinguish colors. The circulation and respiration were weak. The pulse was 90 and irregular; the temperature under the tongue 99.5. Owing to the prisoner's stuporous condition and his morbid suspicion, it was a more difficult task to ascertain the limit of his ideas, imagination, will, and moral and affective sentiments. He complained of heat and pain in the back of his head and arms; of excessive itching of the skin; of inability to sleep because of the faces of dim green color on the walls, of whisperings and voices, and of the annoyance caused by persons throwing acid on him and having designs on his life. He also said that attempts were made to poison his food; he talked of the attempt to steal an electric invention, and accused his brother and mother of being inimical to him. When asked if there was anything he wanted he asked for medicine to make him sleep. Numerous questions put with a view to leading up to the prisoner's mental weak point failed to elicit much beyond the fact that his memory was apparently weakened, that he was suffering from phrenasthenia, and that he lacked the knowledge and shrewdness to dissimulate the systematized and fixed delusions which were ground out with hand-organ regularity at each visit. At one of these visits the prisoner showed not the slightest sign of emotion on the arrival of his mother, nor was there on several occasions any change in the beat or frequency of his pulse when suddenly asked about killing two people, one of whom was his wife, and that he was soon to be executed therefor.

With Dr. Godding and Dr. Brush, I did not think it possible for an ordinary ignorant man, even with special training in insanity, to feign successfully the symptoms observed. Malingering tests failed to lead the prisoner into any gross error, even after prolonged and varied conditions of examination.

In view of the foregoing facts and my wide experience with frauds and malingerers among thousands of soldiers, sailors, pensioners, and others, I felt satisfied that the prisoner bore the characters, physical and psycho-physical, of degeneration, of aberration, of constitutional abnormality sufficient for recognition, and I signified my willingness to go into court and testify as to the existence of paranoia. Besides, the symptoms observed were similar to the clinical picture of that affection as given by more than fifty authors whom I had previously consulted.

The inquiry accordingly came off before three judges, and on this occasion I had the honor to differ with my friend, Dr. Dana of New York, who was by far the most intelligent, conscientious and well informed of the experts employed by the adverse party.

The inquisitorial procedure conducted by the three judges was a long one; some twenty-nine witnesses being produced on either side, and the testimony was voluminous. To review it here at length would manifestly be out of place; but the legal procedure



adopted and the manner of getting medical evidence are open to damaging criticism, and do not strike the dispassionate observer as "being the wisest method of obtaining light upon the alleged insanity of the defendant."

At the outset of the inquiry, legal opposition suggestive of unfairness, was shown in the motion to exclude from the court the expert medical witnesses for the defense. After deliberation on the part of the judges, who were presumably without predilection and uninfluenced by the sentiment of the hour, this motion did not prevail. While the experts for the prosecution were given every opportunity and did cross-examine the experts for the defense, no such privilege of impeaching the skill and testing competency was allowed the defense, who submitted in writing eighty-four proposed questions which it was thought related to the facts in issue and tended to test the accuracy, veracity and credibility of a document alleged to give an enlightened report of the defendant's condition. Touching these questions, Chief Justice Bingham remarked, among his reasons for not permitting them to be asked: "It would seem to us that each and every one of them is in the nature of a critical, technical and rigorous cross-examination."

Not to comment at length upon the evidence adduced by the various witnesses, it was satisfactorily shown to many persons, among them members of the jury who tried the case in advance of the lunacy proceedings, that the weight of testimony bearing upon the prisoner's insanity was greatly on the side of the witnesses produced to prove the theory of his counsel; namely, "that the shock of the sentence of death, coming after the prolonged strain of the imprisonment for four months and the strain of the trial, acting upon a mind predisposed to disease, operated to dethrone his reason and render him insane, so that he is now unable to appreciate his present situation as a person condemned to death." Even the witnesses for the prosecution clearly established the existence of heredity, which is one of the only two factors that enter into the causation of all cases of insanity. In fact, the neurotic antecedents were so well shown as to remove any doubts as to the defendant's mental condition had there been such, and on being recalled, I testified substantially to this at the conclusion of the hearing of the inexpert testimony. So well indeed, do the best modern authorities recognize the complementary relations to each other of heredity and stress in the causation of insanity that it is now spoken of in mathematical terms as a function of two variables; and one may as well deny the fact that twice two make four as to doubt the two-fold causes of insanity. Notwithstanding this, and the further fact that a considerable part of the testimony for the prisoner was addressed to the mental condition of his father and to the erratic conduct and abnormal behavior in early youth of the son, Judge Hagner, in delivering the opinion of the court, pointedly disregarded these facts and characterized "these statements as comparatively unimportant."

In the course of the inquiry many questions, the purpose of which seemed irrelevant, were put by the prosecution in regard to the use of tobacco, and a sphygmographic tracing of the prisoner's pulse was introduced. The question of consumption of tobacco may be dismissed as immaterial and insignificant, since it was proved that the prisoner never used more than a quarter of a pound a week, and when the

supply was entirely cut off he improved in appearance and in the readiness with which he replied to questions. The inference to be drawn from such improvement is manifestly against the theory of feigning. A simulator would attempt to retain as far as possible the state which he had manifested during the medical examination and during his presence in court. While the nervous system of many persons is seriously affected by tobacco, many old and inveterate users have never been affected. A letter in my possession from a gentleman of 84 years, said to be one of the most inveterate users of the weed to be found in the whole State of Virginia, shows an absence of tremor and a clearness that would do credit to a school boy. While the examination was in progress I produced a sphygmographic tracing, and on asking one of the physicians employed to assist the court, whether the tracing in question was that of a man or some lower order of animal it elicited the reply: "I don't know." It was further asked: "Assuming the tracing to be that of a man's pulse, does he or does he not smoke or use tobacco?" To this the same reply was made, when I stated that the tracing was one of my own pulse and that I did not use tobacco. In defense it was testified that in the diagnosis of insanity the sphygmograph is of no absolute significance; that it is a mere scientific toy, and that any results obtainable from it may be ranked among the probabilities of science. Equally worthless was the testimony regarding the drawings, tracings, and the civil service examination papers introduced to show the work done and the employment of the defendant. As documentary evidence they showed a lower order of merit than is often found among idiots and insane, many of whom do creditable work as artists.

The inference to be drawn from civil service examination is, to say the least, extremely problematical. An instance has come to my knowledge in Washington of a contest in which among the applicants examined were a recent graduate of the United States Naval Academy and a person just from a lunatic asylum. On awarding the results of the examination the lunatic was recommended for the prize. As is usual in such cases, the presentation of the medical evidence proved unsatisfactory, more from the manner in which it was obtained than from the inherent difficulty of the case. Each counsel striving to make the testimony aid his own side thereby forcibly impressed upon it a blurred and distorted character, and each took just what suited his purpose. Concerning the report of the "three physicians of known eminence" employed to assist the court in the examination, a prominent member of the Washington bar, who was a disinterested spectator, on hearing it read remarked: "That document is more like a special pleader's brief than the expression of expert opinion." Since the makers of the report were presumably honest, though mistaken, I will not say that I share this sentiment as to its unilateral character, although some points of the report call for comment and criticism.

Among many irrelevant and immaterial statements, which could not be construed as evidence of either sound or unsound mind, independently of other matters connected with this case, the medical assessors, delegated by the judiciary, described quite truthfully the defendant's condition when they say that: "During our examinations he manifested a stuporous

apathetic condition and a vacuity of mind such as occurs in certain long standing insanities under other conditions." He "avoided the eye of the observer;" was "apparently oblivious to the presence of any one;" . . . "his general attitude one of suspicion;" . . . "his irrelevant and illogical (inconsistent) manner;" his "stupid behavior and far-away look." We are also told that they were not able to surprise the defendant in any way out of the constant expression of his delusive ideas; for the report indicates that on recovering from the effects of ether he "at once took up his complaint of alleged persecution and delusions;" "said he was being starved and called upon his mother to bring his food." The probative force of such facts go to show that the defendant could not keep up his feigning in such circumstances; but it requires greater acumen, on the part of any medical man who has ever seen a patient anesthetized, to see the significance or relevancy of the statements that "when he was given nitrous-oxid gas and ether he exerted an extreme amount of muscular vigor," that he "took ether evincing much cunning in holding his breath and suddenly turning his head." Further occasion may be taken to mention in terms of strongest condemnation this method of obtaining knowledge. The best authorities are against using alcohol, ether or any anesthetic or intoxicating drug for the purpose of obtaining an avowal from a supposed simulator. The expert has never the right, in order to insure his diagnosis, to impose suffering on any individual intrusted to his care or to put him in danger. By doing so he assumes the rôle of judge and inquisitor, instead of confining himself to his proper function. The well-equipped expert has enough means at his disposal to obtain exact knowledge without recourse to barbaric and dangerous proceedings which morality and contemporary science unite in condemning with the same severity as the conduct of a judge who would re-introduce the ancient procedures of the rack and thumb-screw.

If the use of anesthesia was of any probative value in this case, the proof furnished thereby was rather in favor of the defendant. A short time after the first test of this kind, I found him smelling strongly of ether; he had an excoriation on the end of his nose, and he showed a degree of exhilaration and rationality that I had not seen before. Like the improvement noted after withdrawing the prisoner's supply of tobacco, it is difficult to reconcile this fact with the theory of feigning.

We are further told in the report that the "fixed systematized delusions, which have been prominent here, are evolved out of preceding stages of insanity . . . requiring many months and years for development," and further, "we do not believe that from the manifestations testified to, a diagnosis of that form of insanity known as paranoia of Krafft-Ebing and his followers is possible." This statement utterly ignores all the prisoner's neurotic antecedents, the erratic conduct, abnormal behavior, and even insane conduct, which were testified to by numerous witnesses, among them several for the prosecution. To use the language of the court: "With one accord all these witnesses agree that from his earliest youth, preëminent over all his other vices was his addiction to falsehood; that his whole talk was a gasconade of impossible exploits and ridiculous lies."

Dr. Beatty testifies to the belief that the prisoner was crazy when he first saw him in jail, while Dr. Walsh, who had known him a long time, testified as to his general reputation for "being off and peculiar as a youth," and expressed belief in his mental unsoundness.

The family clergyman spoke of him as a person under "a long standing mental cloud;" another witness as a "dime novel hero;" another, of his impulsive and reckless actions and want of reflection; another, of his being different from other young men, an untutored child of nature, and of his moral depravity. One witness called him insane, a fool, an idiot and an arrant coward; another spoke of "grandeur and falseness as the general character of his talk;" while the jail matron testified to his extravagant statements as to the horses he owned, and to his electric invention, and excited manner.

Witness Paine said that the prisoner talked of his inventions and machine the first day in jail and frequently sat up all night. Witness Woodward, that the delusion as to the patent was noticed by him "along in the fall and last three months," and that a gradual change has come over the prisoner, who was torpid and sleepless. Russ, a prison attendant, that he noticed oddity in the prisoner before his wife died, also a change after conviction, and the persistency of the alleged insane manifestations. Peacock, that in July he talked quickly, that lately he talked slowly, etc., all of which manifestations show the forerunners of the prisoner's mental condition and make it quite possible to diagnosticate paranoia. Aside from the gradual development of the manifestations testified to, the medical advisers of the court totally ignored or were ignorant of the distinction of the best authorities between acute primary and chronic secondary paranoia, and they inadvertently spoke of this form of insanity as that of "Krafft-Ebing and his followers," when in reality some twenty-five authors before his time have written of this form of mental degeneration as far back as Vogel in 1764. Moreover, Westphal described the *acute* form as characterized by the sudden explosion of hallucinations, especially of hearing. In this case delusive transformations of hearing were one of the features; but as we cannot, except in an effective way, get into another person's brain to see his mind-stuff and hear what he does, it is scarcely possible to testify in a court with any degree of accuracy as to the existence or non-existence of such hallucinations. However, it is well known to persons skilled in penal matters that among convicts becoming insane, hallucinations of hearing and delirium of persecution are common forms of insane manifestation.

Another point in this case is that the emotional condition of the patient appears to have been ignored by the experts for the prosecution. It is contrary to all experience that a sane man, fully cognizant of his surroundings and of all that is going on about him, and who is feigning insanity, can control his emotional nature and prevent an increase of pulse under circumstances that would cause increase in any sane person. On this point the report says: "As to the importance attached to the condition of the pulse and the behavior of the individual when startling evidence is introduced in his presence, or when he was reminded of his position, we would say that we attach very little weight to variations in pulse as a test for the examination of feigned insanity, and

in making this statement we believe that we are in accord with all modern authorities."

In the first place this statement is inconsistent with the introduction into the court of a sphygmographic tracing to show the condition of the prisoner's pulse; then the pulsatile phenomena of different regions of the body have been known to furnish infallible indications since the time of Galen; and in the earlier days of American medicine, a resort to the state of the circulation was regarded so much of a crucial experiment in determining the proposition whether a man be or be not laboring under mental alienation, that of two men condemned to death in 1794, one of them alleged to be feigning was declared insane after medical inspection; the pulse test placing insanity beyond the possibility of a doubt on comparing the pulse of the insane victim with that of his sane comrade. On the strength of this representation by the medical commission the prisoner was respited and subsequently pardoned by General Washington.<sup>1</sup>

As to the third assertion of the court's advisers, that of their being in accord with all modern authorities, such is not the fact. On the contrary, after examining several hundred of the more modern authorities bearing on this subject, I find that scarcely any fact of modern clinical research is better established than the demonstrable changes in the pulse following transient changes in the central nervous system, such as that contributed by the play of mental or emotional activity, and that this motility of the state of muscular contraction of the arteries is so constant in persons of vigorous health that its absence is considered a sign of diagnostic value.<sup>2</sup>

The number of physical and psychical influences that can be clinically and experimentally shown to cause variation of the pulse could be mentioned at great length. Who has not experienced increased pulsation of his heart on meeting some familiar friend? Every practitioner knows that his presence hastens the pulse of his patients, especially that of women, children and nervous persons. Brain work, calculation, music and sensorial excitations generally accelerate the pulse, while different emotions give to it a vivacity sometimes very remarkable. After an excess of anger the pulse has been noticed to go up to 108. According to some authorities, pain makes it go up to 86 and 100 pulsations in a minute. A series of observations on medical students has obtained 120, 124, 128, 130, 134 beats a few minutes before examination. The influence of the generative function over the circulation, recognized by Galen, when he discovered by the pulse the malady of Justa, wife of the Consul Boëce, and who had a passion for Pylades, is just as potent to-day as it was a thousand years ago.

That the pulse varies in mental alienation according to the kind of insanity is therefore a well-established fact; and how three intelligent men could certify to a prisoner's being cognizant of all that was going on and listening to testimony the most damaging to his case without a momentary effect on his pulse is beyond all comprehension.

Other minor and irrelevant points touched upon by these "three physicians of known eminence" might be discussed at great length; but it suffices to notice that they report "no evidences of any external

structural alteration," and "nothing whatever abnormal was noted physically." Although they mention having found "the head small and an elevated palatal arch such as is frequently found in ordinary neurotic individuals and certain habitual criminals and the tongue pointed to the left side," yet we are not shown how such facts bear upon the correlation between anatomic structure and crime. In making this "exhaustive" examination bearing upon the organicity of crime, its anatomic nature, and degenerative source, why did they not find, or if they did why fail to report, a metopic cranium, facial asymmetry, ptosis of the right eyelid, an extensive ranula, irregularity of the inferior dental arch, dullness over the base of the right lung, and a scar on the penis?

In their general conclusions the report says: "There seem to have been no serious physical changes whatever in his condition;" "an absence of physical deterioration;" "no corresponding appearance of physical deterioration of any kind."

Let us see how the *post-mortem* corroborates the pathologic notions of the "three physicians of known eminence."

Shortly after the execution, the necropsy was conducted in Baltimore by a well-known Washington pathologist and myself. We found the usual cadaveric rigidity in a poorly developed body somewhat emaciated. There was no evidence of seminal emission that sometimes occurs after hanging. But little hemorrhage followed the incision. The brain on removal was dryer than usual, the pia was sticky, and there were minute patches of opacity on the left side. The veins were moderately full. The dura was not abnormally adherent. The right side showed the same stickiness with the minute patches. The left vertebral artery was double the size of the right, and both posterior communicating arteries were larger than usual. There was no sign of disease of the vessels, although the base of the brain was slightly soft. The right motor oculi nerve was narrower than its fellow. The spinal substance was quite soft, possibly a *post-mortem* result. The fluid in the ventricles was slightly tinged with blood, but the ventricles were apparently normal. There was some hardening about the membrane not adherent to the cortex with osteophytes in the dura.

The normal quantity of fluid was found in the thoracic cavity. The lungs, slightly hypostatic and emphysematous, showed numerous pleuritic scars and adhesions with a tubercular deposit in the upper part of the right; but there was no pulmonary apoplexy such as is common to asphyxia.

In the pericardium was an abnormal quantity of fluid. The cardiac cavities were moderately filled with blood and the valves appeared normal, except the tricuspid, which was increased in size to the extent of readily admitting the tips of the four fingers. The left ventricle was thinner than usual and the right heart was subnormal. The spleen was soft, with prominent Malpighian bodies and a smooth capsule. The kidneys contained more blood than usual. The capsules, not readily removed, were more adherent than normal. The cortex was normal in width and thickness. Urate deposits the size of a large pea were found in the apices of the pyramids. In the bladder was found a half ounce of turbid urine, but the walls showed no evidence of disease. On the left side of the glans penis was a brownish scar. The

<sup>1</sup> American Journal Medical Science, Vol. VIII. 1844.

<sup>2</sup> Arch. für Anat. und Phys. 1883. Supplement pp. 17-19.

intestines contained little more than gas. The mesenteric glands were extensively diseased, being enlarged, gray and softened, probably from a deposit of tubercle. The liver was normal.

Microscopic examination of the brain gave but negative results. The same may, however, be said of the brains of many patients who have died of general paresis, while many of the alleged pathologic findings of histologists have been equally observed in the brain of a calf.

During the progress of this lunacy inquiry, much was heard from various sources declaring the case to be an exceptional one. The public, who by the way were excluded from the court, were informed: "This is the first case on record that a man's mental condition has been inquired into because it was claimed that he became insane after the sentence of death had been pronounced upon him;" while Judge Hagner, who delivered the opinion of the court, in speaking of the weight to be given to the three experts who testified on behalf of the prisoner, says: "They all admit the case presented here is exceptional." Both assertions are absolutely contrary to fact and this is easily proved. It is a matter of record that in 1794 two men were sentenced to be hanged for treason, and one of them it was thought feigned insanity, whereupon a commission consisting of Dr. Shippen, Dr. Griffin and Dr. Earle, appointed by General Washington to inquire into the man's mental condition, reported him to be insane. The condemned man was respited and after the popular clamor for his death had subsided was pardoned. A notable feature of the case was the pulse test, which it was said placed the condition beyond the possibility of a doubt, on comparing the pulse of the insane victim with that of his sane comrade.

Another case almost the counterpart of Schneider's occurred a year previously in France. A man having killed two people, his condition became such as to call for a medico-legal report on his mental state. The inquiry showed that the prisoner's derangement was in no way connected with the commission of his crime. He was subject to alterations of memory, which would be lost and recovered some hours afterward. His mind was most of the time in a profound torpor. He had fixed ideas, delirium of poisoning, and refused food. Coupled with these symptoms was the circumstance of neurotic antecedents, which warranted the diagnosis of that form of delusional insanity known as paranoia. Instead of the sentence of death being carried out, the prisoner was sent to an asylum.<sup>3</sup>

Newspapers are not supposed to be scientifically accurate, and lawyers may be pardoned for distorting medical knowledge with which they are imperfectly acquainted, but when a learned judge from the bench delivers an opinion with the sanctity attaching to a judicial document abounding in *scientific* quotations from the Bible and the classics, and yet misstates a fact in forming his conclusion, what is the proper remedy?

As one of the experts who testified for the prisoner, I regret to say that Judge Hagner was utterly mistaken. I absolutely deny that I have ever admitted that the case herewith presented is "an exceptional one and out of the range of ordinary experience," and I challenge any one to read the typewritten copy of my testimony on the occasion named and find

even the slightest intimation of the case being "altogether exceptional."

To conclude this unhappy affair it may be asked, Was the medical examination of the court's advisers "exhaustive, thorough and complete," as they claim in their report and supplemental report? Did they fully weigh all the circumstances of the case? Was the method of procedure the best suited to promote an inquiry not influenced by predilection or sentiment of the hour? And was or was not the final result judicial murder? The answer to these questions I leave to the calm and disinterested intelligence of thinking persons, many of whom may see in this case a striking instance of the bungling application of medical knowledge to legal purposes.

## INTESTINAL INDIGESTION.

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To treat of intestinal indigestion separately from gastric indigestion would seem almost impossible, since it can not well be conceived how the former can exist without being a sequence of the latter, as gastric indigestion invariably precedes intestinal indigestion and is therefore always a factor which mingles its phenomena with all that which follows in its wake.

If proteolysis is not finished in the stomach and duodenum, the substances which have not run the gamut of complete proteolytic disintegration must pass the remaining intestinal length untouched, or undergo putrefactive changes at the instance of bacteria which provide the necessary elements, and hence, abnormal and deleterious substances arise which to a greater or less extent furnish fuel for general systematic disturbances. Intestinal putrefaction is then in its incipient stages, not due to a pathologic condition of the tube below the stomach and duodenum, but is dependent solely upon errors of gastric and pyloric digestive processes.

When any quantity, however small, of proteid substances escapes gastric digestion and also the action of the trypsin enzyme, they are at once attacked by certain bacteria which through putrefactive processes change them into aromatic bodies, viz., indol, skatol, skatol-carbonic acid and phenol. Excess of food ingested will universally induce such putrefactive processes which in infancy and childhood is exhibited in the bowel diseases of early life, and can, with reasonable certainty be differentiated from deflections by other causes, by the odor and appearance of the dejecta.

In adult life, the subjective symptoms are available and form a most interesting chapter of complaints which are mostly dismissed after being labeled with the hackneyed term, "biliousness," whatever that may mean. A coated tongue, a sluggish mind, a headache, a restless night, a treacherous memory, a hot, feverish, thirsty stomach, a bitter taste, a want of appetite, a fit of constipation, are symptoms which usually subject the liver, a very innocent but terribly abused organ, to a course of merciless therapeutic flagellation. In the light of our present knowledge of the functions of the liver it would be wise, I think, to float out our therapeutic craft in waters where deep sea soundings are more familiar. Its chemico-physiologic work is to a very great extent masked to us as yet, except as by infer-



ence when we analyze its by-product, the bile, and note the offices performed by its several constituents. This phase of intestinal indigestion which, as I have said, is due to the primary action of certain bacteria on albumen and albuminoid substances which have slipped past the duodenal gateway without receiving the vito-chemic touch necessary to render them innocuous is intermittent and transient, and of little consequence until by constant repetition it becomes a menace to the general organism. The toxic elements generated in this process sooner or later render glandular and cell environments of the intestinal tube altogether unhealthful. The air they breathe, the water they drink, and the food they eat, are charged with a miasm which absolutely forbids a healthy reaction, hence most complicated and decidedly serious pathologic conditions arise. The final or end products of primary bacterial action on the proteid substances are carbon dioxid, water, ammonia, nitrites, hydrogen and sulphuretted hydrogen. All taken together are really abnormal products in contact with tissues which will, for a time, resist their deleterious influence, but finally are compelled to succumb.

Another, and indeed the chief source of intestinal indigestion arises from the inability of the tube below the pylorus to successfully cope with the relatively enormous quantities of carbo-hydrates and hydrocarbons that are daily and continually ingested. The argument has been made from almost every conceivable view point except, as a matter of course, from the true and logical one, that man is or should be a vegetable and fruit eating animal. Just a little thought and attention will enable you to discover that every such argument is based on pure sentimentality. I venture the assertion that our evolution has not yet carried us to that point of ideal construction where we can live continuously on vegetable foods and fruits without placing our health in constant jeopardy. It will only be necessary for me to refer you to the arrangement of the teeth in the human subject and invite a comparison with vegetable and meat eating animals; then the fact that the stomach is almost wholly engaged in digesting lean meats, and similar substances, so utterly rules the whole controversy out of court as to render further reference to it wholly gratuitous. The structural arrangement of the small intestine from the pyloric to the ileo-cecal valve exhibits a degree of sameness, which is indicative of the fact that if the normal wants of the system were alone supplied, and the sense of taste was not intemperately gratified, its work would be relatively simple. The muscularis of the intestinal tube like the heart and all the involuntary muscle structures is of mesoblastic origin and is energized and controlled by the ganglionic nervous system, hence, when digestive errors become chronic and ensuing pathologic changes take place, similar structures throughout the whole organism suffer, first in sympathy, then after awhile take on a community of degenerative changes which are traceable to this single point of deflection. Perfectly normal intestinal digestion demands a perfectly normal anatomic apparatus with an unimpeded physiology. The downward peristaltic action must be continuous and just sufficient to keep the contents in constant motion. The *valvulae conniventes*, glands and villi, must be perfect in structure and arrangement so that they shall offer a normal resistance to the movement of

material through the tube. The normal stimulating substances within the tube will induce a flow of intestinal juice just sufficient to change and convert such substances into absorbable material; thus alternating periods of rest and activity which go together to make up a cycle of digestion will proceed absolutely without a sign or note to indicate the character of the labor being performed. In fact, a sensation other than the consciousness that the body is at ease and the mind is active, is a signal carrying with it a warning which, if intelligently interpreted would be efficient in avoiding a host of complicated diseased conditions.

Starches, fats, fruits, and sugars, do not excite fully, in fact only feebly, the flow of digestive juice in the stomach; the gastric fluid has no action whatever on this class of foods other than to assist in reducing them to a partial fluid. When the stomach contents have been made fluidic, the pyloric valve relaxes and the small intestine receives the material; it is stimulated and at once begins to pour out its secretion which becomes more and more abundant, increasing in amount up to the sixth or seventh hour of digestion. The whole mucous membrane becomes injected, and with the drops of mucus that are excreted we find an abundance of exudative epithelium. An abnormal amount and kind of intestinal fluid can be provoked by over-stimulation. Let there be constantly present an over-quantity of acetic acid and the result is an over-secretion of intestinal juice. This acid has the power to keep the mucous lining constantly injected and to keep the secreting cells working perpetually. This factor alone is sufficient to induce an intestinal catarrh. The acid is a fermentation product which in normal digestion is not present as an excess. This and other acid formations are in excess when the sodium carbonate, a constituent of the intestinal juice, is insufficient to completely neutralize them at the point when absorption is about to take place. While it is true that the contents of the small intestine are necessarily acid, it is nevertheless important that they shall not be excessively so. The pancreatic diastatic enzyme will form maltose, but is unable to further reduce this complex body. The burden is shifted to the maltose-converting enzyme of the intestinal wall, at which point failure to render it into the simpler monosaccharides, results in the formation of ethylic alcohol which by the action of mycoderma is converted into acetic acid. I have referred to this as one of the sources of excessive formation of acetic acid in the small intestine. Another very important source is when over-quantities of starchy foods are taken. Many of the starch granules pass into the small intestine with the cellulose covering intact. They attract to their interior a molecule or two of water which furnishes the full complement for chemic disintegration. The resulting products are alcohol, acetic acid, carbonic acid gas, and vinegar plant. Finally the carbonic acid gas bursts the covering membrane of the starch granule and sets free the contents. These act as irritants to the intestinal mucous membrane, keep it constantly over-supplied with blood, which by and by results in thickening of the mucous membrane, interstitial exudate deposits in the commencement of the lymphatics, paralysis of the intestinal villi, finally the submucous connective tissue structure is infiltrated and thickened, and the whole muscular structure undergoes vital changes. The inferior



ganglia of the solar plexus becomes paretic, hence a constant production of intestinal juice which is impoverished in the elements which possess digestive potency—it consists almost wholly of water and a viscid sticky mucus; and now we are in the presence of what, in my opinion may aptly be termed the completion of the first stage of chronic intestinal indigestion. When the villi are paralyzed in consequence of their constantly being bathed in carbonic acid gas, a product largely resulting from the destructive fermentation of both the carbo-hydrates and hydrocarbons, they lose their power to consciously select such food elements as have already been prepared for passage into the general circulation and readily accept everything that they happen to come in contact with, thus rapidly vitiating the general blood stream. The peristaltic movement is inhibited and after a time is completely paralyzed, when the constipation which is universally an accompaniment of this stage of intestinal indigestion ensues, bringing with it, its concomitant train of effects. This stage of the disease may and often does, last for many years, rendering the patient more or less an invalid all that time.

The second stage of intestinal indigestion presents quite a different, and altogether a much more serious pathologic picture. The whole lining membrane of the intestine is now thoroughly catarrhal, its epithelial investment is no longer capable of performing its allotted work with any sort of regularity and normality. The villi are practically paralyzed and entirely cease selective absorption; the whole glandular structure is undergoing degenerative and thickening processes, the ileo-cecal valve is paralyzed, the cecal end of the colon now fails in its peristaltic movements, the valvular opening to the appendix is permanently relaxed, admitting into the tube whatever may be in the vicinity of its mouth, hence the frequency of appendicitis. The colon becomes thickened throughout its entire structure, the colonic valves become lengthened and thickened. Alternating constipation and diarrhea are symptomatic conditions which to a greater or less extent are always present. The abdomen is now constantly tympanitic since digestion proper is greatly enfeebled and the abnormal fermentation processes have full sway. The spurts of diarrhea are characterized by large, yeasty, foamy, gaseous discharges, generally preceded by a sharp cutting pain. The diarrhea generally lasts for one, or at most two or three days, when it is again succeeded by a fit of constipation. The danger of stercoræmia is now past as it belongs to the constipation which is so prominent a factor in the second stage of the disease. Other and decidedly serious complications will arise during the second stage of intestinal indigestion which can only be here referred to in a general way; however, the tracing is clear and distinct and without a doubt the pathologic conditions which express themselves under many and divers names have their origin and etiology in the host of digestive errors which follow in the wake of this stage of the disease.

There is no way by which a distinct line can be drawn between the first and second stages of intestinal indigestion, as in many cases the conditions overlap each other. We find at times severe and obstinate constipation in company with well advanced pathologic expressions of the second stage, or again, we find easily provoked diarrheal attacks early in the first stage. The transmitted constitution and the en-

vironments will largely control the way in which the diseased conditions express themselves. Probably the most prominent disease which I believe, independent of heredity, depends upon wrong digestion and mal-assimilation, is consumption of the lungs. Through the vitiated blood stream all the organs of the body are badly nourished; the soil, so to speak, is prepared for tubercular and fibrous degeneration; a slight cold, over-fatigue, or any other depressing influence now acts as a precipitant, and the disease is established. Consumption of the kidneys, so-called Bright's disease, in its various forms depends upon an antecedent constitutional error. The nervous system is the chief sufferer, and very early in the course of the disease begins to resent its environments by phenomena which should be, in fact are, symptoms which very clearly point to the continuity of causation and uniformity of the general law which induces them. The diversities noted in disease of the nervous system are simply diversities of operation and when traced by the law of synthesis will as certainly lead up and back to the digestive system as the needle points to the pole. The much written of, but poorly understood condition that now masks under the appellation of neurasthenia, will yield up its scepter quite readily when attacked intelligently and persistently from the ground where digestive errors exist. I think it is indeed quite safe to assume that in every case of so-called neurasthenia, the stomach was the first to indicate a sense of systemic inharmony; following this in logical sequence came auto-infection which readily accounts for the mental and other phenomena which characterize neurasthenia. The ataxys, cord and brain sclerosis, of whatever peculiar type they may be, are to me logical outcomes from this stage of intestinal indigestion. Probably the most convincing proof of this statement lies in the fact that a thorough course of treatment directed to the relief and betterment of the digestive system will, if properly conducted, dispel many of the acute symptoms in a few months. In *tabes dorsalis*, the pains and girdle sensations disappear, as I have said, in a few months; in fact, I have seen the knee jerk restored, the patient could stand on one foot with eyes closed, could walk backward, and in short was so much improved that he could negate every classical test.

The third stage of intestinal indigestion is so vast and so far reaching as to make it altogether out of the question for me to do more at this time than to simply call attention to the fact that in truth there are these three general divisions. These may again be subdivided and classified, but I hold that the most simple classification is the best, as so much refinement in the grouping of symptoms and factor classifications will surely lead to confusion, and possibly to much harm; that many will be led to the treatment of symptoms and to the neglect of the potent force which is the active power in their production.

In the third stage we have a large grouping of diseases which, when studied from this view point arrange themselves in most orderly sequence around their cause. They mainly consist in such forms of pathologic action as result in speedy dissolution, as for instance, hasty consumption of the lungs, the forms of Bright's disease that run a rapid and fatal course, and consumption of the mesenteric glands. Many if not all, the rapidly fatal diseases of the nervous system belong to this grouping. Another

form of expression is the reduction of the general systemic resisting power which so often is exhibited in attacks of acute affections. We find these patients accepting acute diseases readily and frequently dying without presenting, objectively, an adequate cause.

I think it may be taken as a statement of fact, that if the whole digestive system was made a matter of careful consideration, its relation to every organ in the body intelligently worked out, its needs and normal wants alone administered to, the existence of disease could be minimized and such as did exist could be scientifically and intelligently treated.

I have purposely omitted in this paper, except a bare hint, all that pertains to the offices of the colon. In this, the field of possibilities is so extensive, there is so much to say, that any attempt to include it in a single paper would result in a dwarfing of the whole subject. I simply wish to add, in conclusion, that any form of treatment instituted for the relief and cure of intestinal indigestion must necessarily include a careful consideration of the stomach and colon; very little if any amelioration of symptoms will result unless they are both rationally included. The colon is within easy reach *via* the rectum, and it has been my experience that colonic baths properly medicated are immensely useful in the general treatment and care of patients suffering with intestinal indigestion.

### A CASE OF FRACTURE OF THE THYROID CARTILAGE—RECOVERY WITHOUT TRACHEOTOMY.

BY THOMAS B. EASTMAN, A.B., M.D.  
INDIANAPOLIS, IND.

Of the thirty cases of fracture of the thyroid cartilage reported by Durham, but ten of these recovered and most of them after a tracheotomy. Indeed, most authorities unqualifiedly condemn any delay in operating, Cohen saying: "Unless forestalled by precautionary tracheotomy and insertion of a tube, suffocative phenomena may intervene at any time from edema, displacement of fragments, or occlusion of the caliber of the air tube with blood clots."<sup>1</sup> He further says, "better far that an unnecessary tracheotomy should occasionally be performed without detriment to the patient than that a number of cases should be allowed to terminate fatally for the want of it."

Stimson says:<sup>2</sup> "It is not safe to wait until it (dyspnea) has become extreme, for its increase at the last is often so rapid and so sudden that death takes place before relief can be given. It is therefore the part of prudence to interfere early and before the interference is made actually necessary by the defective breathing."

Hunt<sup>3</sup> recommends tracheotomy when bloody expectoration or emphysema accompanies the other symptoms. Hamilton, however, counsels waiting until respiration is seriously interfered with. I desire to report a case of undoubted fracture of the thyroid cartilage recovering without tracheotomy, and thus add one case to the limited number which have recovered without operative interference.

At no time during the first few days was I certain that an operation would not prove necessary, yet I was determined not to interfere until it was demanded by symptoms graver than were at any time present. I believe that the result justifies my course.

On Dec. 14, 1894, Mr. K., aged 38, foreman in a foundry, was struck in the "throat" by a heavy piece of timber hurled from a buzz-saw at which he was working. The timber also cut a gash in his chin which had been sewed up previous to my first examination, some six hours after the accident, when I found him with a temperature of 99.6, pulse 86, respiration 24. There was almost complete aphonia, dyspnea and cough which gave the patient excruciating pain. At each paroxysm of coughing he ejected bloody mucus from the mouth. Dysphagia was complete, even an attempt at swallowing saliva giving him much pain. His face was livid. The skin was discolored and the tissues about the larynx much swollen. Inspection showed that the pomum Adami, rather prominent before the accident, was wellnigh obliterated, and that the thyroid cartilage was displaced to the right. Manipulation showed abnormal mobility and on pressure inward the patient made me understand that he felt something stick him. A diagnosis of fracture of the thyroid cartilage was made. As nearly as could be determined by manipulation, the line of fracture extended from the highest point of the upper margin of the right ala of the thyroid cartilage in an almost straight line downward to the crico-thyroid membrane. In spite of the other grave symptoms the respiratory function was fairly well maintained, and on the strength of this symptom I decided to await developments. No attempt was made to restore the normal relation of the parts. Antiphlogistic measures were resorted to, believing that if the inflammation was kept within bounds much would be accomplished. A Fothergill poultice was ordered placed over the seat of injury together with morphia sulphate gr.  $\frac{1}{2}$ , by the rectum, to be repeated as often as necessary to subdue the pain. On the morning of the second day he was able to take a little nourishment by throwing his head back and allowing broth to run down his gullet, but any exercise of the muscles of deglutition still caused him great pain. In this way he was fed for four days. For five days he was unable to speak above a whisper, and at this time (twenty-four days after the accident), his voice is still impaired and the larynx much displaced to the right. There is still abnormal mobility of the right ala of the cartilage.

Dr. G. V. Woolen, Professor of Rhinology and Laryngology, Central College of Physicians and Surgeons, of this city, saw the case on the seventh day after the accident, and I herewith append his report:

Dr. Thomas B. Eastman brought Mr. K. to my office for special laryngoscopic examination, with statement that patient had received a stroke from piece of flying wood across larynx, followed by violent inflammation, aphonia, hemoptysis, etc. There was yet remaining a distinct depression in a perpendicular direction across the right wing of the thyroid cartilage with mobility from pressure. Internally there was found considerable congestion of larynx, especially of region of right cord and ventricular band, both of which bulged into cavity of larynx and met opposite parts prematurely in efforts at phonation.

<sup>1</sup> International Encyclopedia of Surgery, Vol. v, page 255.

<sup>2</sup> Fractures and Dislocations, Vol. I, page 298.

American Journal Medical Sciences, Vol. LI, page 880

## A FEW REMARKS ON THE EARLY HISTORY OF RECTAL DISEASES.

Read before the Mississippi Valley Medical Society, Hot Springs, Ark.,  
Nov. 3, 1894.

BY S. G. GANT, M.D.  
KANSAS CITY, MO.

In the selection of historic medicine for my subject, I am well aware that I have chosen one that is rarely touched upon in medical societies and the current literature of the day. The study of the history and progress of medicine has ever been of great interest to me. I well remember, when holding down the benches at college, how the class used to enjoy a brief change from our routine lectures, when one of the professors would tell us about the heroes of medicine hundreds of years ago, and how such men as Hippocrates, Celsus, Galen, and others of the ancients, practiced the art and science of medicine; we listened attentively and marveled at their accuracy of diagnosis and the practical manner in which they effected a cure; this, too, with their meager knowledge of anatomy and physiology.

The science of medicine and surgery extends its inquiries over such a vast field, and comprehends such an enormous mass of facts and observations, that it would be impossible in a paper of this length to give more than a brief *resumé* of the history of one special department of medicine, which, I trust will be of some interest to this society, viz., that of rectal diseases.

I believe with that scholarly physician, William Bodenhamer, that there is no class of diseases within the whole range of medical literature which has a more ancient history, a more hoary antiquity, and a more conspicuous sacredness than some forms of rectal disease. In fact, the history of this class of diseases embraces all ages, including Hebraic, ancient and modern history. Medical men have, from the time of Adam down to the present day, devoted much time and study to these diseases. The first recorded mention of rectal diseases that we know of was made by Moses, the law-giver. This can be found in the fifth book of the old Bible. After explaining to the Jews the manner in which they would be rewarded if they strictly carried out the laws of God, he goes on to say: "And if thou wilt not hearken unto the voice of the Lord, and observe his commandment then all these curses shall come upon thee." He then records a number of curses; the only one of interest to us, however, is the following: "The Lord will smite thee with the botch of Egypt and with the emroids (hemorrhoids), whereof thou canst not be healed." Now, if we turn to 1. Samuel, v. 5, we find the following bit of interesting information: He tells us that the Philistines took the ark of the Lord from Ebenezer and brought it unto Ashdod, and forthwith the hand of the Lord was heavy against them, and He smote the men of the cities both small and great, and they had the emroids in their secret parts." Again, in Psalms LXXVIII, v. 66, we find recorded that He smote His enemies in the hinder parts. The ark of the Lord was then removed to Gath and Eckron with the hope that the plague, (emroids) would be removed, but such was not the case; on the contrary, these cities were alike afflicted. The people then began to seek a way in which they might rid themselves of their afflictions, and to this end they sought out the priests, and inquired what they must do to obtain relief. It is of interest to note the man-

ner in which the cure was effected. It appears that after consultation, the priests and divines told the people to return the ark of the Lord to the Israelites from whom they had taken it; but it must not be returned empty. They must make a trespass offering of five golden images of the "emroids," according to the number of the lords of the Philistines; "for one plague is on you all, and all your lords. Do this, and thou shalt be healed."

It is stated on good authority that the natives in the far East at the present time make images of their afflicted parts and offer them to their gods as a trespass offering, and believe that through them alone can they obtain relief, many of their places of worship being burdened with such offerings. From the fact that the Israelites were threatened with the plague previously referred to, some writers have argued that the Jews from then down to our time are more frequently afflicted with rectal diseases of a *hemorrhoidal* nature than any other race of people. They teach that this malady is inherited by the Israelites, and that it is entailed upon them and their posterity forever, because of spiritual disobedience. From my limited study of Hebraic and ancient history, together with my personal experience in the treatment of these diseases among all races, both in private and hospital practice, I have been unable to obtain any evidence to substantiate such a claim. On the contrary, I have had ample opportunity and have noted that the Jews are no more liable to be afflicted with rectal diseases than other people. Again, there is not a single instance in the Bible where it states that the Israelites ever had this threatened punishment inflicted upon them. On the other hand, there is abundant evidence to show that the plague with which the Jews were threatened was visited upon the Philistines some three hundred years thereafter, for stealing the ark. In view of the limited evidence at our command, I believe we are justified in concluding that the Jews are no more liable to be afflicted with any form of rectal disease as a result of divine punishment, than are the Gentiles. Unfortunately, we have no definite knowledge of the exact pathologic meaning of the Biblical term, "emroids," so frequently mentioned in the Scriptures. This is owing to the wide diversity of opinions of the Biblical commentators. Some took it to mean a disease similar to bleeding piles; others, that there was a prolapsus of the bowel which remained out until it became putrid and sloughed off; and others took it to be some form of dysentery, and not a few that it was of a fistulous nature. The Greeks, Hippocrates, Galen, and others, evidently thought it to be a diseased condition of the rectal veins, accompanied by hemorrhage, for they substituted the word hemorrhoids for the Scriptural one, "emroids." Ever since that time, hemorrhage from the rectum has been diagnosed as such. It would appear from the writings of the ancients that some thought the hemorrhage active; others, that it was passive. It seems that they never mentioned anything about swellings or protrusions. According to our more modern teaching, the term hemorrhoids is applied to almost any swelling about the anal region, no matter whether there be hemorrhage or not. It at once becomes evident then that this term, as used by the early writers, was a misnomer and did not express the exact pathologic condition present, only the most prominent symptom. Leaving the Hebraic

and turning to that of ancient history, we find frequent mention of certain forms of rectal diseases, also the plan of treatment adopted.

It is gratifying to note that in many instances the treatment suggested by the Greeks, Celsus, Hippocrates, Galen, and Rhazes and Abbas, the Arabian physicians and others of the ancients is practiced by the surgeons of our time with very slight modifications. This demonstrates the fact that they were not altogether wrong in their pathology though they were lacking in the knowledge of anatomy and physiology that we possess. I have neither the time or inclination to pay more than a passing glance at the treatment followed by the ancients in some of the more common forms of rectal diseases. Fissures were described as superficial erosions, cracks, or chaps, and, being slow to heal, the treatment consisted in converting them into recent ulcers by paring, scarifying, or incising them with the finger nail or scalpel when they were made to heal by topical applications. Hemorrhoids were ligated as to-day, except that the skin was not severed to prevent after-pain. Those who did not favor the ligature method used the cautery by puncturing the tumors, in addition to which various drugs were used locally. Fistula was accurately described by them and so far as I can find out their treatment consisted principally of setons and the local application of various drugs.

Many of the ancient writers believed that divine power must be enlisted in order that a cure might be effected in the various forms of rectal diseases. Others believed that an "amulet" was necessary; that to carry something in their pocket—a piece of metal, a precious stone, or a certain kind of nut or vegetable would cure them, and this practice is not abandoned to-day. For many of our own countrymen carry with them a buckeye or a horse-chestnut when suffering from piles or fistula, as an "amulet" for their relief or cure. Many patients have told me of remarkable cures effected in this way. The Irish potato comes next in favor to the buckeye, and it must be "dug out of the garden when the moon is right," put in the left trouser pocket, and is never to be removed under any circumstances. After a time they shrink up until they are no larger than a pigeon egg and are as hard as a rock. Then they will cure the worst case of piles. From the time of the Greek writers down to about the fifteenth century there is nothing recorded that would be of especial interest in this paper, but about this time or a century later, the writings about different diseases were very prolific and have continued so ever since. The reason given why the surgeons previous to this time said nothing about this class of diseases was because of the false delicacy in those who had them in not letting it be known. Again, in olden times most rectal diseases were considered incurable, and for a person to have an incurable disease was to have a disgraceful one; hence, these persons suffered on in silence lest they reveal their disgrace, and be ostracized by society. We find a very interesting instance of this in a treatise on "The Fistula of the Anus," originally written in Latin by John Astruc about 1715, the first individual work of the kind ever written, a copy of which I possess and value highly. He says, "of late years (about 1700) was a case of fistula scarce seen or heard of by the physicians of the last age. But when once Louis XIV., King of France, labored under this complaint it became fashionable,

and a vast multitude of these cases suddenly presented themselves, and after the King's example every one made an open and voluntary confession of this once secret disorder." He then records a parallel case, by Pliny, in the reign of Tiberius Cæsar; he says, "the cholic first showed itself, nor did one man in Rome ever complain of this disorder until the Emperor had been severely attacked by it." Fistula in ano has been immortalized by Shakespeare in his play "All's Well That Ends Well," based upon the King's having a fistula. This play is said to have been written in 1606. Again, the great historian, Hume, in writing of the death of King Henry V., who died about the year 1422, says he was seized with a fistula, a malady which the surgeons at that time had not the skill to cure. It is said that Louis XIV. deferred having an operation by the knife for many months though his attending surgeon, Monsieur Felix, insisted that such an operation was necessary if he anticipated a cure. As the laity became aware that their sovereign was suffering from a fistula many cures were suggested by physicians, priests, and others who claimed that they had effected many remarkable cures by their respective methods and who took this opportunity to gain His Majesty's favor. After deliberating he determined to give each one a chance to prove his assertions, but he was too long-headed to have the experiments tried on his own person. He set apart a wing in the palace and placed a number of his subjects in the various rooms who were suffering from fistula, and all of the various remedies suggested, together with a number of mineral waters said to always effect a cure in fistula cases, were given a trial. Not in a single instance was a cure effected. At last the King, to whom Monsieur Felix gave an account of the experiments, determined to have the operation performed. One morning when nothing of the kind was expected by the courtiers it was done, several incisions being made. This happened on Nov. 21, 1687. The cicatrization was well managed and the King perfectly cured. His Majesty royally recompensed Monsieur Felix and his assistants, the total amount of the fee being \$73,500. These were "royal days for surgeons," says a writer in the *Medical Chirurgical Review*. Immediately after the King's recovery this disease became fashionable and hundreds of people flocked to Monsieur Felix to be operated on for this complaint. It is even hinted that certain courtiers who previous to this time had concealed their afflictions, selected Versailles as the place to be operated on, for here the King would hear of their indisposition. One writer goes so far as to say that some of them did not have fistula at all, and were much put out when informed that an operation was not necessary.

My paper has now reached such a length that it would burden you, should I endeavor to even mention the various operations and methods of treatment that have been brought forward during the last four or five hundred years. The investigations of the various important diseases affecting the terminal portion of the colon, have during this time been prosecuted with very considerable ardor, and the advantages gained in consequence have been markedly progressive; for this knowledge we are indebted among others to such celebrated surgeons as Brodie, Allingham, Cooper, M. Boyer, Dupuyren, Van Buren, Bushe, Smith, Salmon, Curling, Ashton, Whitehead, Bodenhamer, Matthews, Kelsey, Cook and others, I was about to



omit the name of that ingenious surgeon, Calvert, whose tallow candle led to the idea of the treatment of stricture by bougies.

In concluding my paper, I wish to read a few verses from Erichsen's *Medical Rhymes* written by a patient while undergoing treatment for stricture. It is said he left them on his physician's desk just before taking his departure for Niagara Falls, "where the water runs down hill with nothing on earth to hinder it."

"When sorrow's cloud is cast athwart  
The sunshine of my mind,  
When I, with gloomy care distraught,  
No recreation find;  
When sighing o'er my helpless lot,  
And what I used to be,  
I'll seek some quiet, tranquil spot  
And pass a small bougie."

"Let strictures on my conduct pass:  
Unnoticed let them be;  
A stricture somewhere else, alas!  
Is more deplored by me.  
In hope this blight on manhood's bloom  
I yet effaced may see,  
I'll hie me to my quiet room  
And pass a small bougie."

In the preparation of this paper I have made frequent reference to the following works: Bodenhamer, on the Rectum and Anus, 1855. Anal Fissures, 1868, and Hemorrhoidal Diseases, 1884. Erichsen, on Medical Rhymes, 1884. Paul, of London, on Lower Bowel, 1869. John Astruc, on the Fistula of the Anus, in Latin originally, and translated into English by John Freke, F.R.S., London, in 1738.

## FIBROUS POLYPUS OF THE RECTUM.

Read before the Delaware County Medical Society.

BY G. W. H. KEMPER, M.D., AND HUGH A. COWING, M.D.  
MUNCIE, IND.

The specimen here presented is one of fibrous polypus recently removed from the rectum of a girl aged 6 years. At various times before the removal of the tumor, the child had passed slight quantities of bloody mucus, and the mother, at times, had noticed a fleshy mass presenting at the anal orifice. The father had applied to us for medicine for piles, but the exceeding rarity of hemorrhoids in children led us to suggest to him to bring her in for examination; and that it was probably a case of polypus. This was confirmed upon examination. The tumor was attached by a long slim pedicle to the rectal wall nearly an inch above the external sphincter. After the expulsion of a warm water enema the polypus came into full view, and its size and attachment determined. A ligature was thrown around it near its junction with the pedicle and the tumor was removed, there being but slight hemorrhage. The pedicle was restored to the rectum (without a ligature). Chloroform anesthesia was employed.

According to Parvin, polypus of the rectum is rare in the adult; still rarer in either adult or child is rectal fibrous polypus.

Gross refers to the uncommonness of polypi in the rectum, and divides them into two classes: "Gelatinous or adenoid, and fibrous"; the former being of far more frequent occurrence.

Allingham remarks that "polypi of the rectum are usually described as being of two kinds, the soft or follicular, and the hard or fibrous; the former being found in children and the latter in grown persons." He also states: "I quite concur in the statement that the soft polypus is the one always found in children, but I am of the opinion that the fibrous variety is rare, even in the adult." Subsequently he states that he does not remember meeting in his practice "with more than six distinctly fibrous polypi".

Dr. Parvin (Trans. Indiana State Medical Society,

1873, p. 113) in his interesting article on "Fibrous Polypus of the Rectum," gives the following history:

"Mrs. —, 42 years of age, a widow, states, that for nearly four years she has suffered from pain in the rectum, tenesmus, hemorrhages, and that for some months past the bowel has prolapsed whenever evacuated, requiring her to replace it. Besides—this is her narrative—the bowel comes forward into the vagina and presses against the urethra, causing frequent and sometimes difficult urination. Sitting for any length of time gives her great uneasiness while in a recumbent position she is comparatively comfortable. By medical advice she has used astrigent injections for the hemorrhage, which is supposed to result from piles. No examination, however, has been made. The patient lying on her back, with her limbs drawn up, digital examination of the vagina and then of the rectum determined the presence in the latter of a hard polypus, attached by a long thin pedicle to the anterior rectal wall, two inches above the anus. Immediately the tumor was brought outside of the rectum, a ligature applied to the pedicle and the latter divided below the point of ligation."

## A REPORT OF TWO CASES OF LEPROSY IN NATIVE-BORN CITIZENS OF OHIO.

BY J. G. McDOUGAL, M.D.

NEW LEXINGTON, OHIO.

On Dec. 19, 1894, there appeared before the New Lexington Board of Pension Examiners, Hannah M. Garey, an applicant for pension as a dependant child of George W. Garey, a deceased soldier of the One Hundred and Eighty-Seventh Regiment, Ohio Infantry. Examination disclosed that she was a victim of anesthetic leprosy, the following manifestations of which she presented: The left hand and distal third of fore-arm were swollen and rather firmly thickened, the hand and wrist being about twice the normal size. The distal phalanges of all the fingers were lost and the stumps healed. The thumb was slightly flexed, the nail deformed, thickened and discolored.

The hand was being amputated at the radio-carpal articulation by a narrow encircling ulcerative process and the work was so near completion that only the ulnar vessels and a few tendons attached the hand. Both surfaces were covered by granulations and bathed with extremely foul-smelling pus. The right hand and fingers were swollen and clubbed, the distal phalanges of all the fingers lost, and the thumb affected as the left.

Both feet were swollen to one and a half times normal size and the swelling also involved the lower third of legs. The first three toes of each foot were lost at middle of proximal phalanges and the little toes at distal joints. The remaining toes were clawed and the nails deformed. In the middle of left sole was a deep ulcer from which there was a very offensive discharge. All the affected members were decidedly anesthetic—the thermal anesthesia being especially marked. There was an anesthetic bleb, the size of a silver quarter, on outer side of right arm just above elbow. The tongue, lips and nose were scarred and somewhat deformed from ulcerations that had healed.

The subject of this description is 18 years of age and this malady began to manifest itself when she was fifteen months old. In two or three years the toes began to ulcerate and come off; and the hands became involved, the flesh ulcerating from the fingers leaving the blackened dry bones exposed and these she persistently drummed on the tables and chairs until her mother cut them off with shears. She menstruated regularly from the time she was 14 years of age until about one year ago when menses ceased. The drain from the amputating ulcer which



developed about eighteen months ago probably caused the cessation of the menstrual flow.

Learning that a sister 8 years of age had been similarly afflicted for three years I visited her, finding the following evidences of the same disease: Her feet are clubbed and legs stocky, and the skin covering them is thick and scaly and decidedly anesthetic. Two toes are lost from each foot. The hands are also thick and the skin covering them rough and anesthetic; the nails are growing deformed and dark.

The parents and grandparents of these leprous sisters were all natives of Ohio and belonged to long-lived families. The parents were married in 1866. There are eight children and all are healthy except Hannah M. the fourth born, and Hattie the last born.

The mother is 44 years old and healthy. The father was pensioned for sunstroke. He died from apoplexy March 10, 1893. The mother states that the only visible disease the father ever had was a skin eruption on end of nose and upper lip which gave off an offensive discharge. It developed a few years after their marriage and never healed. It must have been slight, as several acquaintances of whom I inquired had never noticed the affection. He had consulted physicians about it, however, who had called it eczema and had treated him for it.

The One Hundred and Eighty-Seventh Regiment, Ohio Infantry, of which the father was a member was stationed during the few months it was in service at Nashville, Tenn., Dalton, Kingston and Macon, Ga.

I am willing to submit without argument that the father was a leper, in whom the bacillus lepræ did not vigorously thrive; that leprosy was communicated to him while in the South during the war, and that he communicated the disease to two of his children.

## REFLEX IRRITATION AS A CAUSE OF DISEASE.

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Medicine has suffered from "fads" from time immemorial.

The authority of some great leader or teacher is enough to bolster up an error for a generation or more. In fact, much that is to-day taught is merely the dictum of some one who has never taken the pains to investigate the truth.

No error in modern times has held such tenacious hold on the professional mind as that of reflex irritation as a cause of nervous disease. To most of us the explanation of the occurrence of any nervous phenomenon or lesion is satisfactorily accounted for if some peripheral irritation is found; a long prepuce, some slight version, flexion or laceration of the uterus or other deviation from the picture in our charts, is sufficient to account for hysteria, epilepsy or other nervous disease. This, too, in spite of the fact that all these minor lesions are repeatedly met with unattended by any nervous manifestation, yes, even gross disease of genital or peripheral nerves is often if not generally unattended with serious nervous disease.

I have just had a patient, a lady of 35, who for four years has been attending to her household duties with an elongated, badly ulcerated cervix hanging between the thighs. She has no nervous symptoms whatever, and seeks relief from the trouble merely for the local inconvenience.

The theory has a few familiar conditions which seem to hold it up and are usually accepted as a full vindication—vomiting in pregnancy, and certain minor urinary difficulties from irritation from a long prepuce are some of these. A moment's reflection will show how little there is in these. They are merely slight exaggerations of physiologic reflexes and are not distinct nervous diseases. Because pregnancy causes vomiting in many cases, it does not in the least warrant the conclusion that continued irritation of the uterus will cause epilepsy, insanity or other definite nervous disease. On the contrary, a study of any of these will reveal deeper causes. We should always keep in mind that peripheral irritation does give rise to reflex symptoms, but that this does not prove that they cause definite systematic nervous diseases.

The reflex theory dates back many years. Early in this century, and perhaps still earlier, it was offered as an explanation for certain neurotic phenomena, but its prominence in the medical mind of to-day is due to the lectures of Brown-Sequard on the physiology and pathology of the nervous centers, delivered in London in 1858. In 1833 Stanley had written of urinary paraplegia (*Med. Chir. Trans.*, Vol. XVIII), but the prominence given to reflex irritation in these remarkable lectures gave it the impetus of authority which still sways the medical mind. If I had the time, I would like to read you some of the cases cited by the author, that you might see how far he went with this idea. For example, the extension of inflammation from one eye to the other, inflammation of the testicle due to passing calculi or ileo-sacral neuralgia, diseases of the urinary organs producing paraplegia, also paralysis from worms or other irritation of abdominal viscera are attributed to reflex irritation. He cites a case of peritonitis and death following operation on the cervix which he explains in the same way.

In most of these cases we know to-day better how to interpret the pathologic process, but at the same time the reflex theory was used as it now is to explain where our knowledge does not find anything better.

Following Brown-Sequard was I. Baker Brown with his work on "Curability of Certain Forms of Insanity, Epilepsy, Catalepsy and Hysteria in Females," 1866. In this work he claims that many cases of the diseases mentioned are due to irritation of the pudic nerve and especially to that branch distributed to the clitoris, and they were to be cured by excision of that organ. He reported eight cases of hysteria, seven of which were cured and one relieved by the operation.

In 1870, Sayre reported cases of urinary troubles of various kinds, as well as paralysis and other grave nervous diseases, due to adherent prepuce and these were promptly cured by breaking up adhesions or circumcision.

Otis, in 1874, published a paper in which he reports cases of paraplegia enuresis and vague nervous troubles cured by urethrotomy for stricture of the urethra. Since that time, although many of these claims have been proved fallacious, still we are constantly having contributions with reports of cures, all of the same vague and uncertain kind and by the removal often of slight peripheral lesions.

Two years ago, Robert T. Morris reported several similar cases cured by breaking adhesions of clitoris and prepuce. It is not necessary for me to remind

this audience of the uncertainty of conclusions drawn from the cure, or seeming cure, of any disease, but especially of neuroses. The chances for error and deception are familiar to all. Is there a physician here who has not encountered cases which he thought he had cured by some plan of treatment or operation, and later found that he was entirely mistaken and that the improvement was only transitory as is so common in all nervous diseases. For nearly twenty years I have thought much of this question, my attention being first called to it by the articles of Sayre. I followed his advice and did many circumcisions and later, mainly through the teachings of Emmet, did operations on the cervix and vagina, and have observed many cases of neuroses in women presenting various lesions of the genital tract, and I want to say here, that I have never seen a case of epilepsy, insanity, catalepsy, hysteria or grave neurasthenia, nor any organic disease of the nervous system, cured, or even permanently benefited by any operation on the genital tract, either done by myself or any one else. I have also noticed as I believe every one else has, that a large proportion of patients who consult us for diseases or injuries of the genital tract do not suffer from definite nervous disease, and on the other hand, that of patients who do consult us for nervous diseases, many and perhaps most of them are free from genital disease. It seems to me, therefore, that in a given case in which we find genital irritation and nervous disease, careful inquiry into the cause will develop other more potent causes. The same is true of irritation arising from abdominal viscera or other peripheral irritation. I have never, myself, had a case of nervous disease which I thought was due to peripheral irritation. In most of them other causes could be demonstrated. I want to be distinctly understood in this matter. I do not deny that lesions of the genital tract may not in some way derange the nervous system, but I do say that it does not do it by reflex action. For example, a woman has a bad laceration of the perineum, that interferes with her locomotion, it is difficult or painful for her to go about; her life becomes sedentary; she suffers with constipation, later dyspepsia from her inactivity; then her general system suffers from deficient nutrition as well as the want of healthful exercise. The nerves are not nourished and disease is engendered. Or a patient has some disease of the abdominal viscera, perhaps he has intestinal indigestion and nervous symptoms—a very common thing. Are we now to say that his nervous disease is reflected from the bowels? No, indeed. The lack of proper digestion and assimilation of food starves the system or by auto-infection poisons it. Here we will find the causes of more neuroses than all the peripheral irritation you can trump up. Auto-infection from poison generated in the intestinal canal or elsewhere, and starvation from mal-assimilation are the causes in most cases, and these should be looked into while repairing local lesions or injuries.

The repudiation of the widely accepted importance of reflex irritation, as a cause of disease, is by no means original with me nor is it new. Gull, in 1856, protested against it. (Med. Chir. Trans.) Jaccoud followed in the same vein in 1864. Romberg, Hussmann, Leyden, Weir-Mitchell and Goodell have pointed out some of its errors. Skene, in his work on "Gynecology," devotes a chapter to gynecology as related to insanity of women, that should be care-

fully read. Landon Carter Gray (Archives Anat. and Surg.) in 1882 published an able and comprehensive article on this error, and in his recent work devotes a chapter to it.

I have tried briefly to direct your attention to what I consider a great error, and I believe you will find in the future that in any case where you are inclined to attribute the cause of any disease to reflex irritation, a careful study will reveal other more important etiologic factors.

## ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Continued from page 125.)

### CHAPTER III.

*Case 7.*—Yellow fever; severe case; jaundice; albumen in urine; recovery. Wm. Busse; age 25; native of Germany. Has been in New Orleans seven months, and came here from Red River. Seized with pain in the head and back and fever on Oct. 11, 1873, and entered Charity Hospital, Ward 24, October 13. At time of admission, complained of pain in head, back and knees. Tongue red at tip and edges and coated in the center. October 14, conjunctiva of eyes congested and yellow; surface of body yellow; nausea and vomiting; breath and odor of body foul; urine abundant and contains albumen and casts. On October 15 and 16, pulse intermittent, but the patient improving. On October 20, the patient was able to sit up and to be brought down to my clinical lecture in the amphitheater, and on October 22 was able to walk about the hospital. After the complete establishment of convalescence the patient was confined for several weeks by a painful abscess in the axilla. The following observations were made on the pulse, respiration and temperature:

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1873						
Oct. 14	84	90	32	36	103.4°	103.8°
" 15	80	86	24	26	100.2°	102 °
" 16	82	84	26	24	100 °	100.2°
" 17	84	86	26	30	101 °	101.8°
" 18	82	78	26	24	99.6°	99.2°
" 19	80	82	22	24	99 °	100 °
" 20	84	84	26	24	98.6°	98 °
" 21	88	92	24	24	100 °	101 °
" 22	78	96	30	22	98.2°	99.8°
" 23	82	84	22	24	100.4°	100.4°
" 24	80	82	20	18	98.4°	99.3°
" 25	80	...	20	...	99.7°	...
" 26	80	...	26	...	98.8°	...

*Case 8.*—Yellow fever. Edward Ryan; age 42; native of Ireland; resident of United States twenty-five years, in New Orleans one year; laborer. Admitted to Charity Hospital, Ward 26, Oct. 8, 1873. Was sick since October 4. At time of entrance, high fever; red swollen gums; restless. On October 9 albumen and casts and bile appeared in the urine. On October 17, when the patient was convalescent, the urine contained but a small quantity of albumen. The following observations were begun on the sixth day of the disease and continued up to the nineteenth day and embraced the period of convalescence:

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1873						
Oct. 11	75	70	31	36	100.7°	100.6°
" 12	68	72	30	36	98.6°	98.7°
" 13	60	61	34	36	98.6°	98.6°
" 14	60	66	36	30	98.9°	99.2°
" 15	58	56	32	32	99.2°	99.6°
" 16	58	60	26	26	99.4°	99.6°
" 17	52	62	30	36	99.4°	100.4°
" 18	60	58	30	30	100 °	100 °
" 19	58	60	28	26	99.3°	99.6°
" 20	60	62	28	28	98.2°	99.7°
" 21	80	80	28	28	99.7°	99.8°
" 22	80	70	28	26	99.2°	99.8°
" 23	86	68	26	28	100.3°	100 °

In the preceding case we observe that the lowest point in the action of the heart was reached on the seventeenth day of the disease, when the pulse was only 52, notwithstanding that the respiration was 30. It is also worthy of note that as in many other cases of yellow fever, both during convalescence and in the state of depression preceding death, the temperature fell below the normal standard. This, however, is not always so in fatal cases, which frequently terminate with high temperature.

*Case 9.*—Yellow fever followed by malarial fever. John Cloney; native of Liverpool; age 26. Entered Charity Hospital, Ward 26, Oct. 14, 1873. Patient had been working on rice plantation twenty-five miles above New Orleans. On October 1 was seized with chills and fever. Yellow fever appeared to have been engrafted on the paroxysmal fever. After producing its characteristic phenomenon, the malarial fever again appeared and was arrested by the free use of quinin.

Date.	Pulse.		Resp.		Temp.		REMARKS.
	M.	E.	M.	E.	M.	E.	
Oct. 14	100	118	20	28	100.8°	104.6°	Pain in head, epigastrium and back; perspiring freely; urine contains albumen, red color.
" 15	98	100	18	21	100.9°	101.5°	Perspiring; appetite gone; pains relieved; conjunctiva yellow and tongue slightly coated.
" 16	96	92	18	18	100.8°	100.4°	Improving; urine contains albumen
" 17	88	96	18	22	100.2°	100.5°	Improving; albumen in urine.
" 18	92	94	18	21	99.2°	100°	Continues to improve; pulse intermittent.
" 19	80	84	18	24	99.8°	99.6°	Improving.
" 20	84	86	22	22	99.8°	102°	Fever appeared in the day.
" 21	86	86	22	22	100.6°	102°	Fever.
" 22	84	86	20	22	99.5°	102.2°	No albumen in urine; fever; pulse irregular and patient very nervous.
" 23	86	100	16	14	99.7°	102.6°	Fever, very nervous; hands tremble.
" 24	80	82	14	12	99.7°	100°	Quinin freely administered; perspires; abatement of fever; patient very nervous; perspiring freely; respiration irregular and oppressed.
" 25	80	..	14	..	99.6°	..	Nervous; respiration irregular; twitching of muscles; no albumen in urine, and rested.
" 26	94	..	16	..	99.4°	..	Perspiration, rest and sleep during the night; hands and limbs very tremulous and nervous.
" 27	84	80	22	21	99.3°	100°	Improving.
" 28	80	..	18	..	100.2°	100.2°	Improving.
" 29	80	84	18	18	100.2°	100.7°	Improving.
" 30	..	..	..	..	100.6°	..	..

The diagnosis in this case presented some difficulty; with reference to the question whether the disease was yellow fever or remittent malarial fever. It is worthy of note that while the albumen was present in the urine of the yellow fever, it was absent during the subsequent attacks of malarial fever.

*Case 10.*—Yellow fever succeeded by intermittent fever; the latter disease arrested by quinin; recovery. H. M., age 22; native of Germany; butcher; has resided in New Orleans for four years. Says that he had fever four days before entering the hospital. Entered Charity Hospital, Ward 24, Oct. 3, 1873, with high fever, intense jaundice and capillary congestion. The fever intermittent October 8. The following record of temperature embraces the period of convalescence from yellow fever, and the appearance of the periodic malarial chills:

Date.	Pulse.		Resp.		Temp.		REMARKS.
	M.	E.	M.	E.	M.	E.	
1873.							
Oct. 9	96	100	26	28	100.2°	100.6°	Intense jaundice; capillary congestion.
" 10	94	90	24	24	99.8°	100.4°	Intense jaundice; capillary congestion.
" 11	98	88	25	23	100.7°	100.4°	Intense jaundice; capillary congestion.
" 12	82	80	22	24	100.6°	100°	Jaundice disappearing.
" 13	84	88	22	24	100.7°	100.8°	Improving; sitting up.
" 14	84	72	24	22	101.9°	99°	Intermittent pulse.
" 15	82	104	22	25	100.6°	104.6°	Chill during day, followed by fever.
" 16	68	60	22	22	99.4°	99.7°	Intermission.
" 17	70	116	22	30	100°	105°	Chill at 3 p.m., followed by fever.
" 18	60	68	22	22	98.2°	99.4°	Intermission; quinin 5 grains four times every three hours.
" 19	78	78	26	22	100.8°	99.6°	Intermission; 5 grains quinin four times.
" 20	74	66	26	24	100.7°	99.8°	Intermission.
" 21	100	..	26	..	103°	..	Chill during night.
" 22	..	..	..	..	..	..	Intermission; quinin freely given.
" 23	..	..	..	..	..	..	Intermission; quinin freely given.
" 24	..	..	..	..	..	..	Intermission; quinin freely given.
" 25	..	..	..	..	..	..	Intermission; quinin freely given.

\* Normal.

In this case the patient had had repeated chills and fever during the summer and fall, which continued up to the time of the attack of yellow fever. This latter disease induced its cycle of changes, and was of a continuous type. Six days after the subsidence of the yellow fever febrile stage, the malarial fever reappeared at stated intervals and manifested its characteristic paroxysmal phenomena.

*Case 11.*—Yellow fever; hemorrhage from mouth and tongue; jaundice; pulse reduced during convalescence to 42 per minute; treated with sulpho-carbolate of sodium; recovery. Telespert Brutet; age 20; native of Canada; laborer. Has resided in New Orleans two weeks. Entered Charity Hospital, Ward 13, October 28. Attack of fever began with a chill which lasted three hours and was followed by intense headache and pain in epigastrium, back and lower extremities. From the account given by the patient, he appears to have entered the hospital on the fourth day of the attack. The following is the record of the pulse, respiration and temperature:

Date.	Pulse.		Resp.		Temp.		REMARKS.
	M.	E.	M.	E.	M.	E.	
1873.							
Oct. 28	*	*	..	30	99.5°	102.2°	Conjunctiva yellow, face and chest with a tinge of yellow; tenderness of epigastrium; pain in head, back and lower extremities; nausea and vomiting; stomach irritable, retains nothing but fragments of food. Vomited matter streaked with blood; tongue coated in the center, very red at tip and edges; gums red; mucous membrane of mouth red and ecchymosed in places; conjunctiva injected; surface injected; pulse feeble and irregular, cannot be counted; patient very weak; urine loaded with albumen and casts; strong acid reaction.
"	72	76	20	18	99°	101°	Thirst and dryness of mouth continue; jaundice increases; action of heart very feeble; urine red and albuminous.
" 30	60	54	20	18	99.2°	99°	Slept for a few hours; appears to be better; vomiting almost entirely arrested; pulse slower but stronger.
" 31	44	44	18	16	97.6°	98.4°	Slept well during night; heart beats feeble; respiration slow but deep drawn; improving; gums and tongue bleeding; spits blood; urine albuminous.
Nov. 1	42	50	14	16	98.2°	101.8°	Hemorrhage from tongue and gums continues; heart actions feeble; urine albuminous; general symptoms improving; jaundice well marked.
" 2	50	54	20	23	98.2°	101.8°	Heart still beating feebly; hemorrhage from tongue and gums; otherwise improving.
" 3	54	44	18	18	98.6°	98°	Tongue moist and not so red; hemorrhage stopped; action of heart still very feeble.
" 4	44	..	17	..	98.6°	..	Improving.
" 5	44	..	16	..	98.8°	..	Improving.
" 6	46	42	20	20	90.4°	99.8°	Continues to improve.
" 7	48	..	20	..	98°	..	Convalescent.

\*Feeble, irregular.

This patient was treated from October 28 to November 2 with 20 grains of the sulpho-carb. of sodium every three hours.

In the preceding case, coupled with a small amount of black vomit and continuous hemorrhage from the mucous membrane of the mouth, there was depressed temperature, slow pulse and a very feeble action of the heart. Although the prognosis in this case was unfavorable for at least six days, the patient passed by slow stages to complete recovery.

The following cases of yellow fever treated in my wards of the Charity Hospital in the autumn of 1873, were all attended to a greater or less extent with jaundice and the observations upon the pulse, respiration and temperature relate to the period of convalescence:

*Case 1.*—E. S., age 27; attacked with yellow fever September 18. During convalescence, while the conjunctiva and skin were still yellow, the pulse ranged from 56 to 61, respiration from 17 to 22, and the temperature between 98.5 and 100 degrees.

*Case 2.*—J. J., age 21; laborer; native of Wales; contracted

fever in Memphis, Tenn., September 10; during convalescence while still jaundiced, pulse 68 to 97; respiration 22 to 28; temperature 99.5 to 102 degrees.

Case 3.—H. S., age 20; native of Germany; laborer; attacked Sept. 29, 1873. During convalescence, pulse 43 to 70; respiration 12 to 14; temperature 99 to 100 degrees.

Case 4.—H. A., age 40; native of Germany; attacked with pain in head and back, and fever Oct. 3, 1873; entered Charity Hospital, Ward 27, October 6. October 8, evening, pulse 79; respiration 28; temperature 102 degrees. October 9, morning, pulse 92; respiration 27; temperature 102.5 degrees; evening, pulse 94; respiration 27; temperature 102.5 degrees. October 10, morning, pulse 78; respiration 22; temperature 97.9 degrees; evening, pulse 75; respiration 22; temperature 99 degrees. October 11, morning, pulse 58; respiration 19; temperature 97 degrees; evening, pulse 63; respiration 21; temperature 98.7 degrees. October 12, morning, pulse 66; respiration 20; temperature 98; evening, pulse 56; respiration 20; temperature 98.5 degrees. October 13, pulse 64; temperature 97.5 degrees.

Case 5.—F. H., age 18; native of Kentucky; laborer; admitted to Charity Hospital, Ward 13, Oct. 3, 1873, second day of disease. October 8, convalescent, but still jaundiced; pulse 50; respiration 20; temperature 98.5 degrees. October 9, morning, pulse 54; respiration 20; temperature 97.4 degrees; evening, pulse 62; respiration 20; temperature 98.6 degrees. October 10, morning, pulse 56; respiration 18; temperature 97.8; evening, pulse 58; respiration 20; temperature 99.6. Discharged October 12.

Case 6.—G. O., age 35; native of Ireland; laborer. Entered Charity Hospital, Ward 25, on third day of disease. October 8, moderate fever; pain in head, back and epigastrium; evening pulse 93; respiration 23; temperature 101 degrees. October 9, morning, pulse 89; respiration 29; temperature 100 degrees. Conjunctiva and skin yellow; urine contains bile and albumen; evening, pulse 85; respiration 26; temperature 100 degrees. October 10, morning, pulse 85; respiration 23; temperature 99.5 degrees; evening, pulse 93; respiration 26; temperature 99.5 degrees. On the 9th the urine was suppressed; great capillary congestion of the extremities, face and neck; black vomit during the night of the 10th.

Post-mortem examination revealed the characteristic lesions of yellow fever. If the last case be compared with the four preceding cases, which terminated favorably, we observe that in them the pulse was not so accelerated as in the fatal case, with urinary suppression and black vomit.

Case 7.—Yellow fever; jaundice; recovered. L. K., age 19; native of France; taken sick on October 18, 1873 with a chill followed by fever which continued for five days, up to 8 p.m., on October 23. During the period of convalescence, extending from the fifth to the twelfth day of the disease, the temperature ranged from 102 on the fifth day to 97.5 degrees on the eighth day; the pulse ranged from 60 to 86 beats per minute, and the respiration from 20 to 30 per minute. The pulse descended gradually from 86 on the fifth day with a temperature of 102 degrees, to 60, with a temperature of 98.8 degrees, on the tenth day of the disease.

Case 8.—Yellow fever. Maurice Pierre; age 28; native of Switzerland; came down the Mississippi River from St. Louis, and in passing Memphis went ashore for a short time. After having been in New Orleans for five days, the patient was seized with a chill on October 19, which was followed by a fever of continued type and which did not abate until October 22. Entered the Charity Hospital evening of October 21 with a temperature of 103.5 degrees. From the fourth to the ninth day of the disease, the temperature ranged from 97.5 to 101.2 degrees; pulse from 56 to 78; respiration from 24 to 32. Both the respiration and the pulse were at times intermittent. The urine contained but small quantities of albumen and the jaundice was comparatively slight in this case; notwithstanding the apparent mildness of the fever, the pulse descended to 56 beats per minute and was intermittent and irregular.

Such facts indicate that the slow and intermittent action of the heart in yellow fever during convalescence and in fatal cases during the period of calm or depression following the active febrile stage, is not solely due to such matters as the bile in the blood, but rather to the structural alterations of the muscular fibers which I have fully described.

Case 9.—Yellow fever; jaundice; slow pulse; recovery.

Dennis Manning; age 28; native of Ireland. Has resided in New Orleans seven years. Entered Charity Hospital, Ward 24, November 4. Tongue red at tip and edges; gums congested, red and bleeding; intense thirst; vomiting; can retain nothing upon stomach; great capillary congestion; restless and sleepless; hiccup; urine loaded with albumen and casts. Ordered sulpho-carbolate of sodium, 20 grains every four hours; ice bag to epigastrium; ice-water injections to rectum; iced milk; fragments of ice in mouth.

November 7, pulse 66; respiration 20; temperature 100 degrees at 8 a.m.; November 8, at 8 p.m. 101 degrees; conjunctiva yellow and congested; surface of body yellow and congested; 8 a.m., pulse 60; respiration 20; temperature 98.5 degrees. At 8 p.m., temperature 99. Restless and prostrated; urine loaded with albumen and casts.

November 9, 8 a.m., pulse 66; respiration 16; temperature 99 degrees; 8 p.m., pulse 66; respiration 14; temperature 98 degrees. Tongue red at tip and furred, cracked and bleeding; gums congested and bleeding; great muscular prostration; action of heart slow—beats feeble. Treatment continued.

November 10, 8 a.m., pulse 60; respiration 20; temperature 98 degrees. 8 p.m., pulse 60; respiration 20; axilla 99 degrees.

November 11, tongue and gums red and bleeding; jaundice and great congestion of capillaries of surface and extremities which present a purplish mottled appearance; urine loaded with albumen; dizziness in head. At 8 a.m., pulse 52; respiration 20; temperature of axilla 97.6 degrees. At 8 p.m., pulse 68; respiration 20; temperature 100. Improving; bleeding from tongue and gums almost entirely arrested; dizziness in head still continues; pulse slow; but action of heart is feeble and patient incapable of any great exertion.

November 12, pulse 52; respiration 18; temperature 99.2 degrees. At 8 p.m., pulse 54; respiration 20; temperature 100 degrees.

November 13, 8 a.m., pulse 51; respiration 20; temperature 99 degrees. At 8 p.m., pulse 48; respiration 20; temperature 99 degrees.

November 14, 8 a.m., pulse 48; respiration 16; temperature 99.5 degrees. Continued to improve and was discharged in good health.

Case 10.—Yellow fever, engrafted on paroxysmal malarial fever and followed by remittent fever and phthisis pulmonalis. Charles Scott; age 32; native of New Brunswick; carpenter; resided in New Orleans for eight months. Admitted to Charity Hospital, Ward 13, Sept. 29, 1873. Says that three days before entering the hospital he was seized with a chill which lasted five minutes, and was followed by a fever of eight hours duration. The fever was again followed by chill and fever. After the relief of the paroxysmal fever by sulphate of quinia, a continuous fever with pain in head and back appeared on October 5. The following observations were recorded in this case, illustrating the superinvention of paroxysmal fever during convalescence:

Date.	Pulse.		Resp.		Temp.		REMARKS.		
1875	M.	E.	M.	E.	M.	E.			
Oct. 8	67		25		100	°	Patient has no fever but has pains in lumbar region.		
" 9	60	64	22	22	99.4°	100	°	Feels fairly well, but weak; albumen in urine.	
" 10	60	62	20	22	99.6°	101.3°		Appears to be improving; albumen in urine.	
" 11	52	59	25	24	100.4°	101.2°		Did not rest well during night; tongue furred and very dry; thirsty; drank ice water but vomited it up.	
" 12	52	52	22	22	100.2°	101	°	Conjunctiva and skin yellow; swollen; tongue red and apparently with spots of blood on it.	
" 13	51	56	24	28	99.5°	100.5°		Jaundice; heaviness; red gums and tongue; pain and heaviness in epigastrium.	
" 14	50	58	26	26	100.1°	100.5°		Severe pains in epigastrium; tongue red at tip and edges; gums red; jaundice.	
" 15	52	62	26	28	100	°	101.5°	Jaundice; urine abundant, albuminous.	
" 16	54	60	30	28	100	°	101.5°	Jaundice; urine abundant, albuminous; pain in epigastrium and lower extremities.	
" 17	48	58	28	26	100.5°	102.5°		Jaundice and great congestion of capillaries; urine abundant and contains albumen and casts; pains in epigastrium and lower extremities.	
" 18	54	52	30	30	101.2°	101.2°		Congestion of capillaries; jaundice.	
" 19	50	52	24	18	101	°	102	°	Fever in evening; patient very weak, cannot sit up in bed; nervous; pains in epigastrium.
" 20	70	56	28	26	101	°	102	°	Feeling of uneasiness in epigastrium; albumen in urine; jaundice diminishing.
" 21	72	80	28	28	101.1°	102.2°		Jaundice diminishing; patient feels stronger.	

" 22	78	80	26	26	101	102	Still very weak and exhausted by least motion.
" 23	58	58	20	20	100.5	101	Appears to be much better.
" 24	..	..	..	..	103	103	Paroxysm of fever.
" 25	..	..	..	..	103	101	Fever; quinin freely administered.
" 26	74	76	32	24	101	98	Fever subsided.
" 27	80	68	24	28	99	101.5	Convalescent.
" 28	80	..	26	..	101	..	Convalescent.

After the subsidence of the yellow fever, it was found that the temperature did not subside, but still kept up, and upon careful examination I found evidence of phthisis pulmonalis in both lungs. The following is the record of the pulse, temperature and respiration after the subsidence of the yellow fever:

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1873						
Oct. 28	..	72	..	28	102.5°	103 °
" 29	88	88	24	32	102 °	103 °
" 30	88	94	28	30	101.5°	103.5°
" 31	84	..	28	..	101.5°	103.5°
Nov. 1	92	..	28	..	101 °	103.5°
" 2	92	..	32	..	101 °	103 °
" 3	90	88	24	36	101.5°	103 °
" 4	90	..	24	..	100 °	103 °
" 5	91	88	23	24	100.8°	101.2°
" 6	84	79	24	24	100.6°	101.5°
" 7	..	100	..	32	101 °	103.2°
" 8	80	..	28	..	100.5°	101.6°
" 9	84	88	32	28	101.5°	102.5°
" 10	84	88	28	30	101.5°	102.3°
" 11	..	90	..	28	101.5°	103 °
" 12	..	100	..	30	101.5°	103 °
" 13	88	88	26	32	101.2°	101.5°
" 14	90	84	28	24	102.2°	102.5°
" 15	98	64	28	28	102 °	101 °
" 16	90	..	36	..	102 °	..

Case 11.—Yellow fever. Charity Hospital, Ward 25; John Pflum; age 26; native of St. Louis; fever begun with a chill of half an hour's duration, followed by fever on October 7. The fever continued up to the time the patient entered the hospital, Oct. 20, 1873. Had been sick two days before entering the hospital.

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1873.						
Oct. 20	78	74	28	26	104.5°	104.5°
" 21	72	76	24	26	102 °	103 °
" 22	66	72	22	24	101.1°	103 °
" 23	66	70	22	24	100 °	100.2°
" 24	64	70	24	22	100.1°	101.1°
" 25	62	62	22	20	99.3°	100 °
" 26	64	60	23	25	99.1°	99.1°
" 27	60	59	22	18	97 °	98.5°
" 28	60	56	18	20	97.6°	98 °
" 29	60	76	18	24	98 °	98.6°
" 30	62	..	18	..	98.2°	..

## REMARKS.

October 20.—High fever; skin congested; conjunctiva of eyes very much congested and injected; tongue furred and red at edges; great pain in forehead and throat; passes urine only with great effort; ordered iced milk and ice fragments in mouth; gums congested.

October 21.—Passes urine with great effort; urine loaded with albumen; complete suppression of urine during night; grows restless and talks at random during the night.

October 22.—Ice cold injections ordered and repeated three times; after the third injection, passes quite a quantity of urine; when patient gets to sleep complains of nausea, when the sulpho carb. of sodium was ordered in 10 grain doses, repeated every two hours, which afforded relief to the symptoms and nausea.

October 23.—Patient slept well during night; has been able to drink a glass of milk and cup of beef tea; during the night, passes urine quite freely, loaded with albumen, and urine is greenish-yellow in color.

October 24.—Bowels moved; feels great relief and expresses himself as better; continue the sulpho carb. of sodium as above ordered; drinks milk and beef tea; urine passes pretty freely; albumen present in urine but decreasing in amount; complains of hunger; bowels moved.

October 26.—Tongue clearing off; skin begins to clear up; great hunger; urine returning to the normal standard; quantity of urine increasing.

October 27.—Patient sat up during the day.

October 28.—Goes about the ward, but watched; albumen disappears from urine.

October 29 and 30.—Patient goes about, is discharged and goes out cured.

Case 11.—Yellow fever. Adolph Kammer; age 21; native of Sweden, has been in America six years, in St. Louis, Mo. Admitted in the Charity Hospital, Ward 13, November 1, 8 P.M. Had been in New Orleans two weeks; sick two days previous to entrance.

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1873						
Nov. 2	84	82	32	43	104.5°	105 °
" 3	86	96	32	34	102 °	102.5°
" 4	72	70	28	36	101.5°	102 °
" 5	54	48	26	24	98.5°	101 °
" 6	52	50	26	22	98.3°	98 °
" 7	46	50	22	24	97.5°	98.5°
" 8	45	54	22	22	97.7°	98 °
" 9	52	50	26	27	97.8°	98 °
" 10	48	48	20	19	98 °	98.2°
" 11	52	52	26	24	98 °	98.2°
" 12	54	52	24	24	98 °	98.2°
" 13	52	46	26	24	98 °	98.2°

## REMARKS.

November 2.—Skin hot and dry; slight jaundice; gums congested, tongue dry and swollen; kidneys acting imperfectly. Passed a small quantity of urine by catheter; urine loaded with albumen; ice water injection caused passage of urine during day and evening.

November 3.—Complains of stomach, but relieved by ice sprays to epigastrium. Has been treated with sulpho carb. of sodium, 5ij divided into 6 powders, one powder (20 grains) every four or six hours; milk punch, brandy and beef tea, and small lumps of ice in mouth. At night slight hemorrhage from the gums; passed urine quite freely towards the morning of November 4; urine dark colored and loaded with albumen and bile.

November 4.—Very quiet during the day; perspires freely and seems to be in better condition; passes urine freely. Continue sulpho carb. of sodium in the same doses. Milk punch, beef tea and ice. Wash the face and hands with tincture of camphor and water; this seems to refresh him greatly. Bowels have been moved.

November 5.—Passed a good night, had some sleep, begins to look more cheerful and desires to sit up.

November 6.—Passed a very comfortable night; jaundice disappearing; urine freely passed; urine still contains albumen, but the quantity is diminished.

November 7.—Doing well, sits up; all pain disappeared, although quite weak; eats and sleeps well; jaundice disappearing.

November 8.—Patient still improves; albumen disappeared from urine; walks around.

November 9, 10, 11 and 12.—Rapidly improves; jaundice disappearing rapidly; slight traces of yellow in eyes.

November 13.—Discharged from observation and leaves, November 17, quite well.

(To be continued.)

THE IDENTIFICATION CARDS OF THE  
U. S. ARMY.

BY MAJOR CHARLES SMART, U. S. A.

Every recruit enlisted in the U. S. Army, besides being examined as to his physical qualifications to undertake military duty, is subjected to a careful scrutiny for scars, moles, tattooings and other permanent marks on his person by which his identification may at any time be determined. These are recorded in their proper locality on a card bearing a front and back view, in outline, of the human figure. The card of each recruit, as soon as completed, is forwarded to the Surgeon-General's Office, where it is compared with the cards of the deserters, ex-military convicts and other undesirable men that have been filed in the office during the past six years. Should the result of this comparison be favorable to the man, his card is then placed in an alphabetical file and there continues until the honorable termination of his service. The office of the Surgeon-General thus contains an identification card for every enlisted man now in the military service. Should any of these men desert or be convicted of some military crime involving dishonorable discharge, his card would immediately be transferred to the file of "undesirable men."

For convenience of reference and comparison, the cards of the undesirable files are arranged systematically, the first division in accordance with location of scars, those cards showing a scar on the right forehead being in one file box or drawer, on the left forehead in another, and so for fifty-eight anatomic locations or divisions of the surface of the body. Each of these files is subdivided by height into seventeen sections beginning with "64 inches and under" and proceeding by half-inch gradations to



"72 inches and over;" and each of these sections is, if need be, separated into two groups by color of eyes, blue or brown. To permit of accuracy in the determination of color, the Surgeon-General has issued to medical and recruiting officers chromolithographed standard eye colors, by which the various shades may be indicated with precision, as Blue, No. 1; Brown, No. 4, etc., on the identification card. The cards of all undesirable men having the same height and color of eyes, with scars similarly situated on the body, are thus brought together and used with facility for purposes of comparison.

The second division of the files is arranged in accordance with location of birth marks, including moles, and these are subdivided as in the case of scars by height and color of eyes. These two divisions give 3,944 final groups— $2 \times 58 \times 17 \times 2 = 3,944$ . Up to this time some of the sub-files have not required division by height or eye colors, on account of the small accumulation of cards of that particular kind.

The third division provides for the cards of men who have suffered amputations, as of part of the ear, toes or fingers. These give twenty-three sub-files without division by height or eye colors. The fourth division consists of tattoo markings which are separated into "distinctive" and "common." The first includes letters and initials, words, phrases, numbers and common tattoos in unusual locations; the second consists of hearts, crosses, anchors, sunbursts, flags, coats of arms, ballet girls, etc. The latter are grouped by location.

Separate files are kept for white and for colored men. The negroes are not subdivided by eye colors; but a sub-file is kept for those colored men who have blue eyes, this color in itself being a distinctive mark for these cases. This system of filing gives a total of 337 divisions, with 7,033 subdivisions, and it has the merit of being susceptible of expansion or contraction to meet the requirements of the service in which it is engaged. It may be contracted by omitting to subdivide by the eye colors, by making fewer subdivisions for height and by increasing the size and lessening the number of the surface locations, and it may be expanded by subdividing those anatomic locations which call for such treatment by a large accumulation of cards.

If an undesirable man has several notable scars on his person a card is made to be filed under the location of each of the scars, to insure his detection. A man having a prominent scar on the right forehead and another on the left shin has a copy of his identification card filed under both of these locations. In examining the files a margin of one inch below and half an inch above the recorded height is assumed to be needful on account of inaccuracy in taking measurements. The card of a recruit said to be 66 inches tall is compared with the cards of deserters from 65 to 66.5 inches. This suffices to cover the limits of inaccuracy in ordinary cases.

This system has proved most efficient in the Army. The Bertillon system of measurements is merely an index by which the card or record of an individual may be discovered in a mass of others; his identity is determined subsequently by reference to personal marks and other data. An error in any one of the various measurements will throw the investigator off the track of the required individual. In the U. S. Army system the personal marks themselves consti-

tute the index and there is no liability to get off the track except in the case of height which is specially guarded as above mentioned.

## SOCIETY PROCEEDINGS.

### Louisville Academy of Medicine.

The regular meeting of the Academy was held in their rooms Monday evening, January 21, Dr. F. C. Simpson, Vice-President, in the chair. Dr. J. M. Ray exhibited a case of double empyema of the antrum, in which different operations had been done on the two sides. The first operation had been done in July last; with the aid of a dental surgeon the second molar tooth was drawn, an opening drilled through and a gold tube introduced, the cavity being washed out through this opening. The operation on the other side had been done in September, 1894, the opening being made through the canine fossa, and a Miles antrum soft rubber drainage tube introduced; of the two the latter operation seemed the most effectual as the drainage was better through the opening in the canine fossa. The case was exhibited with the drainage tubes *in situ*. The transillumination test in this case had not been satisfactory, owing to the double trouble.

DR. T. C. EVANS stated that in his experience the light test was very unsatisfactory, the diagnosis being made more from the other symptoms.

DR. DABNEY stated that in his experience the lamp test had proved very satisfactory. The points to be observed in its application which may often cause it to be unsuccessful, were: 1, have the room totally dark; and 2, always ask if patient has a plate in the mouth.

DR. VANCE exhibited a case of double inguinal hernia which has been reported in detail in *Mathews Medical Quarterly*, Vol. 1, page 225, and in whom the hernia has not descended for eight months, the cure being almost entirely complete from the mechanical effect of the truss described in the article above referred to.

DR. RODMAN showed a case who had been kicked by a horse, over a truss, which was worn over an irreducible hernia. A week later he was operated on, an incision was made and fecal matter with pus escaped, and continued to pass through the opening for a week. The case was undoubtedly a rupture of an irreducible hernia with spontaneous reduction and a radical cure resulting from the inflammatory action. He also reported and exhibited six other cases in whom an operation for the radical cure of hernia had been done, the length of time elapsing being from a few months to eighteen months without a relapse. In one of these cases while tying off the sac he had included the appendix and amputated it, having considerable hemorrhage from the artery. Kocher's method of operating was used.

DR. W. H. WATHEN reported a case of double intra-ligamentous cyst, the two cysts being on the same side but entirely separate and distinct; the largest perhaps originated in the hylum of the ovary, the other perhaps in the parovarium. The patient is now convalescing, and the cyst is being washed out, first with peroxid of hydrogen, followed by sulphurous acid 1 to 10, which kills offensive odors most excellently. Dr. Rodman then showed a specimen of acute necrosis of the bones of the leg following acute osteomyelitis. Ten weeks ago, the patient, a boy of 14, fell under a horse, his leg being caught under it; there was no wound, no fracture, but great pain occurred in the tibia some little time afterward. There was hectic, temperature 103 degrees, pulse 130. When first seen sinuses riddled the leg throughout. A preliminary operation was done, and no sound bone was found. An amputation was immediately done as he took chloroform poorly. Examination of the leg afterward found two spontaneous fractures at the epiphyses and the bone necrotic throughout, the process extending to the soft tissue.

The papers of the evening were then read, Dr. Vance reading Dr. Bullitt's paper in his absence on the "Truss Treatment of Hernia," and the one on the "Operative Treatment of Hernia," was read by Dr. Rodman.

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

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No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.  
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, FEBRUARY 2, 1895.

SYPHILIS IN THE ETIOLOGY OF NERVOUS DISEASES.

Within a few years there has been a great change in views regarding the importance of syphilis in the causation of nervous diseases especially tabes dorsalis and parietic dementia. For several years after the publication of ERB's tables on tabes there was a contest, between those who regarded syphilis as the chief cause and those who denied its etiologic importance. Gradually the doubters have been silenced, and it is now admitted that a large majority of all cases of parietic dementia and tabes present a syphilitic history. Of late, however, we note a tendency to carry this view too far. A recent writer asserts that parietic dementia is only a late stage of syphilis of the brain.

Another writer argues that all cases of tabes are to be regarded as of syphilitic origin, for he says the proportion of cases claimed to be non-syphilitic has been steadily diminishing for a number of years, and if the present rate is maintained they will soon disappear from published tables. Apparently the lameness of this deduction does not occur to the writer but we are forcibly reminded of the humorous logic of MARK TWAIN regarding the shortening of the Mississippi River. This stream he said, owing to straightening of the channel, becomes shorter every year, and from known data he estimated that at the end of a few centuries it will be only four miles in length. It is only necessary to project the figures a little further to find a time when the stream shall have disappeared.

We admit that syphilis plays a most important rôle in the production of tabes and paresis. Probably 80 per cent. are of luetic origin, but to argue

from this fact that they necessarily all are is not only a lame deduction, but it is fraught with most serious consequences. Not only may the innocent be branded with a loathsome disorder, but the medico-legal relations of such a doctrine must not be lost sight of. Almost all insurance applications have a reference to this disorder and the statements made by applicants are warranties on which the policies are issued.

We think that medical science is quite as much in need of logicians as it is of experimenters and observers.

MEDICAL TEMPERANCE ASSOCIATION.

This society formed at Washington in 1891, and composed of members of the AMERICAN MEDICAL ASSOCIATION, appears to be growing into prominence in many unexpected ways. Already its influence has been noted in many recent papers on the alcoholic problem, and several foreign journals have referred to a similar English society, and this Association, as the pioneers of this new field of research. They have both been very highly commended as scientific efforts to reach some intelligent conceptions of the underlying forces which explain the rôle of alcohol in medicine and as a beverage. Both of these societies are composed of members of the British Medical and AMERICAN MEDICAL ASSOCIATIONS, and both are led by eminent men. SIR BENJAMIN RICHARDSON is President of the English society and DR. N. S. DAVIS of the American society. Each society publishes a journal which presents papers and researches concerning alcohol, in a calm dispassionate way, particularly addressed to physicians.

Studies of alcohol, especially from its scientific side, have increased very rapidly within the past few years, and persons who have not followed up this topic will be surprised to find that a bibliography by no means complete, covers several thousand books, pamphlets and articles, of exclusive scientific studies. This does not include the half moral, half scientific dogmatic papers and lectures which fill the lay and medical press. The defenders of the various theories of old text-books of medicine frequently find themselves belated and need to become acquainted with the results of modern study before they can speak authoritatively.

A significant movement, outside of medical circles, to investigate the alcoholic problem has begun by a large number of teachers and college presidents and others of eminence in various parts of the country. While it is unusual to find so many very influential and really strong men united to investigate problems of this character, the work of the committees on the physiologic and pathologic aspect of the subject as projected, gives a strong impression of a very limited knowledge of both the subject and the proper

methods of study. The personal opinions of vast numbers of good men on such a topic are open to so many sources of error as to be practically worthless. If this inquiry was made of the sixty thousand physicians in this country, who have both practical and theoretical knowledge of alcohol and its effects, some facts of comparative value would be found.

The question of personal opinions on this topic would seem to be a very primitive way of ascertaining facts. It is the conclusion of all students that the alcoholic problem is scientific, and one of exact study, not of morals or ethics, and all efforts on the social and moral side will only deepen the confusion and obscurity of the topic. The Medical Temperance Association is a movement on the line of exact study, and a protest against theories of any kind that are not sustained by careful investigation and study of all the facts. To assume that this or that theory is true, because antiquity and the fathers believed it is not the spirit of modern science nor of modern medicine. If any present theories concerning alcohol are true, the evidence is demanded and tested, and if there is no reliable evidence that will bear critical examination, the theory can not be held as true, no matter how widely it has been accepted by all persons. However much the new truths may conflict with our previous conceptions or customs of life, they can not be kept down or suppressed. The alcoholic problem demands a new study from a wider point of view, and the Medical Temperance Association has the floor. If the medical profession had taken up this subject above the currents of prejudice and popular delusions no committee of non-sectarians would ever have had occasion to investigate this problem.

The coming meeting of the AMERICAN MEDICAL ASSOCIATION at Baltimore will also bring the fourth anniversary of the Medical Temperance Association, mostly composed of members of our ASSOCIATION, which meets at the same time and place. It would seem that the profession should take up this subject more actively and help on the study and work of investigation from every standpoint, so that some facts may be ascertained which all can agree upon as closely approximating the final truths of alcohol and its use.

#### SECTION OF NEUROLOGY AND JURISPRUDENCE.

While the promise of great activity and numerous excellent papers and studies are noted in all the Sections at the coming meeting at Baltimore in May, the Neurological Section is making an effort to give an exhaustive review of certain special topics that will be of unusual interest.

One of these will be epilepsy, medically, surgically and therapeutically considered. The other, hypnotism, its medical, therapeutic and medico-legal rela-

tions. This will cover the new realm of mental therapeutics in crime relations, and the novel applications of so-called new laws of mind over matter. The third topic will be the therapeutic relations of electricity in nervous diseases. This will bring out some of the recent resources that have been the subject of some comment. The plan of having several distinct symposiums on topics of unusual interest, will be highly appreciated and has become a popular feature of the British Medical Association. It brings to the hearer a study of the subject that is very pleasing and suggestive.

The officers of the Section, DR. D. R. BROWER, of Chicago, Ill., as chairman, and DR. T. D. CROTHERS, of Hartford, Conn., as secretary, especially desire to call attention to these studies, and invite correspondence with persons who may desire to read papers on these topics, or discuss them from any point of view.

#### NEW MEDICAL PRACTICE ACT.

The State of West Virginia is apparently to have a new Medical Practice Act, the House bill for that purpose having been favorably reported by the Judiciary Committee of that body.

The bill provides that the State Board of Health shall at such times as a majority shall deem proper, hold examinations for the licensing of practitioners of medicine. The bill provides for both written and oral examinations "covering all the essential branches of the sciences of medicine and surgery and the examination shall be a thorough and decisive test of the knowledge and ability of the applicants."

Should any applicant profess a desire to practice according to the "homeopathic" school, then the Board "shall call to their assistance a homeopathic physician duly licensed to practice medicine in this State."

The bill is in the right direction, but in our opinion the words, "practice of medicine" should be clearly defined, so that when cases arise under it there may be no quibble as to the meaning of the statute.

#### CORRESPONDENCE.

##### Treatment of Typhoid Fever.

KALAMAZOO, MICH., Jan. 25, 1895.

To the Editor:—By following the suggestions made in an article in the JOURNAL of December 4, by W. S. Caldwell, M.D., soliciting correspondence as to the antiseptic treatment of typhoid fever as advocated by Dr. John Eliot Woodbridge, I would give a brief outline of the treatment of two cases as stated in a paper which I read before the Kalamazoo Academy of Medicine, Oct. 15, 1894, on "The Abortive Treatment of Typhoid Fever." Sept. 19, 1894, I was called to see a lad about 10 years of age who lived in the celery region in a low and marshy part of the city; he had been complaining for four or five days previous with headache, backache and general languor. I found him with a brownish-gray tongue,

tympanitis, diarrhea and fever, his temperature ranging from 102 degrees F. in the forenoon to 104 degrees F. in the afternoon. I first gave him large doses of quinin for two days, which did not relieve his condition, but satisfied me that it was not malarial but genuine typhoid fever. I began the antiseptic treatment, as recommended by Dr. Woodbridge, September 21, the third day after first seeing him; the medicine was given in small doses every thirty minutes. I also gave a large dose of turpentine occasionally and used it externally when necessary. September 21, when beginning the treatment the morning temperature was 102 degrees F. and the evening temperature 104 degrees F. September 22, morning temperature 102 degrees F.; evening temperature 103 degrees F.; September 23, morning temperature 103½; September 24, evening temperature 104 degrees F.; September 25, morning temperature 102 degrees F.; September 26, evening temperature 103 degrees F.; September 27, morning temperature 102 degrees F.; September 28, I did not see him; September 29, morning temperature 101 degrees F.; September 30, evening temperature 101; October 1, evening temperature was 101½ degrees F.; October 3, temperature 100 degrees F. In this case the temperature began to vary, gradually, a little for two or three days, and then diminish a little each day after beginning the treatment, and on the eleventh or twelfth day temperature was so near normal and other symptoms so favorable that I considered it safe to dismiss him. I saw him about a week after, when he was around the house and had no fever.

My next patient was a man about 33 years of age who called at my office in the evening and I found his temperature 104 degrees F. He had been feeling quite badly for a few days previous, and said that he was taken with a chill. He was suffering from headache, backache and a dull heavy languid feeling. I called at the house the next day and treated him symptomatically for a few days, giving large doses of quinin, calomel, etc., but soon found that it did not diminish the fever and that his temperature assumed a regular typhoidal character. I began the antiseptic treatment September 21, at the same time that I did my other case, and dismissed him on the same day, October 3. After beginning the medicine, the temperature went through about the same degree of decline that it did in the first patient, with the exception that it was normal October 3, when dismissed.

Two or three cases may not be sufficient to establish positive evidence that this treatment is correct, but I can say that it worked better with me in these cases than any plan of treatment which I have followed in typhoid cases, since beginning the practice of medicine about twelve years ago. I hope to hear from other members of the profession who have tried this treatment.

Very respectfully,

FRANK C. MYERS, M.D.

### The Bill for the Re-organization of the Personnel of the Navy.

To the Editor:—Under the pretence of increasing the efficiency of the Navy, this bill seeks to humiliate and degrade the staff corps. To counteract the enormous increase of pay required for 16 rear admirals (major generals) and 234 commanding officers (to command fifty vessels in commission), it proposes to take away from the staff corps some of their pay to help meet these remarkable line changes. Why should a doctor's pay be diminished because of any change in the line? His value does not depend upon the line. The market value of doctors does not depend upon the supply of ensigns. They come from civil life and their pay should be fixed at what good men of their profession are worth. They have educated themselves and no staff officer can ever reach the ultimate high pay of the line, or hope for the re-

markable promotion provided for the line, by this bill. A writer in the *Brooklyn Eagle* forcibly states the case:

"This bill degrades the staff officers and makes the servants of a selected part of the line. No such firebrand has been cast at the Navy since 1855. It is a mistake to think it is wanted by the service at large. It is opposed by 90 per cent. of the line above the grade of lieutenant commander and by every member of the Medical, Pay and Engineer Corps. These corps are absolutely essential to the efficiency of the Naval Service. Can this bill increase the efficiency of the personnel of the Navy if it makes it impossible to secure a competent medical department and places the lives of officers and men in peace and war at the mercy of incompetent men? Can it promote naval efficiency to deride the authority of the engineer officer over his men in the management and care of the complicated and powerful engines of our new ships? Can it promote naval efficiency to place a medical officer so that he can not conduct properly a hospital in which he has line officers, staff officers and enlisted men as patients? With one accord all the staff officers repudiate the ghost of positive rank offered by this bill. There is, indeed, no positive rank conferred, for it is offered in one section and taken away in others. Why should not a medical officer have military command in a naval hospital or in his own department on a ship? Why should not an engineer officer have military command over men around the boilers and engines of a ship? Why should not medical, pay and engineer officers have military command in their own departments at all times and exercise it under the commanding officer, whatever may be his rank, as do all other officers, even the youngest ensign in charge of a gun? How are they to control the men under them if they have no authority by virtue of their orders and commissions? Can a bill which denies this authority and which makes the staff officer regard the words on his commission as satirical, promote efficiency in the Navy? It is a mistake to suppose that this bill is in the interests of harmony and good feeling in the service or that it will definitely settle the controversies which now exist. So far from it, it is a bill productive of discord, discontent and bad feeling. It will, with its reserve list and treatment of the staff corps, cause numbers of dissatisfied officers, and in place of harmony and efficiency it will cause more discord and trouble than the Navy has ever known. It is a mistake to think that staff officers want military rank for any general command. They want military command in their own departments only and under the commanding officer as are all other officers. A similar provision has existed many years in the Army, where discipline is jealously guarded. The staff corps desire simply the Army law, and that is all they ask for. They are commissioned officers and are not any more insubordinate and unworthy of trust than other commissioned officers.

"Aside from this, the other main features of this bill affecting the staff corps are most unjust and seem to reflect the same desire to destroy their efficiency. There are five grades now in each of the three staff corps mentioned. This bill makes six and thus divides each corps into smaller fragments. It thus fixes a smaller number of men who can have any given rank at the same time. The middle grade in each corps is divided, the upper fragment only being given the higher rank. This whole grade once had the higher rank, but now has two ranks owing to stagnation in the line. For some years now the rank of the majority of the members of the Medical, Pay, and Engineer Corps has depended upon promotion in the line, each of these staff officers taking his rank within grades in accordance with a certain line officer with whom he has had to keep pace. Stagnation in the line has made stagnation of rank in the staff, and now this bill rapidly advances the one and holds back the other. It does this not only by dividing the staff corps into a greater number of grades, but now that they would be benefited in rank by the rapid line promotion provided for in this bill if the present system were retained, a new system is most conveniently adopted under which the relation in rank between line and staff now existing is abolished, and the staff corps made to retain much of the damage in rank they have sustained. The division of the staff corps into a greater number of grades is one of the most unjust things in this bill. It is designed for the purpose of depriving forever the staff corps of the rank they once had, and which should be restored to them by this bill—a bill which examination clearly shows is designed to exalt simply the younger portion of the line and to pull down, humiliate and make servants of most of the other commissioned officers of the service.

"A further examination only makes this spirit still more apparent. It has been shown that this bill provides 234 commanding officers for less than fifty ships of war. No ship can have more than one commanding officer, but many must have more than one doctor and one engineer. A ship having a complement of 300, 400 or 500 men goes into battle with one commanding officer. If he falls the next line officer takes his place. It would be inhuman and absurd to send such a vessel to sea in peace or war with one surgeon or one engineer. Even in peace the sickness or death of such men would find no one to take their place. Epidemics on board at sea would find men dying for want of assistance. In war a recent experience has shown how many wounded a few minutes' light at sea produces. Can one surgeon give the necessary aid? Why, everybody knows that many common surgical operations are never undertaken without several assistants. Can one surgeon do what humanity requires? And suppose the surgeon falls in battle, who is to take his place? No one can, if he is acting alone. It is absurd to say that he can not fall in battle, that he is down below safe from shot and shell. In the recent naval battle between the Japanese and Chinese the former lost ten commissioned officers, killed outright, and two of these were doctors—20 per cent. It is absurd to call any man a non-combatant in these days on a ship of war. Most of our ships being of the cruiser class are easily pierced, and perhaps no men occupy a more dangerous position in battle than the engineer force. What would a shot into a boiler or steam pipe mean? Death from scalding to a number of men—who like men in reserve are liable to suffer at any time and yet are not in the heat of the fight. This was the history of our war, and this will be the history that will be repeated. Beside, who is to be depended upon when the whole ship itself is to be used as a projectile, and her steel prow pushed into the hull of her adversary? Is not this making the Engineer Corps combatants, and should not the engineer officer have military command over his men at such a time? Who holds the throttle and who gives the ship her speed through the water and are most liable to suffer from the shock? It is absurd to think of only one engineer for the many complicated engines on a modern man-of-war. Now make the comparison in this bill between the number in line and staff. Two hundred and thirty-four line officers to command fifty or sixty ships with one commanding officer to each ship! How many doctors? One hundred and sixty-five, when two or more are required on many ships and the hospitals on shore require staffs. How many engineers? One hundred and ninety, when several are required on nearly every ship. How many paymasters? Ninety-six for all purposes. Does not this comparison show the line strength in this bill, in which in spite of a number of commanding officers now that can



not be utilized, there is an increase of 30, nearly as many as there are ships, and the medical corps is reduced five numbers—from 170 to 165. Two hundred and thirty-four commanding officers and 165 doctors, 190 engineers and 96 paymasters. Is not this an absurdity? Is not this a line bill and a malicious expensive one at that?

"Examine still other provisions and the unfairness of this bill becomes yet more apparent. In Section 12 it is arranged that there shall be at least twenty numbers made each year in all grades below lieutenant commander. Now as there are seventy-five lieutenants of the junior grade provided, an officer must pass through that grade at the most in a little over three and a half years, and will do so in less time. Now examine the staff corps. A man in any one of these corps must of course wait for vacancies above him in his own corps before he can be promoted. In the Medical Corps, there are forty lieutenants of the junior grade provided in a corps with 165 members, nearly one-fourth of the whole corps. As, during the last twelve years, there have been four numbers made each year, it will take a medical officer ten years to pass through this grade. Less than three and a half years in the line and ten years in the Medical Corps. This is, indeed, a line bill with a vengeance! In the Engineer Corps it will take five or six years to pass through this grade and in the Pay Corps seven years. The unfairness of this is very apparent. The result of this will be that young men in the line will have great rank, while in the staff a man will carry his gray hairs around, even in the lower grades.

"Even in this treatment of the staff corps mentioned there is a curious lack of consistency. In Section 25 it will be seen that in the Medical Corps of 165 members, 30 are allowed with the rank of lieutenant commander. In Section 33 it will be seen that in the Pay Corps of ninety-six members the same number of lieutenant commanders is allowed. In one case less than a fifth, and in the other nearly a third. A strange and curious inconsistency. The number of this rank in the Medical Corps should for every reason be fifty. That is the number of the surgeon's grade now for which the title, staff surgeon is substituted. They were all with the relative rank of lieutenant commander a few years ago, but are now divided in rank simply by line stagnation, and will be forever divided by this bill.

"Furthermore, this bill provides for a criminal result so far as the Medical Corps is concerned. The Medical Corps gets competent men now with great difficulty, and from lack of inducements offered has not had its complement since 1865. What will be the state of that corps under this bill? Every diminution in inducement means a lowering of standard for admission, and under the inducements offered by this bill this standard will necessarily have to be placed so low that the lives of officers and men will be placed in the hands of incompetent persons. Equalization of the rank and pay of the Medical Corps of the Navy should not be made with the line of the Navy, but rather with the Medical Corps of the Army. The market value of a doctor does not depend upon the supply of ensigns and has no relation to the Naval Academy. It depends upon the condition in civil life and upon inducements offered by the other public services, such as the Army and Marine-Hospital service. Vacancies in those services for which there are not suitable men is unknown. In the Army, assistant surgeons have the rank, pay and emoluments of a first lieutenant of cavalry for the first five years' service—pay alone \$1,600—and the rank, pay and emoluments of the grade of captain after five years' service—pay alone \$2,600 (Section 4, act June 23, 1874).

"At the upper end of the corps is one brigadier general. Colonels in the Medical Corps receive \$4,500 on the active list and \$3,375 on the retired list. This bill proposes for the Navy that an assistant surgeon shall enter with the rank of second lieutenant (Army), with his highest pay \$1,200. He will be behind the Army man in his promotion and at the end, after many years, his highest shore duty pay will be \$3,500. The Army ranks are generally full, but the rewards of service are none too great, and there is not much struggling for appointment. It is, therefore, a great mistake to suppose that competent assistant surgeons can be obtained for the Navy at \$1,200 at sea and the rank of ensign. The result will be an incompetent corps. The efficiency of the Navy can not be promoted by destroying or weakening its medical service.

"From every direction the truth of the proposition becomes evident that Congress may improve the pay and position of the line officer, but it can not do so at the expense of the staff without injustice. This injustice would lower the efficiency of the service and make discord and discontent.—AN OFFICER OF THE NAVY.

### Castration for Prostatic Hypertrophy.

Dr. Ricketts to Prof. J. William White.

CINCINNATI, OHIO, Jan. 23, 1895.

*My Very Dear Doctor:*—I received your letter recently concerning the removal of testes for hypertrophied prostate. Since that time I have kept informed upon all things pertaining to this new work, so far as I have been able.

The following communication was just received from the physician who has charge of the patient whose testes I removed on Oct. 26, 1894:

Jan. 22, 1895.

"*Dear Doctor:*—The patient whose testes you removed on Oct. 26, 1894, for hypertrophied prostate, has no obstruction, straining, or severe pain, which he formerly had while urinating. He passes water still too freely, and complains of burning and itching after micturition.

"I would say that he is well and doing nicely.

Very fraternally, L. M. GREEN."

Thus you see that the results in this case verify those of the others that have been reported.

I am thoroughly satisfied that this operation is one that, sooner or later, will become generally adopted for the relief of hypertrophied prostate.

I am also satisfied that to you belongs the credit for first suggesting it; surely for doing the experimental work necessary to establish the facts concerning it.

You may use this letter in any way you deem proper.

I am, very truly, MERRILL RICKETTS, M.D.

Dr. J. Wm. White, Philadelphia.

### BOOK NOTICES.

**Laboratory Guide for the Bacteriologist.** By LANGDON FROTHINGHAM, M.D.V. Illustrated. Philadelphia: W. B. Saunders. 1895. Price 75 cents.

This is an excellent companion for the laboratory table. Several methods of bacteriologic examination are mentioned here that are not in common use, and some of them will save much time over former methods.

**Syllabus of Gynecology;** based on the American Text-Book of Gynecology. By J. W. LONG, M.D. Philadelphia: W. B. Saunders. 1894. Price, \$1.

This syllabus seems to be a complete syllabus of the topics set forth in the "American Text-Book of Gynecology"; it is intended also to be used as lecture notes. The work is of the same style as Senn's "Syllabus of Surgery."

**The Twelfth Annual Report of the State Board of Health of Indiana for the Year 1893.**

This report, besides giving an official account of the sanitary work of the year, describes in detail the progress of the smallpox epidemic at Muncie and the measures taken to prevent its spread. Cuts and descriptions of the hospitals built for the reception of smallpox patients are given, and the volume concludes with a list of the physicians of the State.

**The Retrospect of Medicine; a Half-yearly Journal** containing a Retrospective View of every Discovery and practical Improvement in Medical Science. Edited by JAMES BRAITHWAITE, M.D. Lond. Vol. cx. July-December, 1894. (Issued January, 1895.) London: Simpkin, Marshall, Hamilton, Kent & Co. Ltd. Pp. 438. Cloth.

The title sets forth fully what Dr. Braithwaite assumes to accomplish. While the work is a valuable one, for the abstracts it gives are always interesting and instructive, it is far from complete, nor could a work give a complete abstract of the discoveries and improvements in medical science within the limits of 400 pages, and it is painfully apparent that the venerable editor draws from an extremely limited exchange list for a journal with such ambitious professions.

**Notes on the Newer Remedies; Their Therapeutic Applications and Modes of Administration.** By DAVID CERNA, M.D., Ph.D. Second Edition, Enlarged and Revised. Pp. 253. Cl. Philadelphia: W. B. Saunders. 1895. Price, \$1.25.

This little book, which is dedicated to Prof. Horatio C. Wood, of Philadelphia, has a great field of usefulness. The newer remedies are described by the medical press as they are reported, from time to time, and occasionally mentioned in case reports, but the author has here gathered them together in one volume, and briefly given a definition, an account of the physical properties, solubility, physiologic action, therapeutic application and dosage of each. We are pleased to note that the decimal system of dosage has been employed. In most cases both the British and the metric dose is given. The volume is a useful one and should have a large distribution.

**Medico-Chirurgical Transactions.** Published by the Royal Medical and Chirurgical Society of London. Vol. LXXVII. London: Longmans, Green & Co. 1884.

This volume, one of the most interesting of its series, contains besides the usual lists, and proceedings, twenty papers as follows:

1, Diseases of many Joints probably of Syphilitic Origin,



by Anthony Bowlby; ii, A Case of "False" Disseminated Sclerosis due to Measles, with Remarks on the Occurrence of certain widespread Nervous Disorders after This and other Infectious Diseases, by Dawson Williams; iii, On Disseminated Fibrosis of the Kidney, by W. Ainslie Hollis; iv, Arthrectomy of Elbow and Ankle, by H. H. Clutton; v, On Albuminuric Ulceration of the Bowels, by Howship Dickinson; vi, Abdominal Section for Intestinal Obstruction due to Hydatids, by J. Hutchinson; vii, On the So-called Spontaneous Disappearance of Solid Abdominal Tumors, Three Cases, by J. Greig Smith; viii, Nerve Stretching and Splitting, by Kenneth McLeod; ix, Two Cases of Intussusception of Large Intestine reduced by Introduction of the Hand into the Rectum, by Thomas Bryant; x, Case of Pleurisy caused by Pneumococcus, by J. W. Washbourne; xi, Ruptured Gastric Ulcer, Laparotomy, Recovery, by Thomas H. Morse; xii, Case of Resection and Immediate Suture of Intestine which had been Strangulated Eighty-one Hours, Recovery, by C. B. Lockwood; xiii, Persistence of the Thyreoglossal Duct, . . . by H. E. Durham; xiv, Case of Extra-peritoneal Vesical Hernia, by Ernst Michels; xv, An Operation for the Cure of Cleft of hard and soft Palate, by N. Davies-Colley; xvi, Case of extreme Prolapse of Female Urethra in a Child aged 6, by Thomas Bryant; xvii, Two Cases of Uretero-lithotomy, by Edward Cotterell; xviii, Influence of different Soils on the Comma and Typhoid Organisms, by R. Dempster; xix, Review of Cases manifesting Pain at the Heart or morbid Acceleration of Heart's Contraction subsequent to Influenza, by A. E. Lanson; xx, Case of Acanthosis Nigricans, by Malcolm Morris. Rarely has any volume of transactions contained so interesting a series of papers.

## SELECTIONS.

**Sublimophenol.**—By bringing together equal molecules of mercuric chlorid and potassium carbolate and gently heating the solution, a brick-red precipitate, which passes through yellow to white, forms, consisting of a mixed chlorid and carbolate of mercury. This has been termed sublimophenol. Washed, dried, and dissolved in boiling alcohol it forms, on cooling, colorless crystals.—*Western Druggist*.

**Delicate Reaction for Morphin.**—Lama describes (*Apoth. Zeit.*) the following reaction as detecting 0.000005 gram of morphin: A few drops of the solution are placed in a porcelain capsule, with an equal quantity of uranium acetate solution (0.03 gram uranium acetate and 0.02 gram sodium acetate in 10 cc.). A brilliant red color results at once. Oxymorphin gives the reaction as well as morphin.—*Western Druggist*.

**Toluol-Iron Mixture for Diphtheria.**—Loeffler reports brilliant results (*Deut. Med. Woch.*) from the topical application in diphtheria of ferric chlorid and toluol. He publishes the following formulas: 1, dissolve 10.0 g. of menthol in sufficient toluol to make 36.0 cc. then add 60.0 cc. of absolute alcohol and 4.0 cc. of solution of ferric chlorid; 2, menthol 10.0 g., toluol to make 36.0 cc., absolute alcohol 62.0 cc., creolin 2.0 cc. The second formula is a substitute for the iron mixture. Menthol is added to reduce the pain. A small wad of cotton is saturated with the mixture and pressed firmly against the membranous plaques, repeating every three or four hours. The false membranes begin to soften and will soon separate in large patches.—*Western Druggist*.

**Tellurium in Bismuth Salts.**—P. Janzen calls attention (*Apoth. Zeit.*) to the frequent presence of tellurium in bismuth salts, which, with Bettendorff's test for arsenic, may lead to erroneous conclusions. While the possible presence of tellurium or selenium is well understood, yet not one Pharma-

copœia has introduced tests for their detection. Commenting on Perleberg's communication the *Pharmaceutische Rundschau* reminds its readers that the alliaceous bismuth-breath is referred to, and ascribed to arsenic or tellurium by Hansen in Liebig and Woehler's "Annalen" for 1853, by Woehler and Gmelin before that date, in Blyth's "Chemistry" of 1879, by Squibb in "Ephemeris" for 1883, and others. While it is not known that the presence of minimal quantities of tellurium is injurious, the writer of this knows from experience that it is decidedly unpleasant, since for years he has been accused by acquaintances of having indulged in the strong-flavored garlic every time he had taken bismuth subnitrate for longer than one day.—*Western Druggist*.

## PUBLIC HEALTH.

**New York City Board of Health.**—A New York paper, the *Sun*, calls attention to the peculiar formation of the Board of Health of that city—peculiar in that, unlike the other municipal departments, three of the four Commissioners are chosen, not as Commissioners solely of the Board which they help to compose, but because they also hold other positions. The Board consists of four members; one, a civilian, the President, is appointed as other municipal Commissioners are, by the Mayor. The first of his colleagues is the Health Officer of the Port, who is appointed by the Governor of the State, with the assent of the State Senate. The next of his associates is the President of the Board of Police Commissioners. In his case the appointive power is the Police Board. Thus one of the Commissioners takes his appointment from the Mayor, one from the Governor, and the third from the Police Board. There is still a fourth member of the Board of Health appointed by the Mayor, but subject to the limitation that he must be a practicing physician. In effect, there are two physicians and two laymen in the Board. Another peculiarity about the Board of Health is the fact that only two of its four members receive any salary as such, and that the two who are paid get different salaries, one (the civilian) receiving \$5,000, the other (the physician) getting \$4,000.

**Does Disinfection Disinfect?**—After a series of experiments with a 2 per cent. solution of the mercuric chlorid, M. Laveran concludes that disinfection by spraying, as frequently performed, does not suffice to destroy infectious germs. In presenting the results of his experiments to the Paris Academy of Medicine he urged that the walls of an infected room should be treated as a surgeon treats his hands before an operation. That is to say, they must first be washed with soap and then with an antiseptic solution, and he recommends the successive use of a 5 per cent. solution of carbolic acid and a 2 per 1,000 solution of sublimate. In order to make this form of disinfection practicable, all rooms exposed to frequent infection—hospitals, barracks, hotels, asylums and workshops—should be made with impermeable walls. M. Dujardin-Beaumetz replied to M. Laveran by recalling the very reassuring fact that during the two years in which the public service of disinfection had been working in Paris, local house epidemics have all been promptly checked. This practical test is sustained by the experience of sanitarians in this country where the methods of disinfection in the large cities are substantially the same as in Paris and where results are obtained which are certainly, as Dujardin-Beaumetz says, "very reassuring."

**The Typhoid Oyster.**—That veteran sanitarian, Secretary Lindsley, of the Connecticut State Board of Health, must derive no little amusement from the promptness with which his discovery of an etiologic relation between typhoid

fever and the oyster has been followed up by his British colleagues in public hygiene. Sir William Broadbent, Sir Peter Eade and a host of others of lesser note are flooding the English journals with instances of oyster-typhoid, suggestions of remedy and of protection of "our succulent friend from deleterious contamination," etc. And now comes Sir Charles A. Cameron, Medical Officer of Health for Dublin, with a claim of priority of discovery. It appears that some fifteen years ago Sir Charles read a paper on "Typhoid from Oysters," which "seemed to amuse but not to instruct" his hearers; since then, he says, the "possibility of the *materies morbi* of enteric fever and of other diseases gaining access to oysters has frequently been discussed, and I have published the cases of a large number of persons who were undoubtedly subjected to severe gastro-enteritis as the result of eating oysters which were undoubtedly fresh." At best, however, Sir Charles and the other titled and untitled gentlemen have only shown that, because oysters were found in sewage and sewage in oysters, and because the typhoid poison is sometimes found in sewage, therefore the oyster might be the vehicle for conveying the poison to the small intestines of its host. But they have failed to show that what might happen really did happen in any specific instance. It remained for our own Dr. Lindsley to demonstrate such an occurrence in the case of the Wesleyan College students.

**Contagious Diseases.**—The general death rate for the month just closed has been swollen by the mortality from phthisis, pneumonia and bronchitis, the usual seasonal prevalence and mortality of which have been materially increased by the remarkable and sudden variations of temperature which have occurred in almost all sections of the country. Aside from this the general morbidity of the month presents no unusual features. The incidence of the contagious diseases remains about stationary, except as to smallpox, which, considered as an epidemic, seems to have passed its culmination. The largest number of cases of this disease is reported in Chicago, where there were 183 new cases up to the 30th ult., and a total of 268 treated—including 84 remaining in hospital at midnight Dec. 31, 1894. Of this number 98 were discharged, recovered, 42 died, 127 remaining; mortality rate 15.6 per cent. In the State at large Dr. J. W. Scott, Secretary of the Illinois State Board of Health, reports cases at and near Byron, Ogle County, at Sycamore, DeKalb County, at Harper, Ogle County and at Desplaines and Kirkland, Cook County. Dr. Wingate, Secretary of the Wisconsin State Board of Health, reports, for the week ended January 26, six cases, no deaths, at Appleton (confined to two houses and under control); two cases, one death at Two Rivers; five cases, one death in Gibson Township; five five cases, two deaths at Mishicot; one case, no death at Manitowoc Rapids; one case, no death in Franklin Tp.; six cases, five deaths in Milwaukee. Total number of cases on hand in Milwaukee, fifty-four; in hospitals, sixteen, in homes, thirty-eight. The JOURNAL is unable to learn the exact status of the disease in Detroit. A newspaper dispatch of the 26th ult., reports some sixty cases on hand, two-thirds being treated at homes. It was also stated that Dr. McLeod, the Health Commissioner, has tendered his resignation to take effect on the 15th prox.; that the position had been tendered to Dr. G. W. Stoner, U. S. M. H. S., who had declined, whereupon it was offered to Dr. W. H. Hutton, U. S. M. H. S., who had accepted, subject to the approval of the Supervising Surgeon-General of the Service. Influenza is slowly increasing the area of its invasion, but, except in New York City, has thus far exerted no marked effect upon the death rate except as it may have increased the mortality from pneumonia when it occurs as a complication of this latter disease. There have been, however, a number of "sudden deaths—cause not rated" among middle-aged and elderly persons who were afflicted with the disease two or three years ago.

## SOCIETY NEWS.

**King County (Seattle, Wash.) Medical Society** has elected the following officers for the coming year: President, L. R. Dawson; Vice-President, W. T. Sloan; Secretary, F. B. Whiting; Treasurer, Geo. M. Horton.

**Hampden District Medical Society.**—The quarterly meeting of the Hampden District Medical Society was held in Springfield, Mass., January 15.

**Brainard District Medical Society.**—The quarterly meeting of the Brainard District Medical Society was held in Jacksonville, Ill., January 24.

**How It Looks to the Lay Press.**—At the meeting of the Tri-State Medical Association, at Atlanta, last October, Dr. B. read a very interesting and instructive paper, and he received requests from six of the leading medical journals of the United States to publish the same. The request was granted to the *International Journal of Surgery*, of New York, and he was complimented with 250 copies of a reprint, which is an unusual distinction accorded physicians. The article appears in the December number of the above journal.—*Chattanooga Times*, Jan. 20, 1895.

**Cleveland Medical Society.**—The Cleveland Medical Society held its annual election at its quarters in the Chamber of Commerce rooms on Friday evening, Jan. 11, 1895. The following officers were elected; President, Wm. E. Wirt; First Vice-President, Aug. F. House; Second Vice-President, H. S. Upson; Recording Secretary, W. F. Brokaw; Corresponding Secretary, F. S. Clark; Treasurer, N. Stone Scott; Librarian, Wm. E. Bruner; Censors, M. Rosenwasser, H. S. Straight, L. B. Tuckerman, A. J. Cook, W. J. Scott; Pathologist, A. P. Ohlmacher; Trustees, H. G. Sherman, Chas. Gentsch, C. F. Dutton.

Immediately after the election the Society adjourned to the Hollenden Hotel where the annual banquet was held. The retiring President, Dr. W. H. Humiston, stated in his address that the Society has 291 members; that the average attendance for the year was 135, being in this regard second to no society of its kind in the United States, as shown by reports he had received from other societies. The Society meets every two weeks.

## NECROLOGY.

ALFRED L. LOOMIS, M.D., of New York, Jan. 23, 1895. Professor Loomis had been ill since Sunday with acute pneumonia. Was born in Bennington, Vt., 63 years ago, and was graduated from Union College in 1851 and from the College of Physicians and Surgeons in 1853. After his final graduation he served for two years as a member of the medical staff of the Ward's and Blackwell Islands hospitals. Then he engaged in private practice and soon became a recognized authority on pulmonary diseases. He became the visiting surgeon at several hospitals and public institutions. From 1862 to 1865, inclusive, he was a lecturer in the College of Physicians and Surgeons, after which he was made Professor in Medicine of the University of the City of New York. In 1867 he was made a Professor of Pathology of the same institution. Through an admirer he was placed in charge of a fund of \$100,000 with which to build a laboratory in the same university, to be named after himself.

Dr. Loomis became a member of many medical societies and associations, and at his death he held a number of honorary degrees which had been conferred upon him. He was the author of a number of medical works, and may be said to have been one of the most popular physicians in the great city.

Dr. Loomis was twice married. Two children and a widow survive him. The funeral was held at the Church of the Incarnation at Madison Avenue and 35th Street, on Saturday, January 26.

JOHN YOUNG MCGAY, M.D., died Oct. 12, 1894, aged 40 years. He was a native of New York City, the son of Mr.

Robert T. McGay. He was educated in that city, taking his medical diploma in 1880, at the Medical Department of the New York University. At the time of his decease he was temporarily residing at Lisbon Centre, St. Lawrence County, N. Y. His fatal malady was chronic nephritis.

FOUNTAIN N. TALIAFERRO, M.D., of Hicksville, Long Island died January 16, aged 34 years. His death took place at Aiken, S. C., to which place he had gone several weeks ago for the benefit of his shattered health. Dr. Taliaferro was a native of Virginia, but he had been a resident of New York since the time of his graduation in medicine, which was from the University of New York, in the class of 1889. He was health officer of his township for one term, and had built up a very desirable practice.

E. F. SHORB, M.D., of Laurel, Md., January 15, aged 69.—Wm. Wood, M.D., of Grand Rapids, Mich., January 14, aged 56.—G. W. Topping, M.D., of De Witt, Mich., January 14, aged 67.—J. W. Hicks, M.D., of Orlando, Fla., January 14.—Mary W. Noxin, of New York, January 16, aged 40.—W. A. McCully, of Independence, Kansas, January 22.—Francis C. Neale, of New York, formerly of Baltimore, Md., January 17, aged 60.—John Powell, M.D., of Pennsylvania, in Zacatecas, Mexico, January 28.—Robt. Lee Long, M.D., Mexia, Texas, January 20.—Henry A. Archer, M.D., at Meriden, Conn., January 20, aged 74.—W. O. Kulp, M.D., Davenport, Iowa, January 12, aged 59.—J. E. White, M.D., Toronto, aged 47.—Geo. C. Pease, M.D., Kalamazoo, Mich., January 25, aged 50.—Jas. Strong, M.D., Cleveland, January 29.—M. T. Trovinger, M.D., Hornelltown, Ohio, January 23, aged 35.

## MISCELLANY.

**Wisconsin State Board of Health.**—At the annual meeting of the Wisconsin State Board of Health, Dr. J. W. Hancock, of Ellsworth, was elected President for the ensuing year.

**Dr. E. E. Hegg,** of North Yakima, Wash., has been appointed a member of the Washington State Board of Health and Bureau of Vital Statistics.

**Dr. R. S. Bragg,** of New Whatcom, Wash., died January 21 from rheumatism of the heart. He was one of the leading physicians of his county, an ex-President of the County Medical Society, prominent in Masonic and Odd Fellow circles, and a director in one of the city banks.

**Can Not be Sent by Mail.**—Bacteriologists and pathologists should take notice that by the new postal regulations, "disease germs and matters from diseased persons" are unmailable matter, and can not in the United States be sent by post.

**Charbon in Sicily and Sardinia.**—The malignant pustule rages with persistence in Sicily and Sardinia. From January to October, 1894, there were sixty-six cases of charbon in the province of Palermo. Experiments are being made in Italy to popularize anti-charbonous vaccinations and vaccinations on a large scale in the contaminated countries.—*Gazette Médicale de Liège*.

**The Quarter Century Medical Club,** for social, biographical and historical purposes, was organized in Detroit, Mich., January 15. The qualifications for membership are twenty-five years' practice in Detroit and good standing in the profession. The following officers were elected: President, Peter Klein, M.D.; Vice-President, E. W. Jenks; Treasurer, Hamilton E. Jmth; Secretary, J. J. Mulheron.

**A Bengalese Superstition.**—A paper, read before the Anthropological Society of Bombay, contains a long list of senseless superstitions that thrive in the Hindoo mind. There is one of them that has sufficient interest to quote before a medical audience, namely: "Do not wake up a sleeping

physician." Comment is hardly necessary, but the saying will inevitably call to mind the Anglo-Saxon adage about "letting the sleeping dog lie." The parallelism does not speak well for the popular esteem of the native Hindoo physician.

**Cologne Tippling.**—According to *L'Union Médicale* this habit is increasing. Alcoholics, especially women, begin by taking a few drops of *eau de cologne* and finally drink it by the glass. The writer seems to think this form of alcoholism may replace or cure the cocain and morphin habits. The habit is exceedingly injurious, for in addition to the poorly rectified alcohols are the natural or artificial essential oils which are equally toxic. The practice is found among the upper classes principally.

**Extirpation of the Stomach of a Cat.**—At a recent meeting of the Paris Biological Society reported in the *Gazette Médicale de Paris*, M. M. Parchon and Carvallo exhibited a cat from which they had removed the stomach, and they detailed the results of the operation. The general nutrition was normal, the three species of foods—albuminoids, carbo-hydrate and fats were well digested; the digestion of milk, however, was faulty. The animal thrived best on a pap of milk, rice flour and yolk of an egg. Croked meat was perfectly digested, raw meat imperfectly. Professor Dasht observed that we know the gastric juice produces changes in meat similar to those from cooking.

**Dr. Daniel Lewis.**—Dr. Daniel Lewis, of New York City, has been nominated by Governor Morton to be a member of the State Board of Health. Dr. Lewis was born in Allegany County, New York, Jan. 17, 1846. He studied at the Alfred University, after serving in the Navy throughout the Civil War. Graduating in 1869, he studied medicine in the New York College of Physicians and Surgeons, taking his degree in 1871. When the New York Skin and Cancer Hospital was established, Dr. Lewis was appointed to a junior position on its staff of which he is now the head. He also occupies the chair of Special Surgery in the Post Graduate Medical School. Dr. Lewis was elected President of the County Medical Society in 1884 and reelected a year later. He was elected President of the State Medical Society in 1889.

**May Give Opinions as to Cause of Disease.**—The rule is well established that an expert witness, in giving his opinion, must first state all the facts upon which he bases his opinion. But after a physician has testified fully as to examinations he has made of a patient, the condition in which he found the latter, detailing also to the jury what he learned from the patient, the Appellate Court of Indiana, in *Louisville, N. A. & C. R'y Co. v. Holsapple*, a case decided Nov. 22, 1894, holds that the witness may give his opinion of the cause of the patient's maladies, as for example what caused an unnatural growth in her womb. So also does the court hold that where a medical expert has testified fully as to the examinations made by him, he may state whether, in his opinion, the injuries as he found them are temporary or permanent.

**Treatment of Gonorrhea.**—Dr. H. M. Christian (*Therapeutic Gazette*) claims that irrigation of the urethra with potassium permanganate, 1 to 4,000, doubled in strength the second week, is the best remedy for simple non-infectious urethritis. The irrigations are made daily with about one quart of a warm—not hot—solution, the patient standing and the reservoir at a height of six feet. A cure can be effected in from ten to twelve days. This can not be solely relied on for a specific urethritis, but to a certain point he considers irrigation the proper treatment—relieving *ardor urinae* and chordee promptly and largely preventing such complications as total urethritis and epididymitis.

**Prophylaxis of Malaria.**—A commission of the Therapeutic Society of Paris, consisting of Mm. Adrian, Bardet, Berlioz and Boymond, appointed for the purpose, have reported on the best forms of quinine to administer for the prophylaxis of malaria. As a general rule: Solutions of the salts of quinia should be reserved for active attacks; compressed preparations are condensed. Preference is given to pills made up with a soluble extract or to *perles* provided with a gelatinous envelope. The basic hydrochlorate is pronounced the best prophylactic salt—richest in alkaloid; sufficiently soluble; less irritant to the stomach than the sulphate. The hydrobromate may be substituted where there is intolerance of the hydrochlorate. Doses of 15 centigrams, night and morning, suffice to maintain the prophylactic effect during exposure to malaria.

**Charlatanism in Bavaria.**—From recent official statistics furnished by the Bavarian government in 1893, *L'Union Medicale* has compiled the following data: There were 1,152 persons in that country practicing medicine illegally—832 men and 320 women. In 1892 the number was 1,184, the diminution being in the men alone. As regards nationality, 1,097 were natives, 32 from other parts of Germany; 19 were Austrians, 2 Americans, 1 Italian, and 1 Swiss. Their previous occupations had been—pharmacists, 322; medical students, 2; widows of physicians, 2; bath assistants, 4; day laborers or peasants, 219; clerks, 12; salaried officials, 57; ecclesiastics, 22; religious, 2; workmen, 188; merchants, 49; professors, 6; writers, 6; masseurs, 10; annuitants, 44; widows of veterinary surgeons, 2; ditchers, 2; of unknown occupations, 52; the rest scattering. The branches of the healing art to which these individuals applied themselves were medicine generally, 333; sale of drugs, 207; intestinal worms, 6; surgery, 70; diseases of women and children, 21; electro-therapeutics, 14; fractures and dislocations, 21; secret remedies, 118; jaundice, 1; obstetrics, 43; massage, 4; homeopathy, 87; hydropathy, 13; magnetism, 6; internal medicine, 71; "natural" medicine, 10; diseases of the eye and ear, 9; uroscopy, 5; hernia, 1; wounds and ulcers, 34; dentistry, 10, etc.

**Disinfection of Catheters.**—Dr. John Ward Cousins in the *British Medical Journal*, Jan. 19, 1895, recommends a steam apparatus for the disinfection of metallic and other catheters. It is well known that boiling is not a good way to cleanse soft catheters, and that the insides of metallic catheters can not be satisfactorily cleaned by the ordinary method. Dr. Cousins' apparatus consists of a boiler having a capacity of about three pints and capable of bearing a pressure of eighty pounds to the square inch. It can be heated by a spirit or gas jet in about fifteen minutes. The steam pipe is connected with a circular tube fitted with projecting terminals, and these are adapted to hold a complete set of catheters. An old-fashioned spray apparatus can have the circular tube attached to them if required. After the steaming a polishing stilette is introduced and the instrument carefully dried.

**Tricresol as an Intestinal Antiseptic.**—M. Hiller, of Breslau, claims for tricresol a powerful microbicidal action, destroying promptly the bacilli of cholera, typhoid fever, etc. While more potent than carbolic acid it is relatively but slightly poisonous. Thus M. Hiller found it feasible to give  $1\frac{1}{2}$  or 2 grams for several days in succession, encased in gelatin capsules, containing each 10 centigrams of tricresol. M. Koelsch, of Newstadt, reports a series of twelve cases of typhoid fever treated with tricresol, to the exclusion of everything else, even baths. The patients took the remedy three times a day, half an hour or an hour after their milk or bouillon, according to the following plan: Three capsules the first day, 6 for the three following days, 9 for the next three days and 12 for the next three; from the eleventh day on, the daily quantity of capsules was gradually diminished in an inverse ratio. Koelsch claims that

the patients treated in this way showed less tympanism and sensitiveness of the abdomen, and there was a total absence of complications and relapses. The six patients who were treated by this method from the beginning of the complaint—that is to say, from the third to the seventh day—reached a convalescent state in about the same length of time for the whole number of cases, a period that only varied between thirteen and seventeen days. It is reported that in these cases the favorable effect of the tricresol was most evident; this appeared generally as soon as six capsules a day were administered, though sometimes not until twelve were given and its chief sign was a gradual lowering of the temperature until it fell to the normal.

**Thumbs Bring \$2,000.**—The case of Kitchell v. Brooklyn Heights Railroad Company, was instituted to recover damages for the loss of services caused by the amputation of the thumb of a 7-year-old daughter of the plaintiff. Liability therefore was charged to the company sued on account of its negligence causing the injury which resulted so disastrously. A verdict for \$2,000 was returned, and the general term of the city court of Brooklyn holds, Nov. 27, 1894, that, considering the importance of the thumb as a member of the hand, and how necessary its presence is to make the hand available for use in nearly all ordinary vocations, this is not excessive, a bill of \$100 for medical treatment having also been incurred.

**Limit to Liability for Injuries Resulting in Miscarriage.**—The courts are experiencing considerable difficulty in keeping questions of sentimental damages out of personal injury cases. In Tunncliffe v. Bay Cities Consolidated Railway Company, decided Dec. 7, 1894, the Supreme Court of Michigan holds that while in such an action, brought for the recovery of personal injuries sustained by a married woman resulting in her miscarriage, the jury is allowed to consider the case with all its facts, and to take into account, for the purpose of a consideration, not only the physical pain, but also mental suffering, in determining the award of damages and while, of necessity, this involves to some extent a consideration of the nature of the injury, and can not exclude from the consideration of the jury the fact that the physical and mental suffering of the mother by reason of such an injury would be more intense than in the case of an ordinary fracture of a limb, yet beyond this it would not be competent for the jury to go, and to attempt to compensate for the sorrow and grieving of the mother. This seems to be the general conclusion of all the courts.

**Decision on New York's Pharmacy Law.**—In 1893, at the same session of the New York Legislature, there were two acts passed—one on March 31, and the other May 9. The first (Chapter 250, Laws of 1893) provided, in substance, that where a person was entitled to a license under the provisions of the act of 1884, but who had failed within ninety days to apply to the board of pharmacy for a license, he might, upon giving not less than eight days' notice to the secretary of the board of pharmacy, apply to the Supreme Court for an order directing the board to issue said license, and granting the court power to grant such order upon proof of good and sufficient cause shown for the neglect to apply for such license in due time. The other (Chapter 661 of Laws of 1893) made provision for a State Board of Pharmacy, and for the licensing of pharmacists. Under it there are two classes of persons who are entitled to a license to practice pharmacy,—those who have had four years' experience in the practice of pharmacy, prior to Jan. 1, 1893; and those who hold certificates of designation as pharmacists by examination from any board of pharmacy legally created under the laws of the State. The Supreme Court of New York, special term, Albany County, holds (*In re Ward*), Oct. 30, 1894, that this latter act was evidently intended to take the place of all statutes theretofore passed in relation to those matters, and by it Chapter 361 of the Laws of 1884 was expressly repealed; and, the whole of said act being repealed Chapter 250 of the Laws of 1893, being an amendment to a single section thereof, fell with it.



## The Andrometer of Sir William Jones.—

Age.	
1	Ideas received through the senses.
	Speaking and pronunciation.
	Letters and spelling.
5	Ideas retained in the memory.
	Reading and repeating.
	Grammar of his own language.
	Memory exercised.
	Moral and religious lessons.
10	Natural history and experiments.
	Dancing, music, drawing, exercises.
	History of his own country.
	Latin.
	Greek.
15	French and Italian.
	Translations.
	Composition in prose and verse.
	Rhetoric and declamation.
	History and law.
20	Logic and mathematics.
	Rhetorical exercises.
	Philosophy and politics.
	Composition in his own language.
	Declamations continued.
25	Ancient orators studied.
	Travel and conversation.
	Speeches at the bar or in parliament.
	State affairs.
	Historical studies continued.
30	Law and eloquence.
	Public life.
	Private and social virtues.
	Habits of eloquence improved.
	Philosophy resumed at leisure.
35	Orations published.
	Exertions in State and parliament.
	Civil knowledge mature.
	Eloquence perfect.
	National rights defended.
40	The learned protected.
	The virtuous assisted.
	Compositions published.
	Science improved.
	Parliamentary affairs.
45	Laws enacted and supported.
	Fine arts patronized.
	Government of his family.
	Education of his children.
	Vigilance as a magistrate.
	Firmness as a patriot.
50	Virtue as a citizen.
	Historical works.
	Oratorical works.
	Philosophical works.
	Political works.
55	Mathematical works.
	Continuation of former pursuits.
60	Fruits of his labor enjoyed.
	A glorious retirement.
	An amiable family.
65	Universal respect.
	Consciousness of a virtuous life.
	Perfection of earthly happiness.
70	Preparation for eternity.

The foregoing was the plan of Sir William Jones for the life of an English gentleman. With some variations it may be taken for any gentleman of another profession than that of law.

**Skin Diseases in the German Army.**—In one year, according to Antony (*Arch. Med. Milit.*) there were 89,845 cases of skin disease in the German Army—or 214.5 per 1,000 of total strength; 2,000 of these were scabies. In November, when the new recruits arrive, the cases of scabies increase markedly. The use of corrosive sublimate solution often causes the appearance of eczema. At Wiesbaden a case of general psoriasis was observed as the sequel of scarlatina. The use of one-tenth chrysarobin ointment is an excellent remedy for psoriasis, but symptoms of intoxication sometimes follow; these symptoms are usually gastric catarrh, rapid emaciation, ocular catarrh and coloring the hair white or red. A total of 23,565 men were treated for phlegmons and excoeriations and 31,029 for furuncles. The treatment of furuncles with interstitial injections of carbolic solution—1 to 100—gave very variable results; as the result of numerous obser-

vations it is found that this mode of treatment is indicated when the furuncle has fully developed, but before pus has formed; unfortunately, the injection is extremely painful. Whitlow afflicted 10,387 soldiers, and two cases of pyemia and one of abscess of the thigh resulted.

**Strontium Salicylate.**—Dr. H. C. Wood, in common, as he supposes, with most practitioners, has for many years been trying to find some way of getting the general action of salicylic acid without the gastric disturbance which so often follows the exhibition of its salts of sodium and potassium. In the current number of the *University Medical Magazine* he describes a salicylate of strontium which he has had prepared and employed in a large number of cases in quantities of from 15 to 120 grains a day. In doses of 5 to 10 grains, given after meals, the salt very commonly improves digestion and in the dose of 5 grains an hour after meals in flatulent dyspepsia and various conditions of tendency to fermentative changes in the alimentary canal, it is a useful intestinal antiseptic, seeming to him to give better results than do salol, naphthol or other of the older antiseptic remedies. It has not yet been tested in acute articular rheumatism and Dr. Wood thinks it would probably be less efficacious in this disease than the ammonium salicylate; but in muscular or subacute rheumatism with a tendency to digestive disturbance he has found it a very valuable remedy, exerting the action of the salicylates upon the diathesis and improving instead of injuring the digestion. It may be given in solution, but is best administered in 5 grain capsules. In his preliminary experiments on the lower animals, undertaken to determine the influence of this salt on the circulation, Dr. Wood found that the dose of the strontium salicylate necessary to lower arterial pressure was nearly twice that of the sodium salicylate and distinctly more than that of the ammonium salicylate.

**Life-Maintaining Dietary in Central Africa.**—Lieutenant Lemaire, an officer of the Congo Free State, has written in the *Independence Belge*, on the improved health of foreigners dwelling above Stanley Pool, that has followed the larger use of the fresh vegetable products of the country. These vegetables are sufficiently varied, but they are so different from the accustomed food of Europeans and Americans that they do not at once find a welcome to their table. But they are soon found to be much more conducive to health than the imported canned goods, that can seldom be made to "keep" properly under the African tropics. M. Lemaire remarks upon the low rate of mortality among the whites upon the Upper River, as it is called; he seeks to explain the good health of certain of the missionaries as due in part to a plentiful amount of physical exercise, and in part to their adopting the food supplies that are native to the region. He says: "We have never seen an excess of manual labor bring on fever or any sort of indisposition. During my stay at the equator, from December, 1890, to June 19, 1893, not one of the white personnel of the station died, save a Danish mechanic who came to us only to take his bed. The best illustration that I can give is that of the American Protestant Mission carried on by the Rev. Charles Blair Banks and his wife, who have lived there seven years, and have had three children born there who are surprisingly healthy. The result is due to the fact that Mr. Banks, having built a charming cottage in the midst of a real park, has used the resources of the country for the larger part of his food supply—fresh vegetables from his garden, instead of canned peas, and, in general, fresh poultry and mutton instead of preserved meats—fresh goat and sheep milk instead of condensed milk, and the abundant fruits of the country instead of canned preserves."

**Uniformity in Medico-Military Statistics.**—The International Commission of Military-Medical Officers for uniform sanitary statistics which met at Buda-Pesth in September last, Dr. John S. Billings, U. S. Army, chairman, came to an agreement as to the character of the statistics to be published for comparative purposes by each of the countries participating



in the convention. The Secretary of the Commission, Dr Myrdacz, of Vienna, has been informed by certain members of the Commission of the continuation of their status as members by authority of their respective war departments. These include Drs. Pillsbury, of the U. S. Army; Notter, of the British Service; Griesheim, of Berlin; Dziewonski, of Paris; Von Harten, of Copenhagen; Van der Straten, of Brussels; Sforza, of Florence; Hermann, of Ingolstadt; and Myrdacz of Vienna. A series of ten international statistical tables have been issued for the consideration of the various military medical departments and for adoption by them, if approved. These have been submitted to Surgeon-General Sternberg and it is probable that in his next annual report will be embodied the first issue of the international statistics. Table 1, provides for the data gathered by the recruiting service; 2, and 3, for the sickness and mortality in the various military departments; 4, sickness as prevalent in the various corps and arms of the service, and by months; 5, sickness as distributed among the larger garrisons; 6, and 7, specification of the prevalence of the most important diseases in absolute numbers and in rates per thousand; 8, distribution of the important diseases among the different corps and arms of the service; 9, monthly prevalence of the important diseases; and 10, deaths from disease, suicide and accidents or injuries according to years of service and age. The important diseases of the international nosological table comprise thirty-three titles which include most of the specific febrile and acute infectious diseases with alcoholism, gonorrhea, hernia, sunstroke, scurvy, syphilis, trachoma, tuberculosis of lungs and of other organs, and diseases of the eye, ear, mind, heart, skin and genito-urinary system.

**Barrack Room Floors to be kept Dry.**—A few years ago it was the custom in the Army to scrub the floors of all barrack rooms every Saturday afternoon, preparatory to Sunday morning inspection when every man and all his belongings and intimate surroundings were expected to be at their cleanest and best. Saturday thus became a day of discomfort in quarters at all times and of danger to health in inclement seasons. The men detailed for the duty of scrubbing, scrubbed no doubt efficiently to remove stains when present, but as these were not usually allowed to disfigure the floor from one day to another the weekly cleaning up became often a perfunctory flushing with water and the removal of the wash water by the readiest possible way. The use of wax and turpentine, paraffin and benzin and other methods of filling up the pores of the wood and rendering the floors impermeable to water began in the wards of the post hospitals and has gradually been extended to other barrack rooms. The reports of the Surgeon-General called attention to this point in domestic sanitation some time ago and General Miles appreciating the suggestion has directed its adoption by post-commanders in the Department of the East in General Orders No. 5 Jan. 19, 1895, which read as follows:

"In cleaning the floors of barracks, dormitories, dining halls and other occupied rooms, post commanders will see that action is taken in accordance with the following recommendation of the Surgeon-General of the Army:

"Some medical officers in their reports call attention to the practice of flushing the floors of quarters, dormitories, dining halls, and other occupied rooms. At many posts this method of cleaning up is regarded as an indispensable preliminary to inspection of quarters. It has long since been given up in the Navy on the sanitary principle that a damp ship is an unhealthy one. The same principle applies to barrack rooms. It is important that the soil beneath the flooring should be kept as dry as possible, and this can not be effected if water is flushed on the floors and permitted to run through open seams or broomed into knot holes or auger holes, specially bored to permit of this method of disposing of the wash water. One medical officer, in view of such practices, felt called upon to report to his commanding officer that:

"The barracks having been for the most part newly floored during the month, I recommend that positive orders be given that no auger holes be bored through these floors for the purpose of allowing water that has been used for cleaning purposes to escape beneath them."

"Another medical officer states that he has served at posts where the men had the alternative of staying in quarters with a thoroughly wet floor, or going out of doors with two feet of snow on the ground and the thermometer at zero. As catarrhal and rheumatic affections are prone to be developed by flushing, commanding officers should prohibit the practice. Floors when lightly stained and waxed can be kept clean, dry and wholesome."

### Hospital Notes.

**NEW HOSPITAL FOR THE INSANE.**—The Sisters of Mercy have decided upon the erection of a new hospital for the insane at Asbury, Iowa.

**PRESBYTERIAN HOSPITAL.**—The Presbyterian Hospital, at Milwaukee has been incorporated with a capital of \$8,000.

**EYE, EAR AND THROAT CHARITY HOSPITAL.**—The annual report of the Eye, Ear and Throat Charity Hospital of Baltimore, Md., shows that 11,750 were treated during the past year.

**A MATERNITY HOSPITAL** will be erected in Syracuse, N. Y., on the site of the building destroyed by fire over a year ago.

**WOMEN'S AND CHILDREN'S HOSPITAL ASSOCIATION.**—The Women's and Children's Hospital Association have applied for a loan of \$13,000 to begin the work.

**AURORA (ILL.) HOSPITAL.**—The annual report of the Aurora (Ill.) Hospital shows that 1,000 patients have been treated during the year.

**LYING-IN HOSPITAL.**—The new Lying-in Hospital of the City of New York was formally opened January 16.

**NEW YORK POST-GRADUATE MEDICAL SCHOOL.**—The directors of the New York Post-Graduate Medical School and Hospital met January 17, and elected the following officers: President, D. B. St. John Roosa; Vice-President, George Henry Fox; Secretary, James L. Skillin.

**DR. PERCY BRYAN** has been appointed first assistant physician in the Buffalo State Hospital.

### Louisville Notes.

**MORTALITY REPORT.**—There was a total of seventy-eight deaths during the past week. There were fifteen deaths from pneumonia, and ten stillbirths in the number.

**FOR THE STATE SENATE.**—Dr. A. D. James, a Muhlenberg county physician, recently announced himself as a candidate for State Senator from the District composed of Butler, Ohio and Muhlenberg. The candidacy of Dr. C. J. Walton for State Auditor was recently announced through these columns.

**CITY HOSPITAL.**—Once more the hospital is in the hands of an "Investigation Committee" from the City Council. The present investigation seems to have arisen because of a personal difficulty between a member of the council and one of the contractors whose bill has not yet been paid for work done during the renovation of the hospital. The original estimate of the cost of repairing the hospital was far less than the total cost, which has amounted to \$114,963.98, and already an investigation has been made because of this. It is not apparent what good can be done by the present investigation when the claims for the work done have been approved and the bills paid, except a balance for \$800, due the contractor above referred to. It is certainly to be regretted that the money spent in repairing the old hospital had not been spent for a new building which would have done credit to the city.

**A FAMOUS KENTUCKY SURGEON.**—Dr. D. W. Yandell in his presidential address before the American Surgical Association, paid a tribute to the work of Dr. Charles McCreery, stating that it was to be regretted that more was not known of his personal and professional character. The following

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, FEBRUARY 9, 1895.

No. 6.

## ORIGINAL ARTICLES.

### A CASE OF INFANTILE SCORBUTUS, IN MONTANA.

BY P. RALPH EGAN.

ASSISTANT SURGEON UNITED STATES ARMY.

Infantile scorbutus was first definitely described by Dr. Cheadle in 1878. This description he further supplemented by cases published in 1879 and 1882. Prior to that time these cases had been recorded as acute rickets, especially by German observers. In 1883, Dr. Barlow first established by two post-mortem examinations that the disease was true scurvy. In this country, Dr. Northrup confirmed Dr. Barlow's observations by a post-mortem made on a child dying from an indetermined disease at the New York Foundling Asylum in 1889. Since that date various post-mortem and clinical cases have placed the correctness of these views beyond dispute.

This disease is, however, comparatively rare. It occurred but once in over two thousand cases of children seen at the out-door department of Bellevue Hospital (Neubans) and not once in a thousand cases at the same department of St. Mary's Free Hospital for Children (Carr). It is, however, less commonly observed in hospitals than in private practice. In 1891, Dr. Northrup was able to collect only 11 cases; while but twelve months since, 106 cases were reported at the New York Academy of Medicine. The frequent refusal of mothers to nurse their children and the almost universal use of proprietary foods are said to account for this increasing frequency of the disease.

These proprietary foods mixed with water or condensed milk are the most common causes of the disease. Condensed milk alone, and fresh milk unduly diluted have also produced some cases. Prolonged sterilization of milk so far destroys its nutritive power as to give rise to scorbutus. It is more common among the children of wealthy parents than among those of the poorer classes. The latter are unable to procure proprietary foods, and give their children antiscorbutics from their table at an earlier age than scurvy generally develops. Hence its rarity in hospital practice.

The principal lesions occur in the femora, tibiae, scapulae, ribs and cranium. Those found on post-mortem examination by Dr. Barlow (Medico-Chirurgical Transactions 1883, Bradshaw lecture 1894) were due to extravasation of blood. This occurred between the periosteum and the shaft of the thighs. Fractures between the lower epiphysis and the shaft were found in marked cases; the periosteum was very vascular but there was no inflammatory effusion. In the interior of the bone was found evidences of rickets, and hemorrhage into the medullary canal. There was also extravasation of blood round the tibia,

which was fractured at the line of junction of the epiphysis and the shaft. The ossifying centers showed evidence of rickets. There were large extravasations of blood into the deep muscular layers of both the leg and thigh. The periosteum of the fibula was congested but only slightly detached. Extravasations surrounded the entire scapula. Anteriorly it was so marked as to produce a tumor recognizable during life; posteriorly the raised periosteum had produced a thin layer of bone. The periosteum was found detached from the ribs with a chocolate colored detritus of broken-down blood clot intervening. The ribs were quite bare and separated from their costal cartilages at the line of junction; they were found to be mere shells filled with extensive indosteal hemorrhage. The cranium showed thin extravasations in the vicinity of the petrous bone on both parietals. There were also found a subperiosteal extravasation into the eye-ball. Hemorrhages have been found in the lungs, and under the capsule of the spleen. Blood-stained serum existed in the pleurae. Hemorrhages have been noted in the mucous membrane of the stomach and intestinal canal, and rarely slight ulceration. The dark spongy, hemorrhagic condition of the gums of children with teeth is characteristic of the disease. Now that the general practitioner is becoming familiarized with its symptoms, autopsies will be exceedingly rare. Fortunately the hypodermic needle may be used to draw off some of the effused blood from around the femora in doubtful cases. Few people will risk making extensive incision and burning out the blood clots, as did Mr. Page, of St. Mary's Hospital, London.

The following case developing during the summer on the plains of Montana, amid hygienic surroundings, illustrates nearly all the clinical features of the disease:

N. F., a female born July, 1891; has nursed until 3 months old. She was then fed on Mellin's Food and condensed milk. On this diet she seemed to thrive for about nine months. At 5 months her teeth began to appear; during the next two months she cut eight, then no more showed until she was 16 months. Her meals when 9 months consisted of the following: Two tablespoonsful of Mellin's Food to one of condensed milk in one half-pint of water every three hours. She never learned to creep on all fours but when about 7 months old she used to pull herself about the floor in a sitting position, and to stand on her feet. The first indication of her illness was that she refused to move in this way, or to stand when supported. It was not noticed that she was fretful but she grew more delicate, seemed tired all the time, and unable to move her limbs. Her favorite position was with her head resting on her nurse's arm and her legs drawn up. When she was about a year old her parents went a visit to the Yellowstone National Park. While there it was noticed that her gums

were dark and swollen. The doctor in attendance did not in any way connect this swelling with her inability to move her limbs. It was considered a vascular outgrowth, which was accordingly removed and cauterized. Notwithstanding this treatment the gums continued to enlarge and bleed on pressure.

At about the same time it was noticed that her left leg was painful and that she cried when it was handled or when her shoes were put on. Soon after her right leg became similarly affected. These were considered rheumatic symptoms, and she was treated accordingly. During this time her head perspired freely and needed to be dried quite frequently. She also suffered from diarrhea throughout the summer. Her discharges were generally green and slimy; blood was passed with some of the motions, so as to give rise to the suspicion of "bleeding piles." No fever was observed at any time during her illness; neither was any change observed in the color of her urine. When the lower limb became painful the doctor did not think, from comparing it with the other, that there was any increase in size. At no period of her illness were her parents or attending physician able to note any swelling, but no accurate measurements were taken. One of the five doctors under whose observation she now passed made an attempt to change her diet to cow's milk. It was found to disagree, causing nausea and constipation, so the attempt was abandoned. The parents state that they did not understand this change to be at all essential, but simply an experiment. When she was about 16 months old I first saw her in consultation. The patient was anemic but fairly developed; the muscles, however, were soft and flabby, the hair was sparse and the head moistened with perspiration; there was no cranial tabes. The chest was well formed but there seemed to be slight beading of the ribs. The abdomen was not prominent. The legs lay helpless, were not moved, and were exceedingly tender to the touch. The thighs appeared slightly infiltrated between the knee and the hip, but were smaller in size. The arms were freely moved. There was no enlargement of any of the epiphyses and in fact no symptoms of rachitis, save slightly "beaded" ribs, and marked perspiration about the head. There were no petechiae present and no fever. The gums notwithstanding frequent cauterization, were so enlarged as almost to cover the teeth, of a dark purple color, and bled on the slightest application. The breath was foul, and the bowels relaxed.

The diagnosis of infantile scorbutus was made from the pseudo-paralysis and excessive tenderness of the lower limbs, but more especially from the condition of the gums, which was characteristic. It was apparent from the symptoms that there was little if any extravasation around the femora and tibiae. This is a condition that has been noted on post-mortem examination by both Drs. Cheadle and Sutherland. However, during convalescence and while the patient was under my immediate observation, a large subcutaneous hemorrhage was found on the thigh without known cause. Others probably occurred at an earlier date. The diarrhea—in this case complicated with blood—to which Dr. Carr has called attention was quite prominent. The "beaded" ribs and the head perspiration led me to believe that the scorbutus was complicated with a mild degree of rachitis.

The child was put on fresh milk and a rational diet suited to her age. The attending physician gave

a little lime water and cod liver oil for the rachitis. Later, when she came under my immediate care, Thompson's solution was given for the same purpose. She steadily improved and would now make a splendid picture for an advertisement, setting forth the fact that proprietary foods are always useless, and frequently dangerous.

As in the present case, infantile scurvy is usually mistaken for rheumatism. Less frequently it has been confounded with hemophilia or congenital syphilis. Even at the present time some writers, like Dr. Ashby (*Practitioner*, December, 1894) refuse to admit the existence of true scorbutus in children, and contend that it is only acute rickets complicated with anemia which gives rise to a tendency to bleed. The same hemorrhagic condition he asserts to be present in tuberculosis. Fresh vegetables are looked upon as a preventative of scurvy, but with regard to fresh food, such as meat and milk, there is, he believes, no such agreement. However, the failure of observers like Dr. Northrup to find evidence of rachitis, even in the post-mortem examination of the case which formed the base of our knowledge of the disease in this country, the rapid recovery of cases when given antiscorbutic diet and the occurrence of the subperiosteal and other hemorrhages characteristic of scurvy, as it affects the adult, will induce most observers to hold with Drs. Cheadle and Barlow that the disease as seen in children is no other than true scorbutus.

## NERVOUS DISEASE IN EARLY SYPHILIS.

Read before the Chicago Academy of Medicine, October, 1895.

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Involvement of the nervous system in late syphilis is so common that all practitioners of experience have met with syphilitic nerve phenomena of varying types. Nervous disturbances occurring as a part of the clinical picture presented by the secondary or active period of the disease are much less frequent—so much so that such cases are often overlooked and even discredited as syphilitic possibilities by physicians in large practice.

Surgeons of large experience in the treatment of syphilis, with better opportunities for the study and systematic management of the disease have, on the other hand, come to regard early nerve disease in syphilis as sufficiently frequent to merit special consideration. Hutchinson and Fournier, in particular, have expatiated upon this point, the former having described some beautifully typical examples of nervous disease occurring within the first year or two of syphilis. In one of his earlier communications, Fournier described a very peculiar form of anesthesia or analgesia, occurring coincidentally with the roseola. That instrument of diagnostic precision, the ophthalmoscope, has demonstrated beyond peradventure of doubt, the occasional occurrence of syphilitic retinitis within or shortly after the first year of the disease.

Some of Hutchinson's cases, are by no means indubitably syphilitic; others, however, are so marked as to be beyond controversy. Apropos of the clinical reports of this confessedly great authority, almost

any conservative diagnostician will, I think, agree with me in the assertion that he displays a tendency to take a great deal for granted. Some of the cases of nervous syphilis which he reports are substantiated by the authoritative weight of an eminent opinion, rather by clinical data. Laying such cases aside, however, enough clearly cut cases remain to demonstrate the accuracy of his conclusions upon the general question of the early occurrence of nervous syphilis.

It has been the fortune of the author of the present paper to meet with a number of cases of varying types of nervous phenomena occurring in the early months of syphilis. Some of the manifestations observed are quite common and would deserve no attention were it not for the fact that their neuropathic origin is not generally understood. I will not attempt to present cases of this kind, inasmuch as the phenomena presented are a matter of common and daily observation. These simpler and more common phenomena constitute a part of the so-called syphilitic fever, and embrace slight neuralgias in different situations, varying degrees of cephalalgia, extreme mental depression, so-called rheumatic pains in different parts of the body. I will also present as neuropathic in character, several other lesions which at first sight would seem far removed from nerve disorder.

The illustrative cases presented do not embrace all of those observed, nor have they been taken at random, but have been selected because of the clearness of their history and clinical evidences of syphilis and their distinctness of type.

*Case 1.—Obstinate and Severe Cephalalgia Occurring Coincidentally with the Syphilitic Roseola.* The patient, a woman about 22 years of age, was brought to me by her lover, who was under my treatment for secondary syphilis, his chancre, which was typically Hunterian, being still present. The history of this woman was one of the most classical that it has ever been my fortune to follow; the case was also a most lamentable one in its results, as I afterwards treated her little daughter for syphilis imparted by the mother in some unknown manner, no chancre being discoverable. In the course of the sixth week after her chancre was discovered, the woman presented herself with a well marked roseola complaining at the same time of the most severe headache. Iritis developed within three months, the headache becoming still more severe. To make matters worse, mercury was badly tolerated. Free inunction having been resorted to, the symptoms were finally brought under control, with the exception of the headache, which persisted with diminishing severity for at least a month after the other symptoms had disappeared. The headache in this case was diurnal, as well as nocturnal with, however, somewhat typical exacerbations. There was at no time such tenderness of the cranial bones as is likely to exist in cases of bone involvement. A source of embarrassment in this case was the necessity for the prolonged administration of morphia, other sedatives having no apparent effect. There was in this case, no previous history of nerve disorder. Pronounced mental depression from worry over her condition and fear of detection, was the only determining cause of the cephalalgia as far as I was able to judge. As might be imagined, the free use of mercurials rather enhanced this condition.

I will again allude to the element of mental disquiet in this case in my analysis of cases.

*Case 2.—Severe and Protracted Cephalalgia occurring in the Fourth Month of Syphilis.*—This case was that of a woman 30 years of age, who gave a very clear history of syphilis. At the time of my first examination alopecia, small mucous patches, faucial engorgement, adenopathy, and a fading roseola were still visible. Spasmodic efforts at mercurial treatment had been made, the remission having been the fault of the patient and not of her physician—a most capable man. Headache came on about two weeks before I saw the case, but had become severe only within a few days. In spite of

active treatment the cephalalgia persisted until I was entirely out of patience with my anti-syphilitic therapeutics. There was a history of previous mild attacks of headache, and an obscure history of rheumatism. I grasped at the latter straw, and although the headache was typically nocturnal, salicylate of soda was given, without result, save that of increasing the patient's anemia. Opiates now became the main feature of the treatment. It so happened that I was experimenting just then with the salicylate of iron. This was one of the few remedies that had not been tried, and I therefore prescribed it, with the gratifying result of effecting a complete cure within a few weeks.

Of the two cases of cephalalgia above outlined, I have been able to follow the subsequent history of but one. Case 1 is at present under observation, and after eight years remains apparently well.

*Case 3.—Severe Intercostal Neuralgia with Symptoms Simulating Pleuro-Pneumonia, occurring coincidentally with the Roseola.* A man, 35 years of age, who was under my treatment for an initial sore, developed in the fourth week a well marked chill followed by fever, attended by cough, decidedly rusty sputa and bilateral râles, painful respiration, dyspnea, and the most severe intercostal neuralgia I have ever observed. The symptoms were verified by two gentlemen who were serving as my assistants. The temperature was only 100 degrees F. and the patient appeared by no means as ill as his symptoms seemed to warrant. I confess, however, that the possible diagnosis of an impending syphilitic eruption which I made, was a very long shot. I must acknowledge moreover, that I ensconced myself behind the possibility of a complicating pneumonia. I prescribed a warm bath and a hypodermic of morphia and on the following morning found the patient perfectly comfortable but covered with a pronounced and well generalized roseola.

The subsequent history was that of the usual tractable case of syphilis.

*Case 4.—Severe Lumbo-Abdominal Neuralgia as the Initial Symptoms of Secondary Syphilis.* A man 40 years of age, consulted me regarding what were apparently soft chancres. These sores healed kindly, but I gave the patient fair warning of the possibility of a mixed infection. After about two weeks following the healing of the non-infecting local difficulty, the patient consulted me regarding a transformation of the cicatrix into a typical initial lesion of syphilis. The new difficulty proved resistant to treatment, and my patient went the way of all disgruntled patients and changed surgeons. The new attendant took pains to tell him I was mistaken and his anxiety was greatly relieved thereby. Several weeks later, however, the patient developed what his doctor styled lumbago; the new symptoms proving refractory, the patient again changed doctors and sent for me. I found him suffering from a most agonizing lumbo-abdominal neuralgia with nocturnal exacerbations. On removing his clothing I found a well marked and extensive syphilitic roseola. This was attended by a temperature of 101 degrees. Under active mercurial treatment this case progressed quite satisfactorily with the exception of the neuralgic manifestations, which lasted nearly a month. Dry cupping and counter irritation were necessary in addition to internal remedies.

This patient stated that he was slightly rheumatic, and on inquiry related a strain which had affected his back some years before his syphilis was contracted. He had never had lumbago and asserted that his back had given him very little annoyance since the old injury.

*Case 5.—Hemianesthesia occurring during the early part of the Second Year of Syphilis.* The patient was a man 35 years of age with an extremely neurotic heredity. He has been a hard worker in his commercial life and at the same time was a high liver and quite intemperate at times. He had been comparatively well, however, until he contracted syphilis about fourteen months before I first saw him. His treatment had consisted of several more or less spasmodic mercurial and iodid courses at the Hot Springs. His symptoms while classical had at no time been prominent, mucous patches and moderate but typical alopecia being the most prominent symptoms. Ptyalism had several times been induced, a fact which should be duly considered in connection with the subsequent neurotic disturbances. At the time I first saw the case no special symptoms were present. The patient was hypochondriacal and neurasthenic, but presented no



pronounced evidence of nervous disease. The treatment prescribed was of a simple tonic character. Here, I think, was an error, and yet I believe that my reasoning was sound enough, as I suspected over-enthusiastic dosing in the previous course of the case. I will say in passing, that I often ignore the syphilis and prescribe for the patient, generally with the best results. Improvement in the patient's general condition was quite rapid. About a month after beginning treatment, however, he fell from grace and made a night of it, wine and women being equally prominent factors in his escapade. The second morning thereafter, I was sent for and found a badly scared and penitent patient with pronounced right hemianesthesia. There was slight impairment of muscular power and marked diminution of the reflexes. The patient stated that his trouble had evidently come on during sleep, as he had noticed nothing abnormal until he awoke in the morning. He said he could walk when he awoke, but that the numbness in his hand and arm was quite distressing, these members feeling as though they belonged to some one else.

The late Dr. Jewell saw this case in counsel and verified the diagnosis of syphilitic disease affecting the region of the internal capsule, without expressing any definite idea of the character of the pathologic process, of which more anon.

Complete recovery ensued under large doses of the iodids associated with liberal inunctions of mercury. This treatment was followed by two years of tonic specific treatment in conjunction with the double chlorid of gold and sodium. The patient is to-day married, has healthy children and is enjoying the best of health.

*Case 6.—Severe Generalized Neurolgia and Spinal Pain Associated with the Roseola—Paraplegia in the same Patient within Eighteen Months.* A man 55 years of age was referred to me by my friend, Dr. Thackery, with what was apparently a soft chancre. This proved refractory in healing but finally cicatrized without induration up to the time when the patient passed from under my observation. Some six weeks after the healing of the sore, the patient again consulted me for what had been termed a lumbago. A few days after leaving me he had developed a severe attack of la grippe from which he was slowly recovering when the so-called lumbago came on. Experience had made me suspicious of lumbago following genital sores, hence I immediately directed the patient to strip. As I anticipated, a pronounced roseola was present. The pain in the back extended until the entire spine was involved, radiating into the abdominal region, thighs and arms; so severe was the pain that the patient was unable to move and could not rest comfortably in any position. Sleep was for a time an unknown quantity. The reflexes were exaggerated and there was no paresis. My friend, Prof. H. N. Moyer, saw the case with me and concurred in the diagnosis of syphilitic involvement of the cord, but I believe that he, like myself, was unable to precisely define the condition. Spinal hyperemia was as definite as anything in my own mind. I fancy that Dr. Moyer rather leaned to the opposite view, but I am by no means positive on this point. Neither of us felt justified in pronouncing the case one of spinal meningitis—a rather plausible diagnosis.

The predisposing influence of grippe received its due meed of consideration. The case proved very stubborn, and the most radical anti-syphilitic measures associated with counter irritation, electricity and massage were for a time almost ineffectual. Inunction to the verge of pyralism finally caused the case to yield, but recovery was very slow. A very important point for consideration in this case was the fact which I afterward discovered, that the woman from whom the patient contracted the disease was with him almost constantly during his six weeks' confinement in bed. This association was by no means platonic, as both parties duly appreciated the fact that they had been quite efficiently vaccinated.

Eighteen months after his apparent recovery, the patient reappeared with paraplegia, treatment having been neglected during the interim. I gave the

patient some suggestions as to treatment, but declined to again take the case. He has apparently recovered, judging by his gait as he walks about the streets. The development of paraplegia within a few months after the original spinal pain is worthy of note.

*Case 7.—Facial Hemiatrophy Associated with Unilateral Deafness Developing in the Early Part of the Second Year of Syphilis.* A man of 30 years presented himself with syphilitic nodes upon the tibiae and a single small tubercle upon the forehead. Syphilis had developed two years previously. About nine months before I first saw him, the patient developed what appeared to be a severe facial neuralgia. This lasted some weeks and as it was subsiding the patient noticed that the cheek upon the affected side was becoming somewhat hollow. The wasting continued for several months but had evidently stopped when he consulted me for the other symptoms. At this time the left side of the face presented a very peculiar appearance, all of the muscles being more or less affected by the atrophic process. The patient stated that for a time he was compelled to masticate entirely upon the right side, but this trouble had disappeared. Thorough treatment with mercury and the chlorid of gold and sodium apparently cured this patient's syphilis, but the facial hemiatrophy remained unchanged. At about the time the facial neuralgia developed, deafness of the corresponding ear was noticed. This increased until the loss of hearing was complete. Like the facial difficulty, the deafness remained unchanged by the treatment.

A very similar case came under my observation several years ago in which, however, the facial trouble did not develop for several years after the primary sore and was unattended by deafness.

Professor Moyer saw this case with me. As in the preceding case, treatment was of no avail.

*Case 8.—Right Hemiplegia in the Third Month of Syphilis.* This case is one of the most interesting of the series. I was called to see a young man of 20 years of age whose friends were evenly divided upon the question of paralysis and acute alcoholism. As the young man was attacked quite suddenly while taking a few social drinks, and was unable to articulate on his arrival home, the variance of opinion was by no means surprising.

On examination I found almost complete right hemiplegia with associated aphasia. According to the statements of his friends, the patient had always been in perfect health. He drank some, but had not been previously known to indulge to excess.

On directing the patient to open his mouth and protrude his tongue—a feat which he found difficult of accomplishment—I detected several mucous patches on the tongue and lips. There was marked mental sluggishness. On stripping the patient I found a well-marked maculo-papular syphilide, comprising a fading roseola and recently erupted papules. Examination of the genitals revealed a typical initial sore with enormous induration, which had been present about twelve weeks. Adenopathy, both general and local was well marked.

This patient recovered completely under inunctions followed by the internal administration of mixed treatment and the protidid in alternation. At present, four years later, he remains well.

*Case 9. Left Hemiplegia Developing Eight Months after the Initial Lesion.*—A young man 20 years of age, was referred to me for partial hemiplegia one week after its onset. On inquiry I found that he had been treated for syphilis in a spasmodic fashion for about eight months. The history was a typical one, mucous patches being still present. No other signs of syphilis save general adenopathy were present.

Recovery in this case was slow but satisfactory. There has been no relapse up to date—three years and a half since I first saw the case.

*Case 10.—Left Hemiplegia Ten Months after the Initial Lesion.* A man 40 years of age consulted me two months after the onset of left hemiplegia. The paralysis had at first been complete, but sufficient improvement had occurred to enable him to get about with the aid of a cane. A clear history of syphilis was obtained, the chancre having appeared about one year before the patient came under my observation.



Treatment had not been systematic. Sterno-clavicular periostitis on the right side and a characteristic thickening of the tibial periosteum were noted.

No other symptoms of syphilis were present. Under vigorous treatment the paralysis improved somewhat, but not to a satisfactory extent. The other symptoms were rapidly relieved. At the present time, nearly five years since he first came under my care, the patient is free from symptoms of syphilis, but is still hemiplegic, the upper extremity being especially disabled.

*Case 11.—Facial Paralysis Developing at About the end of the First Year of Syphilis.* A medical man whom I had previously treated for syphilis, consulted me regarding left facial paralysis, which he believed to be due to syphilis. I confess that there were no definite data for such an opinion, but in view of the history and most rapid improvement after anti-syphilitic treatment was begun, the diagnosis of syphilitic paralysis seemed a fair one despite the possibility of other and more common causes. The patient has been under observation only a few months, but seems quite well at the present time.

*Case 12.—Symptoms Simulating Tabes in the Third Month of Syphilis. True Tabes Developing in the Same Case Six Years Later.* It is by no means frequently that we are enabled to secure as definite data on the relation of syphilis to tabes as in this case. Even in this case moreover there are so many sources of fallacy that the syphilitic etiology of the final ataxic manifestations is by no means proved beyond question. Personally, I am inclined to the view that the late cord disease was of syphilitic origin. Respecting the preliminary attack of spinal trouble, there can be little doubt as to its syphilitic character. The patient was a man of 30 years of age, who had been intemperate and sexually excessive, but quite healthy until he contracted a chancre. This ran a typical course and was followed in the sixth week by a pronounced roseola and a severe type of so-called syphilitic fever, necessitating confinement to bed. Within a few days he complained of rheumatoid pains in his limbs, to which I am free to say, I attributed very little attention at the time. At the end of a week, he attempted to get up and found considerable difficulty in walking. On examination I found the gait of a distinctly ataxic character. There was some loss of sensation and almost complete abolition of the knee reflex. The pupils were normal. The condition did not progress and proved of short duration, a month of vigorous treatment bringing about recovery. For some months, however, the patient complained of a trifling unsteadiness of gait when he had been exposed to overwork or worry. This finally passed away and for some years he remained well.

Six years and a half after the original chancre, the patient again presented himself with symptoms of incipient tabes dating back about six months. The symptoms slowly progressed until quite typical tabes had developed although vigorous treatment had been persevered in. The patient finally passed from under my observation but I afterward heard that he died some three years later as a result of his tabes.

I have met with numerous other cases illustrative of the early nerve disorders of syphilis, but they were either of trifling importance or the data were insufficient to warrant my presenting them to as scientific a body as this Academy.

In several cases I especially regret the lack of data. One such, which I will briefly mention, was that of a young man of 33 years of age, who developed hemiplegia in the second year of syphilis. Following the paralysis which was never perfectly cured, epileptiform convulsions came on. Treatment was of little avail and the patient eventually became insane. Certain property complications made this a *cas celebre* thus enabling me to follow the case after a fashion, long after it passed from my care.

It has been my aim to avoid cases in which the evidence was chiefly hearsay; this may enhance the value of the clinical report. It is perhaps to be regretted that my cases have not been minutely stud-

ied by the neurologic expert, but it will at once be recognized that the neurologist is most likely to meet with the later and more obstinate types of syphilitic nerve disease. A report based upon observations made from the standpoint of the syphilographer, may be of especial value to the general practitioner in the recognition and study of the early nerve phenomena of syphilis.

#### GENERAL CONSIDERATIONS.

The various forms of nerve and brain disease of syphilis, have received attention chiefly as phenomena of late syphilis, and even in the late cases it has been considered sufficient to classify them as nervous lesions, without any attempt at a critical study of the varying conditions underlying them. The terms, diffuse and circumscribed gummy infiltration, have covered a multitude of pathologic conditions of widely varying types. There is to be sure, more uniformity in the pathogenesis of late nerve disease than in the forms, yet in a general way, what I have to say of the precocious forms, will apply in a certain degree to the more systematic later types. There is often in the later forms a very important plus factor in the etiology due to excessive drugging and the syphilitic cachexia. This factor may exist in early cases, but it is exceptional. The prognosis in all forms of nerve syphilis is fairly good, if we except the debatable cases of tabes and general paresis. With early treatment the prognosis is much more favorable than is usually believed even in the late types.

It is worthy of note that the more typical the lesion in late syphilis, the better the prognosis; thus, a definite gummatous deposit may always be expected to yield to judicious treatment. Symptoms which do not yield, are due to lesions which may be termed post-syphilitic in the true sense of the term, or to nutritional disturbances produced, not by the action of syphilitic poison *in loco*, but by the pressure and irritation of products which have usually long since lost their infectious properties. I believe that all tertiary changes are essentially post-syphilitic and certainly can not regard tabes and parietic dementia in any other light, where we have reason to accept them as syphilitic in origin.

The prognosis as regards recurrence is excellent, in well treated late cases of gummatous nerve disease. This is apparently not so true of the early cases. It may be that the necessity for vigorous treatment is not so well appreciated in the earlier periods, but be that as it may, the occurrence of neuropathic disturbances in early syphilis, is likely to be a premonition of future and more serious nerve trouble.

In the writer's opinion, a clear understanding of the principles of pathogenesis underlying the early nervous phenomena of syphilis can only be obtained by regarding the disease as microbial. Independently of the question of the known or unknown character of the germ, analogic reasoning alone should convince the intelligent observer of the logic of this position.

Having accepted this premise, another point is to be considered, viz., the *modus operandi* of the germ. In a general way it may be stated that the germ of syphilis follows a very regular and systematic evolution or life history. As with all pathogenic microbes therefore, we must take into consideration the soil,

the action of the germ *per se* and the action of certain toxins which it produces: 1, by its own excretory functions; 2, by the morbid changes which it excites in the tissues in which it operates.

The action of the germ may be said to be in brief, the excitation of morbid impulses and new properties in certain anatomic tissue elements. These new properties are: 1, a tendency to rapid proliferation; 2, a tendency to fatty degeneration; 3, infectiousness. In time, as the life history of the germ is completed, the property of infectiousness is lost, but the other evil properties remain as long as the least trace of the syphilitic impress exists. The effect of the toxins may still remain but no new ones are formed, save by the cell changes themselves,—metabolic toxins. The tissues know the germ toxins no longer, save perhaps, by their effects. The action of the early toxins may lay the foundation for cell changes which occur long after the germ has fulfilled its mission and disappeared.

The relation of such debatable diseases as tabes and parietic dementia to early intoxication of the brain and cord is yet to be shown, but I feel justified in asserting that such early nerve intoxication may have much to do with these late phenomena. What Hutchinson terms "vulnerability," may thus be rationally explained.

I desire in passing, to state that most physicians regard syphilis in the light of a tissue destroyer, the syphilitic poison being supposed to roam about like the traditional lion, seeking innocent cells and fibers to consume. This is a serious error, and has been responsible for much wild pathology and still wilder therapeutics. Syphilis is a builder of tissue—such as it is,—and destroys, not by corrosion but largely by pressure innutrition. Perhaps some of the severe lupoid, necrotic and phagedenic lesions of tertiary syphilis may be quoted in contradiction, but it would be easy to show their fallacy. As a matter of fact, the disease is only apparently destructive and even its apparent destructiveness is generally manifested after the germ has probably disappeared. With reference to prognosis, there is this to be said, viz., if the syphilized cells constituting syphilitic neoplasia—whether situated in the nervous system or elsewhere—be removed before pressure innutrition and absorption of the tissue elements have occurred, perfect recovery ensues. The more delicate the structure, the more quickly must the removal be accomplished. The practitioner must beware of delay in those obscure cases of sudden deafness, certain cases of disseminate or patchy choroiditis and neuro-retinitis occurring in syphilitics. These affections when neglected in the slightest degree, and often *ab-initio* in *neuro-retinitis*, rank with tabes and general paresis, with respect to their curability.

The practitioner should remember that his remedies may effectually remove syphilis, but may fail to remove the ruins produced by it. Let us examine a scar left by subcutaneous resolution and absorption of a syphilide and then imagine a similar scarring, if you please, of nerve tissue and we can readily understand some obscure points in syphilitic neuropathology and therapeutics. Apropos of this proposition, my position regarding the administration of mercury and iodine as a crucial diagnostic test in some forms of nerve syphilis may be readily surmised. The failure of mercury and the iodids in tabes and parietic dementia, has often been used as

the chief argument of those who deny the specific origin of these diseases. As well say that a long standing case of paraplegia or hemiplegia can not possibly be of specific origin, because forsooth, mercury and iodine will not cure them. Another point: Mercury and iodine may remove the adventitious deposit very quickly, yet fail to impress the new connective tissue which has been thrown out as a consequence of the irritation induced by the syphilitic neoplasia. To the neurologists present there may be nothing novel in this view, yet how few practitioners understand it.

As is readily apparent from what has already been said, I am inclined to place toxins in a very prominent position in the etiology of early syphilitic nerve disease. I also believe in their more remote relation to some of the later types of nerve phenomena. It now remains to consider how the toxins act. As I have observed what I assume to be their effects, I believe that syphilitic toxins act in several ways, viz.:

- |  |  |
|--|--|
| A. By direct intoxication of nerve tissue.   | <ol style="list-style-type: none"> <li>1. Central.</li> <li>2. Ganglionic.</li> <li>3. Peripheral.</li> </ol>  |
| B. By the induction of vasomotor changes via the sympathetic ganglia or the so-called monarchical vasomotor center in the medulla. | <ol style="list-style-type: none"> <li>1. Of the vessels of the central nerve system.</li> <li>2. Of peripheral vessels.</li> <li>3. Of visceral vessels.</li> </ol> |
| C. Direct intoxication and irritation of vascular tissue producing in the nervous system.  | <ol style="list-style-type: none"> <li>1. Active hyperemia.</li> <li>2. Passive congestions.</li> <li>3. Inflammations of lower type.</li> </ol>                     |

The question at once suggests itself; if toxins are present in syphilis and they are so variously and multitudinously pathogenic why do not all syphilitics present such results in greater or less number and severity? To the practical clinicians present, such a query would never suggest itself, but the practitioner who is impressed with the typically specific character and routine effects of syphilis on the average might well be expected to be a doubting Thomas. And let me add at this juncture, that the plus factors in syphilis are too little appreciated even by the expert. The man who sees nothing peculiar in the determination of a mucous ulcer by the irritation of a jagged tooth or the use of tobacco, is at once at sea when confronted with a syphilitic nervous disorder. The relation of cause and effect is, it is true, not so easily determined in the latter, but it is none the less definite. Throughout the course of syphilis we find lesions which are determined by very simple and common factors. Thus mucous irritation long continued determines mucous plaques, ulcers, papillary hypertrophies, fissures, tubercles and condylomata. Gouty and rheumatic irritations of muscle, tendons, ligaments, and synovial membranes determine so-called syphilitic and mercurial rheumatism of such structures. Gout and rheumatism predispose to iritis, neuralgias, and infiltration of arteries. Just so surely do such sources of irritation as alcoholism, sexual excess, the gouty and rheumatic diathesis, mental over exertion or worry, determine nervous disease of a type corresponding to the seat of irritation. This applies not only to the toxin neuroses, but to phenomena due to structural changes, *i.e.*, to syphilitic new growth. The element of heredity is of importance, but as we well know, a neuropathic tendency may exist without it.

(To be continued.)

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## RETRO-DISPLACEMENTS OF THE UTERUS WITH SOME MODES OF TREATMENT.

BY JOHN MADDEN, M.D.

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The different opinions which have been and still are held regarding the pathologic importance of the retro-positions of the uterus, together with the many different mechanical and surgical measures employed for their relief, form an interesting and profitable study. The subject is not a new one; and it would seem that a sufficient amount of evidence is already at hand to warrant definite opinions and establish well defined lines of remedial procedure. This, however, is not the case; for one who reads the literature of the subject from the time of Simpson to the present day is liable to be a good deal confused both as to the importance of the condition itself and the value of the different remedies for its relief.

Dr. Simpson's articles on retro-position were published between 1843 and 1848. They were the first extensive observations upon the subject which had yet been published. The prominence of the writer brought out many articles on the subject and his extreme views as to the importance of the displacement had many adherents. Thus we find Ashwell in 1844 making the following observation: "Retroversion is an alarming, but a rare displacement and when fully established the altered position of the uterus is most striking. The fundus is turned downward and backward into the hollow of the sacrum, while the os and cervix are carried upward and forward, impinging on or lying above the symphysis pubis. It is the opposite of anter-version and demands more prompt attention; for although at first, neither the structure nor the function of the organ are affected, if it be overlooked or neglected it will not be long ere extreme irritation and danger ensue." (Ashwell, Ed. 1845, p. 418.) Quoting further from Ashwell (p. 420): "Retroversion is not at the moment of its occurrence, except it happen very suddenly, indicated by any marked change in the patient's state of feeling; she generally remains ignorant of the accident until an attempt is made to relieve the bladder. Failing in this she becomes alarmed and uses straining efforts but is unable to accomplish the act. The distension and the inability continue to increase—and in twenty-four hours if the catheter is not used the suffering will be extreme—but the bladder is not the only organ whose functions are interfered with; the rectum is so pressed upon by the fundus of the uterus that constipation and sometimes almost entire suppression of stools ensue." Other symptoms given by the same author are nausea and vomiting, painful fullness in the pelvis, dragging in the loins, and expulsive pains like labor; also stomacic and abdominal pain, fever with quick pulse, hot skin and great restlessness. (*Ibid*).

Views similar to the above were expressed by Rigby, Protheroe Smith, Henesley and other contemporaries of Professor Simpson. These opinions were antagonized, however, by Drs. Bell and Oldham, but their greatest opponent was Dr. James Henry Bennett who, in 1849, criticized the views of Dr. Simpson's followers in the following language: "There has been a great tendency, of late years, to exaggerate the importance of this displacement. The essays of Dr. Simpson himself, although highly practical and interesting, are not free, in my opinion, from this

reproach (Bennett 'On The Uterus,' Ed. 1850, p. 202). I am the more disposed to insist upon the opinions which I entertain upon this subject, as several writers in their attempts to follow Dr. Simpson's researches have published such singularly erroneous statements respecting retro-version of the uterus and its symptoms, that I feel called upon to enter my protest against doctrines calculated to mislead the profession. Thus it is repeatedly asserted that it frequently, if not generally gives rise to all the local, functional and general symptoms and reactions which I have described as characterizing inflammatory affections of the uterus, to engorgement of the uterine neck, to chronic inflammation of the ovaries. ('Sterility and C.,' *ibid* p. 203). These assertions are stated to be founded upon clinical fact; but I firmly believe that they are, to a great extent, deduced from facts misunderstood or misinterpreted." (*Ibid*).

Notwithstanding the protests of Bennett and a few others, the views of Simpson seem to have been generally adopted in England. Previous to Dr. Simpson's publications too, there already existed in Germany and France, quite an extensive literature on the subject of retroversions; and views of their importance as pathologic factors held by the German and French gynecologists did not differ materially from those expressed by the Edinburgh professor. Among those of the German school who wrote of these displacements were Schweighauser, of Strasburg; Bruninghausen, of Wurtzburg; Schmitt, of Vienna; Schneider, of Baldy; and Kirchner, of Poeneck; and of the French the writings of Madam Boivin and Dr. Duges are the most conspicuous. Colombat, the painstaking and conscientious French gynecologist, published his work on the "Diseases of Females" in 1844 (translated by Meigs, Second Ed., 1850). In the preparation of this work, he states in the preface that he has examined the works of over one thousand writers on gynecologic subjects; and as this was more a consensus of opinion rather than a particular dogma of the author, the article on retro-positions of the uterus is reliable, in that it gives what was probably, the approved teaching at that time. Of the symptoms of retro-version this author writes as follows (Meigs' "Colombat," p. 160-161): "Supposing the womb to be non-gravid, and the cavity of the pelvis of ordinary dimensions, if the displacement takes place gradually, the patient begins to feel an inconvenient sense of pressure within the pelvis; then the groins, the loins, and thighs are affected little by little with dragging pains, which become more and more annoying. Soon after this the signs of inflammation of the womb become manifest, and the suffering more acute; the catamenia become disordered, either increasing or diminishing in quantity; a leucorrhœa, which in some instances is bloody, flows during the intervals between the menses; the digestion is deranged; the appetite is lost; the woman grows thin and her strength diminishes. At length a fever sets in which in some cases, is of a high grade and continued type; but in others slight, and characterized only by heat of the skin, and by agitated evenings and nights.

"To the above symptoms, there is always added a sense of pressure at the bladder or rectum, giving rise to frequent desire to urinate or go to stool. During the flow of urine the jet is soon checked or suddenly arrested, and as the displacement always increases in proportion to the efforts made to expel

the urine and feces, the symptoms are always greatly augmented by those attempts." It is needless to point out that in the light of modern pathology, this formidable train of symptoms could not be produced by a mere retro-displacement of the uterus. Here we have an accurate portrayal of infectious invasion of the genital canal, beginning with a vaginitis and ending with profound pelvic inflammation. A striking example of Dr. Bennett's charge that the symptoms are misrepresented or misunderstood. This subject will, however, be discussed further on in this article.

In America, the extreme views of the importance of retropositions were adopted with little reservation. Meigs, writing in 1850, expresses himself thus: "In my opinion a majority of the cases called womb complaint, met with in this country, are cases of retroverted uterus. An ample experience teaches me that such instances are far more numerous than mere prolapsus. Indeed, a simple prolapsus not gone to the extent of procidentia, does not necessarily give the patient a great deal of distress. A woman soon becomes accustomed to a moderate degree of descent of the organ, and does not feel, or even suspect its existence." He further remarks that the accident is very common in girls who lead a sedentary life. In this class of cases, failure to empty the bladder at proper intervals produces stretching of the round ligaments until they become incapable of acting as uterine supports; and, also that the disease "ought to occur as frequently in the sedentary girl as in the wife and mother." (Meigs' "Colombat," p. 160). Sims and Hodge held similar opinions, and the latter will long be remembered for his extreme views regarding the value of the pessary which still have their influence with gynecologists. Dr. Thomas in 1880 ("Diseases of Women," fifth Ed., pp. 436 and 438) gives the usual long list of symptoms produced by retro-displacements of the uterus. Among the consequences of posterior displacements, he mentions dysmenorrhea, endometritis, sterility, aveolar, hyperplasia, and pelvic peritonitis. "Furthermore," says Dr. Thomas, "the body sometimes descends to the upper extremity of the vagina and instances are recorded by Rokitsansky and Schott in which it penetrated the walls of the vagina and rectum, and forced itself into these canals. This is a very rare exception, but it is worthy of mention as showing how great is the pressure which a retroflexed uterus may exert. "As rare complications may be recorded hematometra and hydrometra from imprisonment of fluids by obliteration of the canal by flexion at the os internum."

In Dr. Emmett's article on uterine versions ("Principles and Practice of Gynecology," Third Ed.) an elaborate system of tables is given; but a study of them brings little conviction beyond the fact that inflammatory changes are almost always found in connection with retro-versions.

More recent writers, as a rule, hold practically the same opinions as those already cited. Dr. Geo. S. Harrison, of New York, ("American System of Gynecology," Vol. II, p. 1116) says that "the symptoms of chronic retroversio-flexio are so multiform they embrace the entire gamut of morbid sensations;" and that besides the ills directly referable to the uterus and neighboring organs of which a very long catalogue is given, indeed, "the most varied alienations of the psychical sphere, the strangest forms of anesthesia and hyperesthesia of particular portions

of the body, the most persistent forms of neuralgia, and, finally spasm and paresis involving different groups of muscles, may be dependent entirely upon retroversio-flexio and can be partially or completely relieved only by a restoration of the uterus to its normal position." This author says much more in the same strain, but it is not necessary to quote further from his article to show the importance which he gives to retro-displacements as pathologic factors. Pozzi dismisses the subject in a few lines, quoting the views of others without committing himself (Vol. I, p. 438). Skene in his treatise on the diseases of women (p. 308) mentions the common symptoms referable to the pelvic organs, making the reservation, however, that the suffering caused by retroversion varies greatly in different patients and that one of his patients who had retro-version many years, not only suffered no discomfort, but was one of the most active women he had ever known. Prof. August Martin, of Berlin, ("*Frauen Krankheiten*," p. 90) who mentions the usual symptoms of backache, pressure and dragging down, and vesical and rectal tenesmus found in connection with retro-positions, makes the following remark: "These appearances which are looked upon as quite particularly characteristic of retroflexions, the reactions upon the nerve plexes on the anterior wall of the sacrum and dependent inability to stand and walk belong more frequently, not to the retroflexion as such, but to a perimetritis which exists at the same time, and in these cases generally originates in the same puerperium as the deviation of the uterus, but not caused by it alone." ("*Diejenigen Erscheinungen, welche als gans besonders den retroflexion Eigenthümlich angesehen werden, die Rückwirkung auf die Nervenengeflechte an der Vordern Wand des Kreuzbeins und dadurch bedingtes Unvermögen zu stehen und gehen, gehören viel häufiger nicht zu Retroflexion als solche, sondern zu Einer Perimetritis, die gleichzeitig besteht und in diesen Fällen gewöhnlich aus demselben Wochenbett stammt wie die Deviation des Uterus von ihr allein aber nicht verursacht werden*").

I have taken the trouble to examine all such authorities as I have access to and quoted freely from the same in order to show what has been and what now is the generally accepted opinion as to the pathologic importance of retro-deviations of the uterus as such. A consultation of a great number would probably not change the result, as the opinions quoted are those of representative men. From the evidence here presented, then, we are to believe that retro-version and retro-flexion may be productive of profound anatomic changes, inflammatory in their character and that they may give rise to symptoms "so multiform that they embrace the entire gamut of morbid sensations."

That a retro-version of a uterus otherwise normal and where the other pelvic organs are in a normal condition of health, can produce even a small amount of discomfort, is difficult to believe. The specific reasons given for the suffering caused by the displacement are pressure upon the rectum, producing rectal tenesmus, constipation and other associated ills, and obstruction to the circulation in the uterine body gives rise to uterine congestion, enlargement, metritis and endometritis, also, logically of salpingitis, followed by all the symptoms which these disorders generally produce. In retro-flexions we are to add a greater amount of obstructions, to the



circulation, by reason of the sharp bend in the uterine neck and also obstructive dysmenorrhea resulting from the same deformity. To convince you of the importance which has been given the pressure of the uterus alone, your attention is called to the cases cited by Dr. Thomas, in which the uterus is said to have penetrated the wall of the rectum and vagina, the pressure being so great as to completely obstruct the circulation in these parts. To impress this lesson upon us, Dr. Thomas remarks that "it is a rare occurrence, but it is worthy of remark as showing how great is the pressure which a retroflexed uterus may exert." (*loc. cit.*) The possibility of such a disaster from retroflexion would probably not find any believers at the present time, but the influence of such teaching is still with us.

The unimpregnated healthy uterus weighs from one to two ounces. Its supports are so arranged as to admit of very free vertical and antero-posterior movement. Its blood supply is abundant and the vessels are tortuous, admitting a free amount of stretching without encroachment upon their caliber. In perhaps a majority of cases the uterus rests upon the bladder when that organ is empty. When the bladder is moderately distended the uterus assumes an upright position and when extreme distension of

the uterus will certainly have a greater degree of antero-posterior mobility. It is impossible, under such circumstances that a retroverted uterus could have any pathologic importance, either by reason of its normal weight or that its circulation would be interfered with.

In the case of retro-flexions, excepting where they are congenital, they are probably always preceded by inflammation, usually cervical and corporeal endometritis with elongation and softening of the supravaginal portion of the cervix until it becomes incapable of supporting the enlarged uterine body. Nor is it quite clear how much of the dysmenorrhea met with in retro-flexion is due to the flexion, and how much of the inflammation to the cervical and corporeal endometritis. If the flexion is extreme, so that the axis of the cervix meets that of the body at an acute angle, the mechanical obstruction from this cause alone may, no doubt, be productive of a great deal of suffering. Such extreme cases of retro-flexion are,

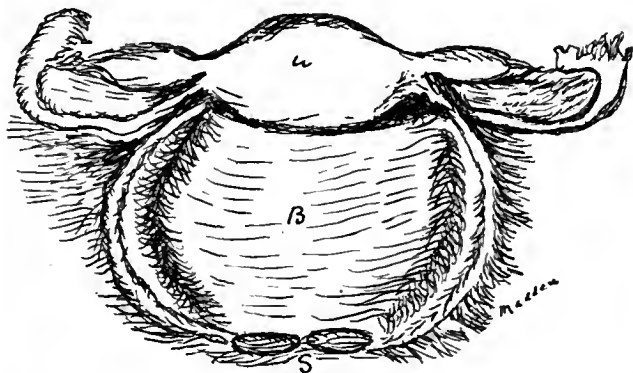


Fig. 1.—Long round ligament and broad vesico-uterine peritoneum, allowing free antero-posterior movement of uterus; bladder empty. S, symphysis pubis; B, bladder; U, uterus. (Diagrammatic.)

the bladder occurs, the uterus may be slightly retroverted.<sup>1</sup> The round ligaments are regarded as the principal agents concerned in holding the uterus in its anterior, "normal," position; but they are frequently poorly developed or altogether absent. (Martin's "*Frauen Krankheiten*," p. 78). Another important factor concerned in holding the uterus in its anterior position is the extent of the uterine attachment to the bladder, as indicated by the depth of the vesico-uterine cul-de-sac. I have seen this nowhere discussed; but it is well known that the peritoneum in some cases dips deeply down between the uterus and the bladder, closely investing the former organ to or beyond the internal os before it is reflected upon the latter, while in other cases the cul-de-sac is very shallow, both organs being practically covered by the same fold. The importance of this broad stretch of peritoneum must be considerable, probably as great as that of the round ligaments themselves. When, therefore, the round ligaments are absent or only slightly developed, and when at the same time, the vesico-uterine cul-de-sac is deep,

<sup>1</sup> This is not true in all cases. Dr. George McClellan, of Philadelphia, found by experiment upon the cadaver that "If the bladder is gradually distended, while the bowel is empty, the fundus is raised until the organ assumes a decided ante-flexion." (*Regional Anatomy*, Vol. II, p. 113).

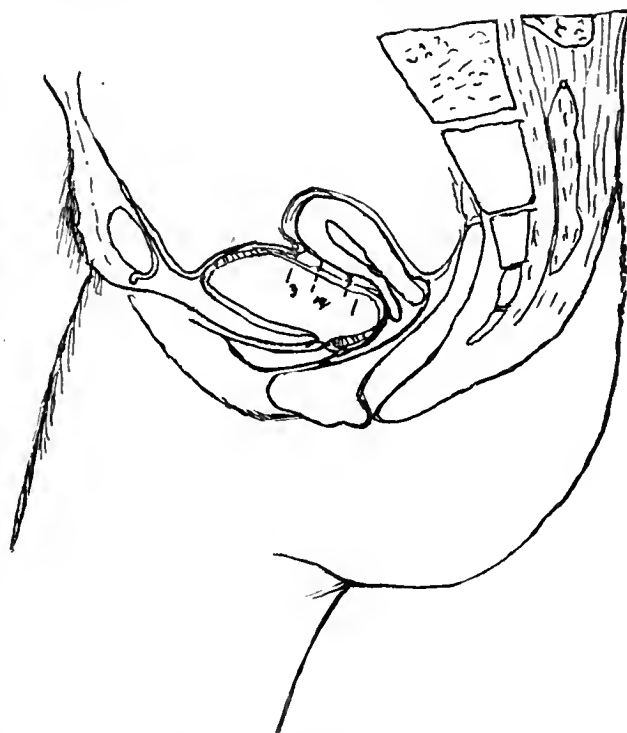


Fig. 2.—Different degrees of attachment between uterus and bladder; 1, 2, 3, different depths of vesico-uterine fold. Bladder moderately distended. (Diagrammatic.)

however, rare. More often the axis of the uterine canal, at the junction of the cervix and the fundus, describes the arc of a circle with a comparatively long radius, the retro-flexion thus, in itself, not offering any considerable obstruction to the passage of menstrual fluid. This is not the case, however, when the cervical canal is already completely occupied by a redundant mucous membrane, the product of a long continued inflammation. It is not necessary to point out here that an endometritis with the uterus in its normal position may be productive of just as much and just as severe dysmenorrhea as the same inflammation produces when that organ is retro-flexed or retroverted. In retro-positions of the uterus, too, especially in retro-flexions, much stress has been laid upon the passive uterine congestion brought about by obstruction of the circulation. Williams, some time ago called particular attention



to the fact that each segment of the uterus is supplied from a different source, so that flexions could not be productive of obstruction. The fundus uteri receives its blood supply from the ovarian artery, the cervix from the uterine artery. Both vessels, with their accompanying veins, lie between the folds of the broad ligaments, beneath the Fallopian tubes. A mere bending backward of the uterus could not interfere with their functions. Let, however, a parametritis take place, an inflammation extending from the tubes to the tissue between the folds of the broad ligaments, and the encroachment upon those vessels with the accompany uterine congestion is easily understood.

What I firmly believe and what I wish to teach is, therefore, that retro-deviation of the uterus is not in itself a pathologic condition; that it is not productive of inflammation; but it is almost exclusively the result of inflammatory process; that the accompanying symptoms are those of the same inflammation when the uterus is not displaced; and that unaccompanied by inflammation, in a normal pelvis, it rarely produces any painful sensation. Exception is to be made in the rare cases of congenital retro-flexion, of a high degree, in which obstructive dys-

distinctive symptoms. When accompanied by any symptoms at all they are those of inflammation of endometritis, metritis, salpingitis and parametritis. I wish here particularly to mention a condition which is common in retro-displacements of the uterus as well as in inflammatory troubles in which no deviation is present, and which is, I believe, often erroneously attributed to the displacement itself, because relief follows a replacing of the organ in its normal position. I refer to the sensitive point which is found on one or both sides of the uterus, in the region of the Fallopian tube, and within an inch of its entrance into the uterus. There can not be much doubt that this sensitiveness is due to a salpingitis which may exist either alone or in connection with an endometritis. It is located in that part of the tube which suffers a free amount of bending motion during the vertical movements of the uterus; and any remedy which will take the weight of the uterus

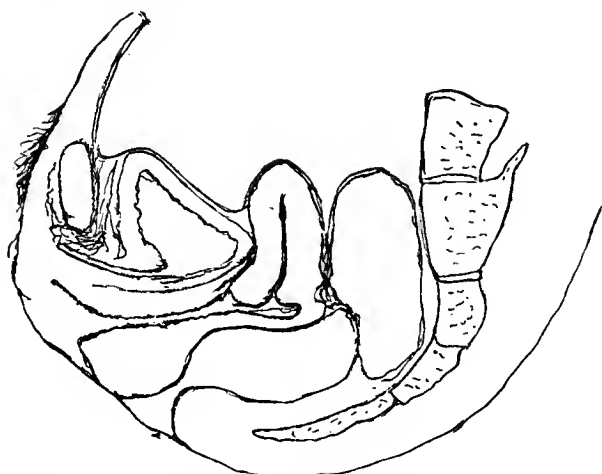


Fig. 3.—Waldeyer's section of frozen cadaver, showing considerable degree of attachment between uterus and bladder.

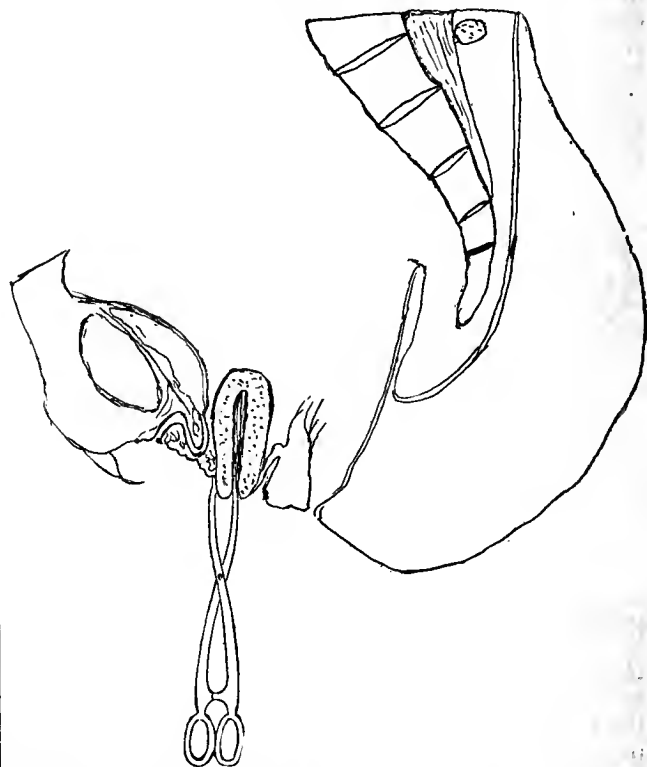


Fig. 4.—Relation of urethra and bladder to uterus when the uterus is drawn down. (Diagrammatic.)

menorrhoea may exist. It is here to be remarked that the evidence of congenital retro-flexion rests upon debatable ground. Martin mentions one case reported by Ruge, but the age of the subject is not given. Schultze and some others seem to conclude that a retro-flexion existing at the time of puberty is to be regarded as congenital. That this conclusion is valid is very doubtful. There is no reason for doubting that hypertrophic changes may take place in the infantile uterus as a result of infectious inflammation of the genital canal, producing cervical elongation and flexion; and that both the inflammation and the flexion remain unrecognized until the age of puberty is reached. Vaginitis and endometritis gonorrhoeal in their origin, are not extremely rare in young children. I have seen a most violent vaginitis, cystitis, and cervical endometritis in a child 10 years of age, whose father I was then treating for a long standing gonorrhoea. I have seen a similar, but less severe, condition in a child 5 years old. In this latter case the disease was of long standing, and the father confessed to having had a gonorrhoea nearly two years before.

Retro-deviations of the uterus are productive of no

off the tubes and at the same time limit or abolish its vertical movements will be attended by relief, whether the uterine body is put in its anterior position or not. I have often seen such relief follow the mere filling of the vaginal vault with cotton, without any attempt made to remedy the retro-displacement. Where adhesions to Douglass' cul-de-sac exist, the posterior vaginal vault is sensitive, often exquisitely so; but here the secondary influence of the displacement is too manifest to need discussion.

It is not the purpose of this paper to discuss all the mechanical and surgical measures which have been used for the relief of retro-deviations. The most of them are well known and estimates of their value are as numerous at least, as the men who introduced them. I firmly believe, and this belief is founded upon a considerable amount of experience and observation, that through antiphlogistic and anti-

septic measures, temporary artificial support of the uterus where the tubes are inflamed, removal of diseased parts with the curette and by proper operations about a lacerated and indurated cervix, and the restoration of an injured pelvic floor together with proper attention to the general nutrition, will relieve all the symptoms attending retro-displacements in a great majority of cases without paying any attention to the deviations as such. Exception is here to be made where the inflammation has been extensive and destructive, where the uterus is firmly bound down by adhesions.

In concluding this article, I wish to mention only three operative procedures for the retention of the uterus in the anterior position: They are ventro-fixation, shortening of the round ligaments by drawing them through the external abdominal ring and the vaginal fixation of Mackenrodt. Ventro-fixation will

tent and strength of the adhesions which may be produced by ventro-fixation. This patient had been castrated by Dr. Christian Fenger, of Chicago, for a myoma about as large as an orange, situated in the left lateral wall of the uterus. A retro-uterine abscess developed for which I opened the abdominal cavity about a year afterward. There were two very firm areas of adhesion, probably aggregating one square inch and apparently capable of sustaining a weight many times greater than that of this very much enlarged uterus. But the tendency of adhesions thus produced, as in all other cases is toward absorption, making a just estimate of the final results of the operation impossible. If, however, the antero-position can be retained only long enough to prevent a re-adhesion of the uterus should it become again retroverted, the operation has an important place.

Opinions of the value of the so-called Alexander's

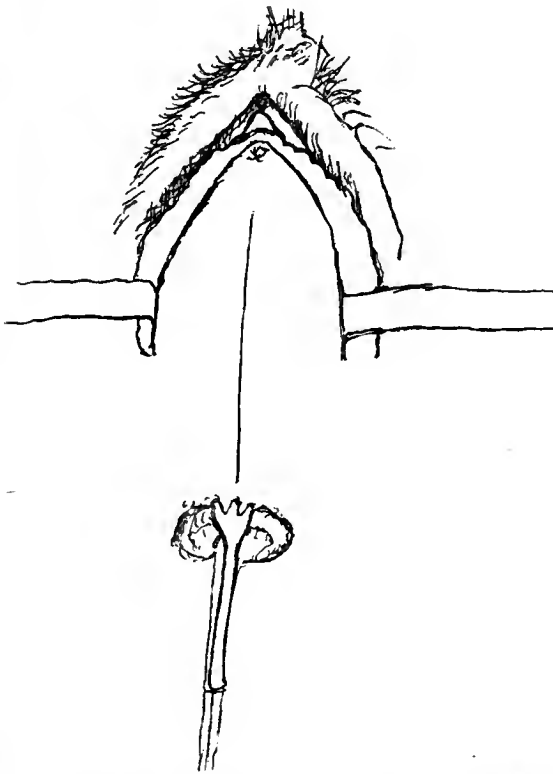


Fig. 5.—First step in Mackenrodt's operation. Uterus drawn down and anterior wall of vagina incised.

probably always be performed in those cases of retroversion in which the opening of the abdominal cavity is a necessity, especially for the purpose of breaking up of posterior adhesions. The value of the operation is not yet established. Martin had performed it forty-three times up to Feb. 1, 1893, thirty-one for posterior adhesions, eight times after the removal of myomata and four times for movable retro-flexions. Since the date here given, he has operated in the same manner a number of times but only for posterior adhesions and after the enucleation of myomata. Of the outcome of the forty-three cases here mentioned Professor Martin remarks: "The final results are not brilliant. After one to four years the adhesions of the uterus to the abdominal wall, were so much stretched that the uterus lay free. Sometimes through continuance of the existing perimetritis, the uterus was again brought to the retroflexed position." Only once have I had the opportunity to see the ex-

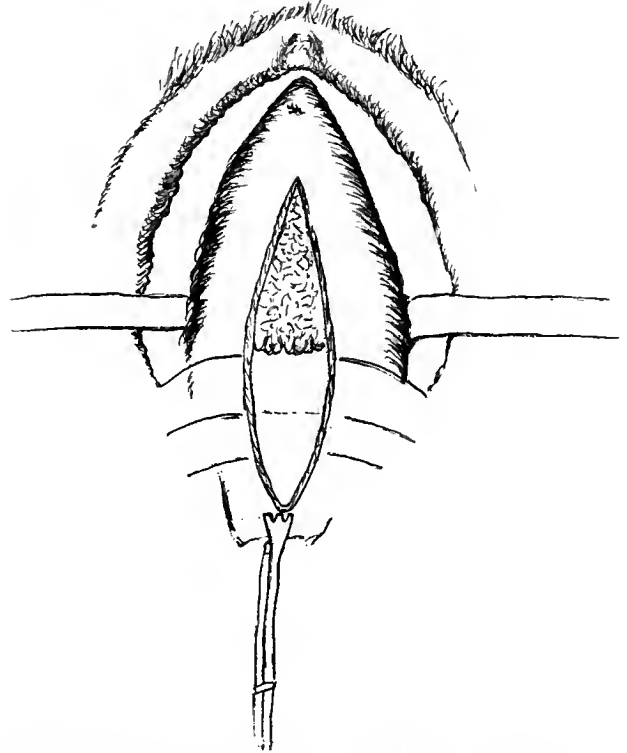


Fig. 6.—Mackenrodt's operation. Vaginal mucous membrane dissected off, sub-mucous tissue pushed up and secured, and three silk sutures in situ.

operation are indefinite and variable. Beyond a few opinions given off hand I have been unable to find any statistical information upon the subject. The operation is suitable for cases not attended by adhesions. The German gynecologists have practiced the operation but very little. Martin remarks: "The inconstancy of the round ligaments, which I have taken the trouble to establish through my laparotomies has to the present, prevented my adoption of Alexander's operation." (*Frauen Krankheiten*, p. 98).

In 1892, Mackenrodt, of Berlin, united the body of the uterus to the anterior wall of the vagina for the purpose of correcting retro-deviation of the uterus. The operation has since been performed by other of the German operators, but chiefly by Professor Martin, and as practiced by the latter is briefly as follows: With a combination sound and tenaculum forceps, the uterus is anteverted and drawn downward and

outward, until the os is quite without the vulva. With a scalpel the anterior vaginal wall is then split from a point one-third to one-half an inch beneath the urethral opening down to the portio vaginalis. The mucous membrane is carefully dissected off from the submucous tissue for some distance on either side of the incision, the submucous tissue shoved up and its bleeding vessels stilled by several stitches of continued catgut suture. This maneuver leaves the uterine wall bare for the distance of one or two centimeters above the internal os. The vaginal wall is now united directly to that of the uterus by means of three strong silk sutures, the first of which passes through the uterine wall about three-fourths of an inch above the internal os, the second at the internal os, and the third about the middle of the uterine neck. Super-

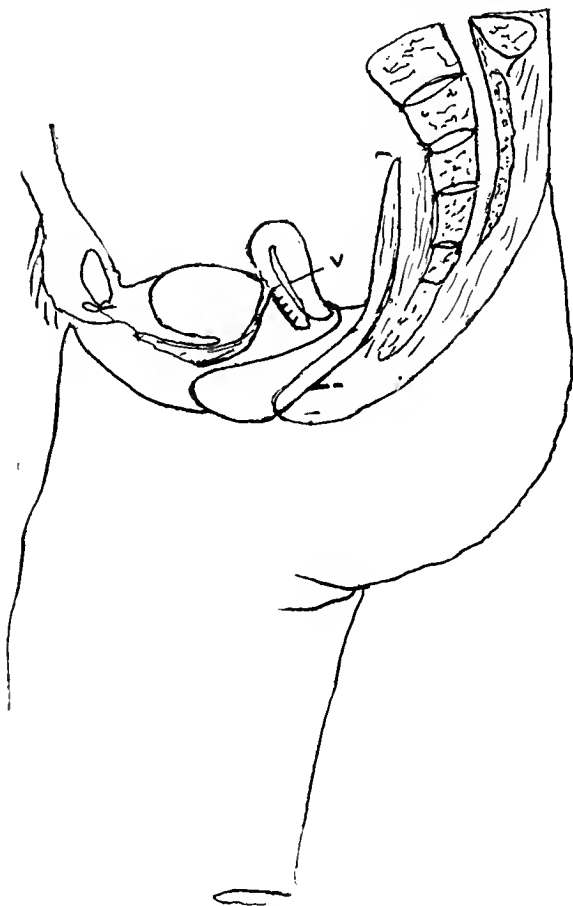


Fig. 7.—Mackenrodt's operation. Sectional view. V, anterior vaginal wall bent upon itself and secured to uterus. Upper part of vagina distended.

ficial catgut sutures close the spaces between the silk sutures. The silk sutures are allowed to remain *in situ* three months. There is no doubt a possibility of injuring the bladder in performing this operation. The injury may be either direct or through subsequent inflammation of the tissue between the uterus and the bladder. I saw in Landau's Clinic, in Berlin, one such case. There was extreme sensitiveness and other evidences of vesical inflammation. The patient had been operated upon by Dr. Vogel several months before.

The operation is new and therefore its value is unknown. Martin has great hopes of its efficiency and says he has had no complications following it. In the first thirty of his cases pregnancy afterwards

twice supervened and ran a normal course. Mackenrodt mentions one normal pregnancy in his cases. It is quite probable that this operation, like all other new operations, will be illy done and overdone. As a result we shall have much conflicting testimony as to its value.

## INFLAMMATION AND MICROBES.

A LECTURE

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A complex but interesting series of phenomena are known to take place when certain living vegetable cells invade an animal tissue and compete with its living units for nutrition. The life and well being of invading bacteria usually means death to the neighboring tissue cells. This issue is resisted most vigorously by those cell elements immediately concerned in protecting the organism. In the more simple forms of life these influences are less complex and are confined to so-called immediate effects, while in the human organism we have not only the immediate but also the remote influences of active efforts at resistance. It is evident that the more complex the organism the more multiple and intricate will be these manifestations. A complex and highly differentiated organism has a temperature regulating mechanism which is easily deranged. It has numerous organs whose secretions and functions may be altered, a highly developed nervous system which responds quickly and often violently to unusual impressions. Then taking the human organism as a type of the most complex, we will note not only the immediate or local effects of an inflammation, but also the remote or general effects. These latter may be even more striking, comprising as they do, a series of reflex phenomena like convulsions, fever, changes in the secretions both qualitatively and quantitatively from the skin, kidneys, salivary glands, etc.

Of late, investigations regarding inflammation have been made comparatively. Metschnikoff's studies of what we might call the evolution of inflammation, have been the most notable contributions ever made to the subject. They demonstrate the potency of studying a subject comparatively. Such study has shown that the lower forms of animal life exhibit the inflammatory phenomena, and what is most interesting to the student they express it in its lowest and simplest terms. As we advance to the vertebrates and rise to the mammalia, one accessory after another is added, until the phenomena as manifested in the human species is seen. By thus studying the evolution of a complex process, we are enabled to give to its various phases their respective values. Values that may be founded upon duration, persistence or fundamental characteristics. Phagocytosis is the most persistent and fundamental phenomenon seen in the comparative study of inflammation.

To define inflammation is perhaps a useless proceeding, unless we can make the definition a basis or text for its analysis. Briefly, we might present it in the following words as: A reaction which living tissues exhibit to *irritation* or *injury*. According to this view the more obscure portion of the subject turns upon the significance of the word *reaction*. The expression, *irritation* or *injury*, conveys a clearer im-

pression to the mind, and bacteria become linked with the subject at this point. The reaction process belongs to living cells and may be divided into a *defensive* and *constructive* stage. The latter might not be called inflammatory in a strict sense of the word. However, the end and aim of the defensive process is to arrive finally at the constructive. In a given wound there may be much or little to defend but the leucocytes are poured out notwithstanding; if not needed for defense they proceed immediately to construction. Defense and construction are supplementary in a process which aims ultimately at restoration. In both steps the same elements, leucocytes and phagocytes play their parts.

So far as defense is concerned, phagocytosis is the most active and striking phenomenon. It is observed in the lowest and slightly differentiated forms of life, as well as in the highest. Comparative study shows that phagocytosis is less active in man than in the lower animals. A high degree of tissue differentiation evidently makes phagocytes less numerous or renders them less effective. This is perhaps one of the sacrifices the human and other highly differentiated species have to make for the advantages of possessing highly specialized tissues.

The next step in the defensive process differs from phagocytosis, inasmuch as it is only seen and studied in the more highly organized forms of animal life. It is in fact a concerted activity, a combination of forces whereby millions of phagocytes and leucocytes do through organization what a single one would do in simple phagocytosis. Instead of one by one englobing bacteria, they by concerted process surround the lot. Thus we get the so-called *circumscribing* action or union of forces with one intent. By it the contest is made to take place within boundaries. This circumscription is in fact a measure of last resort, simple phagocytosis having failed. The end to be attained here is the formation of an abscess. The inflammatory products and irritant materials are hemmed in by the so-called *pyogenic* membrane or wall extemporized for the purpose of limitation. The very natural result of this confinement is the production of those classical symptoms of inflammation, pain, heat, redness, swelling, and loss of function. These symptoms appear more or less prominently according to the results of the defensive process. The contents of an abscess consist of serum, leucocytes, phagocytes, bacteria and chemic toxins with possibly some fibrin and tissue *débris*. Clinically this material is known as *pus*. In the formation of the typical abscess, the aim is one of limitation. An abscess is in a measure destructive, but the damage is confined, and thus the sacrifice of a part is made often for the benefit of the whole organism. The circumscribing action is less necessary on surfaces; it does at times occur and is then marked by a barrier of deep induration.

The defensive process has been seen to consist in a phagocytosis and a circumscribing action, but the same call which summoned the leucocytes to the defensive, leaves them upon the site of injury for the purpose of reconstruction. Defensive and constructive activity seldom go hand in hand; they follow one another, but the way must always be cleared before repair can begin. Construction takes place also with the help of the fixed connective tissue cells and it occurs promptly, providing the energy of the tissue cells has not been entirely exhausted in the

defensive struggle. Construction implies organization or regeneration. It has been stated that specialization or the higher evolution of the tissues of an organism was accompanied by a diminution of phagocytic activity, so the same higher development entails a feebleness in the regenerative or reconstructive function.

We have therefore to consider the human organism as having purchased its higher development at some considerable cost, it being in consequence provided with less active phagocytes for defense and less active leucocytes for construction. In the lower animal kingdom the regenerative function is so active that not only are injured organs successfully repaired, but lost limbs and processes are reconstructed. A lobster having lost his claw can grow a new one. The tadpole may regenerate a lost tail, etc.

In man, mesoblastic or connective tissue almost monopolizes the regenerative function. It is the one tissue that has suffered the least differentiation. Phagocytes and leucocytes are derived from it, and are very largely the agents through which it works. In man a wound or loss of substance of the liver or brain is replaced by fibrous or mesoblastic tissue; the liver or brain cells are too much specialized to be capable of self repair. Observation on all the other tissues of the human body shows a striking feebleness in this regenerative capacity.

Having defined inflammation as a reaction which arose from an irritation or injury, we have now to investigate this irritation. Primarily we can conceive of irritation or injury only as arising from mechanical, chemical or thermal causes. Considering chemical causes only, these may operate directly or indirectly. When *directly*, it can be proved that inflammation may arise through, for example the application or injection into living tissues of some chemic irritant, germ free. This process is chiefly one of experimental interest. The mode of introducing a chemic toxin *indirectly* into the tissues through the agency of bacteria has the widest clinical significance. The direct mode is often misleading, for the direct use of any chemic irritant creates in living tissue a *locus minoris resistentiæ* and may thus ultimately induce bacterial invasion. The direct method should, however, have nothing to do with bacteria, though it would be a purely chemic matter whether we injected aseptically into living tissues croton oil, turpentine or phlogosine, an alkaloidal product of certain pyogenic organisms. If these substances are used we get substantially the same result as in microbic inflammation, though without microbes we miss their peptonizing action which yields the typical fluid pus, while that called forth by chemic irritants is more or less coagulated and semi-solid. It has been called *puruloid* by some writers.

Clinically, bacteria acting as agents for the generation of toxic and irritant material, are by far the most frequent causes for inflammation. Their products are the acting or exciting causes and these are usually alkaloidal or belong to that class known as albumoses or toxalbumens. Hence they fulfill the idea that the irritant must be a chemic one. The mechanical influences of bacteria were at first given considerable prominence, but later and more careful investigation, has shown this to be too inconsiderable to notice. Even in so severe a disease as septicemia, mechanical effects account for nothing.

And again the idea that bacteria simply deprive the tissue cells of their accustomed oxygen and food has been shown to be of altogether minor importance. The action of certain bacteria for harm is an aggressive and strictly positive one.

In certain forms of chronic inflammation, as for example, the interstitial inflammation of solid organs like the kidneys, liver, spinal cord, etc., there exists an overgrowth of the connective tissue framework. There may at first be hypertrophy of the whole organ as is often the case in the early stage of chronic interstitial hepatitis. This is soon followed by an atrophy and degeneration of the functional cells, which advancing more rapidly than the formative process in the framework leave the organ finally much contracted. Contracted, moreover, because of the property of the new-formed connective tissue to shrink after the manner noticed in cicatrices. Such conditions as these, if they are rightly called inflammatory, and it would seem best to call them so, are brought about usually by some chemic irritant whose influence is exerted upon the tissues during a long period of time. Such chemic substances usually act directly upon the living cells. They may be the products of some recent bacterial invasion like diphtheria or more remotely syphilis. Again, they may have nothing to do with microbes, and be the products of the living tissue itself, *e. g.*, uric acid in the lithemic or bile in the cholemic conditions. Finally, it is seen that substances derived from without are equally capable of producing interstitial change, *e. g.*, the prolonged use of alcohol and the effects of chronic lead poisoning.

The influence of these irritants are in the above instances just enough to provoke connective tissue proliferation, while they damage the more highly specialized or functional cells of an organ.

Once more it is seen that higher organization has its disadvantages, in that it ultimately gives rise to cells whose resistance to detrimental agencies are inversely proportioned to their degree of evolution or specialization. A highly specialized cell does better work than one less evolved, but as a compensation it needs greater protection, for it succumbs very readily to harm and there is left little or no prospect of restoration.

We know of large numbers of pathogenic bacteria but they do not all excite inflammation. Inflammation is in many cases a protest on the part of tissues against the toxins of an invading organism. Unfortunately, perhaps, there are some bacteria and toxins that provoke no tissue protest. It is well known that there are many toxic alkaloids that create no inflammatory reaction; *e. g.*, aconite, strychnin, morphin, atropin, etc. The toxins of hydrophobia and tetanus call forth little or no defensive action on the part of the tissues. Very susceptible animals may offer little or no inflammatory reaction to anthrax; thus in man we have occasionally acute miliary tuberculosis. Both illustrate conditions where there is no local protest or circumscribing action, but as a consequence a quick, general, systemic invasion. The insidious character of an infection without distinct local inflammatory manifestations is often seen in syphilis. The local lesion being occasionally too trifling to notice. Man, for example, is not very easily infected with anthrax, hence we expect a vigorous local reaction, and this is usually the case in malignant pustule.

Infection may take place with or without resistance, but inflammation never occurs unless resistance is offered. As tissues approach death their inflammatory vigor diminishes at an equal rate. In all inflammation, antagonism is necessary. Cell antagonism is most typically exhibited toward living microbes, and less toward toxins and chemic irritants.

## THE CENTRIFUGAL MACHINE IN SPUTUM EXAMINATIONS.

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Owing to its precision, the diagnostic aid given by a microscopic examination for tubercle bacilli of the properly stained sputum has made this procedure very popular. The only difficulty lies in the fact that, by the old methods of examination, we may sometimes unconsciously select a portion of the sputum that contains no tubercle bacilli, if the entire specimen contains but few.

To eliminate this source of error, I have of late been using with much satisfaction the method advocated by Biedert, employing in addition the centrifugal machine. Where possible, I secure all the sputum raised in twenty-four hours, and add some potassium hydrate solution; this, with the aid of heat, dissolves any lumps that may be present and after a time the mixture becomes quite thin. It is then diluted with water so as to lower the specific gravity, and introduced into a large centrifugal machine. The latter is then run at a high speed for a half hour, which throws down all solid particles, bacteria included; and the specimen to be examined is then taken, by means of a pipette, from the bottom of the conical part of the tube.

I report the following case to show the usefulness of this method:

About a year ago I saw, with a colleague, a dispensary patient of his, Miss M. F., aged 18, who had been suffering for some time with a cough, with slight watery expectoration. At times she had sweats which were not profuse and did not occur often. Temperature 99; pulse 92; tongue coated white. She was anemic, but not emaciated. Both parents were living. She had originally come for a tonic, because her friends told her she looked pale. Happening into his room at the dispensary one day, my friend casually asked me what I would give, as she had not improved under treatment.

Upon hearing the history, I asked for and received permission to examine her chest. The only abnormal physical signs were on the right side where there were some mucous râles, and near the apex I heard a slight pleuritic friction sound, but it was so slight I did not succeed in convincing my friend it was there. The girl admitted that she sometimes had pain in that region, "muscular rheumatism," she called it. Neither of us could detect any consolidation.

Dr. — was positive that there was nothing tubercular about the case, as he had examined the sputum himself. However, as we were both greatly interested in the subject of tuberculosis, he secured another (morning) sample of sputum, and we examined it together at my laboratory. Out of eight slides examined, we found two tubercle bacilli, both of which were in the second preparation. Dr. — insisted that these might be an accidental contamination from



the air, so to decide the question he obtained all the sputum of twenty-four hours, which I subjected to the above process. Result, the first and only specimen examined contained seven tubercle bacilli in one field, and several fields contained four or five.

Two months later, I subsequently learned, during which she had greatly improved on codliver oil and a highly nitrogenous diet, this patient had a fall, striking her chest against a pail; this started up an acute form of the disease from which she died six weeks later.

While this is only one case, it is still a significant one, as the method of examination cleared up the existing doubt, and led to the adoption of a course of treatment that would probably have been successful had not the girl met with the unfortunate accident which we both felt satisfied caused the disease to assume its virulent form.

Where the bacilli are easily demonstrable by the ordinary means there is no call for this method; but since the above experience I should hesitate to say that a given specimen was not tubercular until it had been applied.

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## POST-NASAL HYPERTROPHY IN ITS RELATION TO HAY FEVER AND OTHER DISEASES.

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The ganglionic system presides over the functions of secretion and excretion, nutrition and circulation, as well as involuntary motion. These ganglia, composing the "sympathetic system," also give warning through their intricate network of connecting nerve fibers, of abnormal conditions. The warning may be sent to the same organ in which the irregularity occurs, or it may be sent to a neighboring organ, or to one quite remote. The correlated action of organs and tissues is fairly well worked out. Diseases apparently neurotic in origin have frequently been proven to depend upon some local irritation. It may not be possible in every case of a certain disease to find the local origin, or to remove it when found, but it should at least be looked for before valuable time is wasted in treating symptoms.

Dr. J. N. Mackenzie has described what has been termed "Mackenzie's sensitive area," *i. e.*, the posterior ends of the lower turbinated bodies and the surface of the septum opposite. The sensitive area of the turbinated body is usually hypertrophied and may be called the sensitive hypertrophy. It may be seen in most cases by posterior rhinoscopy, having a granular appearance, pale and large. The shortest branches from Meckel's ganglion supply this area. Stimulation or irritation of this area through these branches and the irritable ganglion may be reflected in any or all of the ways mentioned; for example, to the nose producing congestion and discharge; to the eyes producing itching of the eyes and lacrymation; to the bronchial tubes producing asthma. This tissue becomes very sensitive to sudden changes of body temperature, receiving a portion of the blood driven from the surface, swelling enormously, and absorbing septic germs, which set up a new attack of rhinitis, commonly termed, "catching cold." This granular hypertrophy is also irritated by odors, dust and pollen of ragweed or other plants. The impression

made on the ganglion is reflected through its various branches, producing in turn the symptoms of "rose cold" or hay fever; through the descending palatine branches, causing itching of the roof of the mouth, most often referred to the point where the nerve emerges from the posterior palatine foramen, as well as through the naso-palatine nerve at the anterior palatine foramen behind the incisor teeth; through the internal nasal branches, causing engorgement of the erectile tissue with the profuse discharge of mucus; through the upper posterior branches, the pharyngeal, and a few branches from the vidian nerve to the mouth of the Eustachian tube and pharynx, producing the itching of the ears and throat, tinnitus aurium and pain in the ears; through the branches to the ophthalmic ganglion, producing the intense eye symptoms observed in many cases; through the branches of the fifth nerve, producing different neuralgias in its domain; through the cervical sympathetic ganglion, producing hay asthma and dyspnea. Thus the symptoms of hay fever are shown to be dependent on the distribution of the branches from Meckel's ganglion, and its connections, irritation of which results from this sensitive hypertrophy. In the milder cases of hay fever, the symptoms of asthma and dyspnea may be entirely absent, as the reflex action is not so intense and does not extend to the more remote organs.

Again, some of the most intractable cases of asthma are cured by removal or cauterization of these hypertrophies, removal of polypi or other intra-nasal irregularities which irritate this sensitive area.

It may be said, then, that in cases of tendency to "catching cold," hay fever and asthma, the cause is local in a great many cases, and as a local lesion it should be treated. After the local irritation has been removed and the symptoms still remain, then it will be time to look for the origin elsewhere. According to Dr. W. H. Daley, we are justified in looking upon hay fever as a pure neurosis only when the affection persists after the removal of the local nasal disease.

In the case of hay fever, it is said by many authors that local treatment of hypertrophy or other diseased conditions of the nasal mucous membrane will cure a great many cases. The statement is too general to result in much good to the patient. When every abnormal condition discoverable by anterior rhinoscopy has been corrected, including Sajous' sensitive areas, and hay fever develops as before, then examine posteriorly, remove the granular hypertrophy and the case recovers during the same season. The intensity of the symptoms is hardly any reduced by anterior treatment and the result is that the patient becomes disgusted and believes what others have told him,—that hay fever can not be cured.

Also, a great many of the worst symptoms of catarrh are quickly relieved if its treatment begins posteriorly. The chronic congestion of the turbinates subsides, as well as the profuse discharges. The bodies are then left to their proper sympathetic influences which regulate secretion of fluid and the other functions of the nasal mucous membrane.

It has been shown that when simple hypertrophy is the cause of the nasal obstruction and the bodies are cauterized deeply, their contraction is often so great that inspired air is not properly warmed and moistened, the throat becomes dry, and the larynx is involved, in which case it is a question if the patient is not in a worse condition than before. In catarrhal

conditions not hypertrophic, deep and destructive cauterization is never necessary and does actual harm. All these results are easily avoided by the removal of the source of irritation to the sympathetic ganglion before any further measures are attempted. A great deal of time will be saved to the patient, and satisfactory results obtained, if the treatment is carried on with a proper idea of the sympathetic influences reflected through the sphenomaxillary ganglion. Simple "hypertrophy" or engorgement is not pathologic but reflex. I believe that deep linear cauterization for the purpose of button-holing the membrane to the bone and thus prevent erection of the turbinated tissue is wrong in theory and barbarous in practice.

I have frequently seen patients who have been treated and cauterized freely for a period of two or three years, until they had concluded that there was no benefit to be derived from the treatment of catarrh and that this so-called radical treatment was also a failure, and who assured me that the only pronounced improvement they had ever obtained was from treatment of the posterior ends of the lower turbinated bodies.

This sensitive area of Mackenzie is also a causative factor in the production of migraine in a certain class of cases which I will describe, and possibly in others. It is well known that stimulation or irritation of one spot or nerve, through correlated action, produces vasomotor dilatation of another spot or organ. The theory of the correlated action of the erectile tissues of the body has been pointed out in an article on "Irritation of the Sexual Apparatus as an Etiologic Factor in the Production of Nasal Disease," by John Mackenzie. He shows that in a certain proportion of women with healthy nasal organs, engorgement of the turbinated erectile tissue occurs at each menstrual flow. This physiologic sympathy becomes painful when the congestion of the turbinates is accompanied with migraine. In two cases of this menstrual migraine under my care, cure resulted from the removal of the sensitive hypertrophies, and what was supposed to be entirely beyond the reach of more than palliative treatment was shown to be easily remedied. The philosophy of migraine may be explained by the action of the sensitive hypertrophy on the ganglion, producing pain through the connecting branch to the sensitive fifth cranial nerve. As a source of irritation to the nervous system and to the tissues of the respiratory tract, these sensitive hypertrophies are of the greatest importance and should be recognized and treated.

In the treatment of these hypertrophies, all anterior obstructions should be removed, such as polypoid deflections and hypertrophies, if necessary, in order to gain easy access to the post-nasal regions. It is understood that the parts are to be brought under the influence of cocaine for the double purpose of an anesthesia and widening the view. After an application of chromic acid with a bent probe, the white and flabby body can be moved about and brought easily into view. There will be increased discharge during the healing process, but from two to four weeks after the operations have been completed, the pharynx is entirely free from the troublesome collections of mucus. If there is laryngeal irritation, it also improves for the same reason. There is usually no pain after the acid treatment and no constitutional disturbance, but often there is

immediate improvement. The electric cautery is hardly applicable, except as a cautery snare; for the reason that it can not be handled with sufficient delicacy of touch. No instrument is so little in the way and so easily handled as the silver probe charged with chromic acid. No application of acid or snare can be made unless there is easy access. I prefer the use of the cold snare when the growth is large enough to engage the wire, and if tightened slowly there is no great amount of hemorrhage. When the growth is not so large, or if for any other reason an acid application might seem preferable, a steady nerve and a knowledge of the topography of the parts is necessary to make an accurate cauterization.

*Case 1.*—Mrs. F., aged 35, has suffered from hay fever regularly since 1891; attacks modified or absent while in Mackinaw. Has also had severe asthmatic attacks for past two winters, "constantly catching colds" and very miserable. Examination showed the posterior ends of the lower turbinates to be very large and sensitive. They were removed with the cold snare last July. During the season just passed she had no symptom of hay fever, and up to the present time has had no symptom of asthma or the usual attack of rhinitis. During the year before, the turbinated bodies had been extensively cauterized from before back, but the posterior sensitive hypertrophies had not been touched and the previous season the attack of hay fever was not modified.

*Case 2.*—Mr. S., aged 40, has had hay fever for the past eight years; also suffered from asthma most of the time. At the beginning of the past season came for treatment, having the symptoms of a very severe attack of hay fever. The treatment was begun with chromic acid cauterization of the posterior sensitive hypertrophies, one side at a time. The improvement was immediate on the side first treated, then also on the other side after its treatment. The asthma gradually improved and has since entirely disappeared. There was also a ledge on the left side of the septum which was removed. Anterior hypertrophies were some snared and others cauterized. The recovery from most of the symptoms was immediate after the use of chromic acid.

*Case 3.*—Mrs. P., aged 42, has suffered from terrific migraine for about three years, mostly at menstrual periods, although at times from over-exertion, excitement and other irregularities of habits. Examination, in March, 1894, showed enlarged posterior hypertrophies as well as hypertrophy anteriorly. The posterior hypertrophies were treated first, followed by anterior treatment with the result of entire cure.

I might report more cases of the same sort, but these will suffice to show that Mackenzie's sensitive area and the sympathetic nerve supply of the nose have more to do with the most distressing symptoms of catarrh, hay fever, asthma and migraine than they have hitherto received credit for.

## ANTITOXIN IN DIPHTHERIA—RÉSUMÉ OF SOME REVIEWS.

BY B. BECKER, M.D.

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*Report of 121 Cases of Diphtheria Treated at the City Hospital, Urban, by W. Koerte.*—The first injections of serum were made in January, 1894, and were continued without interruption in all the children with diphtheria until the end of March. In consequence of a want of the serum the specific treatment was suspended until June, when it was recommenced until July 21. Then a second interval came, until the middle of September, from which time a third series of treatment with serum from the factories at Höchst-am-Main followed. The treatment, besides the use of the serum, was merely symptomatic. In all cases the diagnosis was based on bacteriologic examination. Out of the 121 cases treated with the serum, 81 were cured = 66.9 per cent., and 40 died =

33.1 per cent; that means exactly one-third of the patients. All the cases of diphtheria, treated from June, 1890, to Dec. 31, 1893, 1,160 in number—showed a mortality of 45.1 per cent. Between the periods of the antitoxin treatment (at those times when the serum could not be obtained) there was a mortality of 57 out of 106 cases = 53.8 per cent. These results, although not as favorable as those reported by Roux and Ehrlich, are apparently in favor of the value of the new remedy. For the exact estimation of these observations, however, it is necessary to divide all the cases in different classes, according to the severity of the course of the diseases. Koerte distinguishes: 1, *severe cases*, with grave intoxications. (*Prognosis dubia vergens ad malam*); 2, *moderately severe cases*, with grave local disease but without symptoms of grave general infection, (*Prognosis dubia*); 3, *mild cases*. Forty-three severe cases had a recovery of 41.8 per cent., a mortality of 58.2 per cent. Forty-seven moderately severe cases had a recovery of 70.2 per cent., a mortality of 29.8 per cent. Thirty-one mild cases had a recovery of 96.7 per cent., a mortality of 3.3 per cent.

Of special importance is the observation of the effect in children under 2 years of age. Out of fifteen children of this age seven died and eight recovered. Tracheotomy became necessary in forty-two of all the cases treated with serum, with twenty recoveries = 47.6 per cent., and twenty-two losses = 52.4 per cent. The average losses after tracheotomy, performed under the same indications before the use of the antitoxin, were 77.5 per cent. This remedy has therefore reduced this mortality by 25 per cent.

None of the children treated with the serum before tracheal stenosis was present had to undergo tracheotomy. Worthwhile of mentioning are the results of tracheotomy in diphtheritic patients under 2 years of age. Out of 108 children of this age who were operated from June, 1890, to March 31, 1893, only ten = 9.2 per cent. recovered, while out of eight cases who were treated with the serum three = 37.5 per cent. recovered.

Behring and his co-laborers have emphatically declared that a satisfactory result of the antitoxin injections can be expected only during the first few days of the disease. The earlier the treatment is resorted to the better the results. Koerte's figures prove the correctness of this thesis. Out of fourteen severe cases injected during the first three days, eleven recovered and only three died. In twenty-nine cases the serum could not be used before the fourth day; twenty-two of them died, seven recovered. From the moderately severe cases, who were treated early, eighteen recovered and five died, while from those cases of the same category who were not treated before the fourth day, only fourteen recovered and eight died.

Nevertheless, an early treatment does not absolutely cure all the cases. There are cases of diphtheria which produce a severe intoxication of the whole body so quickly that our treatment remains unsuccessful in spite of large doses of the serum. Koerte gives a number of clinical histories of patients, who died in spite of early treatment with large doses of serum after a short time from sepsis, broncho-pneumonia, nephritis, paralysis and heart failure. In a child, 1½ years of age, which was brought to the hospital with an apparently mild diphtheria and injected with serum on the fourth day of the disease, the condition became worse and worse until the pa-

tient died from general infection. Bacteriologic examination, however, developed the presence of streptococci only and no Klebs-Löffler bacilli.

No disagreeable secondary effect could be observed by Koerte during his experiments with the serum. Very conspicuous, however, was the rapid improvement of the general condition following the serum treatment.

Although the reported figures seem to allow the formation of a very favorable opinion in regard to the serum treatment, Koerte seems to be rather indefinite in his conclusions. He makes the remark: "Bacteriologists say that antitoxin, if early used, will almost surely cure the *genuine* diphtheria. They wish those cases excluded which are complicated by the presence of other bacteria or cocci. In regard to this, I must say that we, as practitioners, when we talk about cure and treatment of diphtheria, must keep in view the clinical symptoms and appearance of the disease, and that under this well-known and fully characterized picture also those cases belong which are described as mixed infections. Every physician will declare such a case a severe one of diphtheria. From this point of view it is at this time not probable yet, that antitoxin will cure *all* cases of diphtheria, in a broader sense. Also the assertion that in an early and sufficient use of the serum all cases of genuine diphtheria can be cured is not proved yet. There is the possibility that in various epidemics those cases of *mixed infection* are so frequent that they make a limit for the use of the serum. In spite of the rather favorable results which I have related, a longer continued observation at the bedside only can bring a decision as to the value of the antitoxin."—(*Berliner Klin. Wochenschrift*.)

A discussion of the antitoxin was brought up at the Medical Association of Munich, after the hearing of reports of cases by Bucher, von Ranke, Seitz and Emmerich. Ranke asserts that diphtheria at Munich is usually a severe affection. Out of 1,048 cases treated during the last seven years, 49.2 per cent. had a fatal issue. In 575 cases operative interference, intubation or tracheotomy, became necessary. The operated cases had a mortality of 65.2 per cent. In December, 1893, the first observations were made with the serum. The doses used at that time were too small, and the unsatisfactory results of the first series must be declared by this circumstance. At the *post-mortem* examinations of injected children, a peculiar form of infiltrations of the lungs was observed, which otherwise is unusual in children, consequently a causal connection of these pneumonic lesions and the antitoxin was thought of; later on, Ranke convinced himself of the harmlessness of the serum, and he left the before named suspicion an open question. The number of observations with serum at the children's clinic at Munich is too small to allow definite conclusions. A series of nine children were treated with Aronson's diphtheria antitoxin. Two of them died. In another series of ten cases with only one death, Behring's serum had been used. Although these results are remarkably good in comparison to those usually observed at Munich, we are not allowed to draw definite conclusions from them. It may appear surprising that in those cases which came to *post-mortem* examinations, the local diphtheritic process had not been ended yet after twenty-two and twenty-eight days, in spite of large doses of the serum. Emmerich in his remarks laid

stress upon the observation that in all the fatal cases of diphtheria at Munich, besides the Löffler bacillus also streptococci, staphylococci or the bacillus pyogenes fetid were found. The following resolution was unanimously adopted by the Association:

1. To give a positive opinion about the value of Behring's serum is not possible at this time; especially on account of the differences of diphtheria in regard to appearance and severity of the disease, only a longer and closer observation can have a positive effect. It must be recommended, therefore, not to expect an absolute panacea, which suggestion should be given to the public also.

2. Our experiences with the antitoxin are of such a kind that we consider it worthy of further investigations and trials, especially in clinical and polyclinical institutions, as those places the most fit for such experiments.—(*Munchener Med. Wochenschrift.*)

*Disagreeable After Effects from Antitoxin.*—Dr. Cuyrim, physician-in-chief to a hospital at Frankfurt-am-Main, published in the *Deutsche Med. Wochenschrift* the cases of his two assistants who both had used the antitoxin on themselves for light angina—the one of a diphtheritic, the other of a merely catarrhal nature. In the first case, the disease disappeared quickly, while convalescence was rather slow. Six days after the last injection (two had been made of 10 c.c. each) an itching urticaria-like eruption was observed at the region of the injections. The temperature was raised again to 39.5 Celsus. Swollen and painful glands were found on the neck, under the maxilla, at the elbows and inguinal regions. Headache and general feelings of sickness and discomfort. On the third day, pain in knee and elbow joints, muscular pain and the feelings of severe sickness were observed. Besides the urticaria, small, red non-itching spots were found at various parts of the body. It was not before the eighth day that all these symptoms and fever disappeared. Convalescence slow.

In the second case, the patient had taken only one injection. On the following day the place of injection was painful, the ability of walking was rendered difficult. Three days after the injection, loss of appetite, sleeplessness, weakness and a peculiar sensation in the limbs were observed. Two days later, severe pain of the neck, temperature 39.1 Celsus, disagreeable itching at the place of injection and at other places, swollen glands, sensation of severe sickness. On the sixth day of the disease, paresthesia in both hands was noticed, likewise pain in both arms, which troubled the patient badly. After the disappearance of all other symptoms this pain continued and was still present after fourteen days. Cuyrim positively traces these symptoms to the antitoxin. The injections had been made strictly aseptic.

We find another case of secondary effect from the antitoxin, published by Lublieski in the *Deutsche Med. Wochenschrift*. A child of 8 years with diphtheritic affection of the nose and throat received three injections of Behring's serum No. 1 (600 units). The local disease disappeared quickly and without trouble. Eight days after the first injection, swelling and redness of both foot joints, especially at the dorsum, was observed. On the following night an eruption like measles came out at the legs and arms, pain at knee, elbow and foot joints set in. Temperature 38 Celsus in the evening. The fever was still increased during the next few days, likewise the pain of the joints. The child was apparently rather sick. On the fourth day of the disease, the temperature reached

40.3 Celsus, the eruption appeared also on the swollen face. Slow recovery.

Four other cases of an urticaria-like eruption and pain of joints and muscles after the injection of antitoxin in diphtheria were observed and published by Scholz in the *Deutsche Med. Wochenschrift*. All these after effects were of a light nature, disappearing in three or four days.

*Prophylactic Inoculations with Serum.*—In a meeting of physicians of Alsace, held October 27, Dr. Wick reported that he had made prophylactic inoculations in ten children of different families, in which he was treating cases of diphtheria. Children over 6 years old received 2 c.c., younger ones 1 c.c. of the serum. Out of these children, two were taken sick on the fifth, and one on the sixth day after the injection with very mild diphtheria. Bacteriologic examination proved the presence of the Löffler bacilli.

At Königsberg, sixty-four children in thirty-five families were inoculated by the University Policlinic as a prophylactic measure. In the beginning  $\frac{1}{2}$  and later 1 c.c. was injected. The diagnosis was based on bacteriologic examination in the diseased brothers or sisters. Out of ten children, inoculated with Behring's normal serum, No. 1, four had diphtheria; out of eight inoculated with the six-fold Aronson serum, none; out of eighteen inoculated with the thirty-fold Aronson serum, two, and out of twenty-eight inoculated with the sixty-fold Behring serum, one became diseased. All the cases which were taken sick after preventive injections recovered and had the disease in a mild degree. (*Deutsche Med. Wochenschrift.*)

## ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Continued from page 169.)

### CHAPTER IV.

*Case 12.*—Yellow fever. Wm. Thompson; age 23; native of Germany has been in Louisiana eighteen months. Taken sick in the country with intermittent fever; returned to the city after a few days; was seized with a violent chill, followed by continued fever until day of entrance into the hospital. Large muscular man; blacksmith by trade. Entered Charity Hospital October 27. Patient had been in bed twenty-four hours with fever before entering hospital.

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1873						
Oct. 27	88	104	28	28	104.3°	104.3°
" 28	88	98	28	29	104 °	105 °
" 29	86	88	26	26	103 °	105 °
" 30	98	96	39	22	108 °	104 °
" 31	80	86	28	30	102 °	102.5°
Nov. 1	82	86	36	32	102.5°	102.8°
" 2	82	94	34	40	102 °	104 °
" 3	92	99	43	38	108.2°	103 °
" 4	90	94	34	40	100.5°	101 °
" 5	106	104	40	50	102.5°	102 °
" 6	106	118	36	38	102.5°	103.8°
" 7	126	129	35	56	100 °	104.2°

#### REMARKS.

October 27.—Was much excited; face flushed; gums red; tongue furred; eyes injected, hemorrhage from gums; some headache; cannot bear the gas light; great thirst; ice in small fragments, milk and brandy diluted with seltzer water.

October 28.—Did not sleep during night; relieved the bladder by the catheter; urine scant and high colored, loaded with albumen; ordered sulpho carb. of sodium 3ij in 6 powders, one powder every three or four hours.

October 29.—Did not sleep during night; restless; skin dry; great pain in region of kidneys; no urine is passed; ice cold injections caused the excretion of a very small quantity of light-colored urine loaded



with albumen. Hemorrhage from the gums profuse, also free epistaxis; patient greatly alarmed and restless.

October 30.—No improvement; takes little milk and seltzer water and brandy; skin is still dry; tongue dry and bleeding.

October 31.—Patient has not slept at all and is in a state of low delirium; passes his urine and feces in bed; lies in an apparently insensible condition, but taking nourishment in small quantities when forced upon him.

November 1.—No change, except for the worse; still in an unconscious state; low muttering delirium; cannot collect any urine; passes the small amounts in bed; severe hemorrhage from stomach and lungs; expectorates blood.

November 2.—No change; in same condition.

November 3.—Loud stertorous breathing; hemorrhage; blood still runs out of his mouth.

November 4.—Continues to grow worse; body emits a horrible stench; expectorates blood; blood oozes from nostrils and gums.

November 5.—Wild delirium, requiring two men to hold him in bed.

November 6.—Continues in state of wild delirium.

November 7.—Sinking rapidly; died 1 a.m., morning of Nov. 8, 1873, with profuse hemorrhage.

*Post-mortem Examination.*—Eight hours after death. Body of a deep golden color; mouth full of black vomit, which trickled down the side of the body; bladder contained not more than 5lj of light-colored urine; stomach was filled with black vomit, and capillaries were congested; kidneys congested and mottled; liver of a nutmeg color and oily when first seen, when washed and exposed to the air sections of the liver presented a true yellow color; had yellow flabby and fatty old adhesion in right lung; blood thin and watery. All organs showed capillary congestion. Gall bladder contained but a small quantity of bile.

*Case 1.*—Yellow fever, complicated with pneumonia. Wm. Thompson, large muscular man, blacksmith by trade; age 22; native of Germany. Entered Charity Hospital, Ward 13, Oct. 27, 1873. Has resided in Louisiana eighteen months. Went out to Bayou Têche to work on plantation; after remaining there two weeks, returned to the city, and after being in New Orleans one week, was taken with a slight chill, followed by fever October 27, the day upon which he entered the hospital. The following is the record of the pulse, respiration and temperature:

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1873						
Oct. 27	88	104	28	28	105.5°	
" 28	88	98	28	29	104 °	105 °
" 29	86	88	26	26	103 °	105 °
" 30	96	96	29	22	103.5°	104 °
" 31	80	86	36	30	102 °	102.5°
Nov. 1	82	86	36	32	102.6°	102.8°
" 2	82	94	34	40	102 °	104 °
" 3	92	99	43	38	103.2°	108 °
" 4	90	94	34	40	100.5°	101 °
" 5	106	104	40	50	102.5°	102 °
" 6	106	118	36	38	102.5°	103 °
" 7	126	121	35	56	100 °	104.2°

## REMARKS.

October 27.—Very much excited; face flushed; eyes injected; gums red; cannot bear gas light; hemorrhage from gums; entered evening of October 27; pain in head and back; hot skin; restless; anemia.

October 28.—Tongue very red at tip and edges; bled from nose at 1 p. m. and 7.30 p. m.; complaints of some pain in forehead, lumbar and epigastric regions and extreme capillary congestion; foul breath and odor.

October 29.—Complaints of intense headache and sleeplessness; epigastrum tender upon pressure and painful; great pain in region of kidneys; suppression of urine.

October 30.—Albumen and casts in urine; jaundice; capillary congestion; did not sleep during night; hemorrhage from gums.

October 31.—Jaundice; capillary congestion; prostration; suppression of urine; ice cold injections cause the passing of some urine loaded with albumen.

November 1.—Intense jaundice.

November 2.—Profuse bleeding at nose; blood oozes from tongue and nose; dullness upon percussion of lower lobes, both lungs; embarrassed respiration.

November 3.—Bloody sputa; blood oozes from gums.

November 4.—Bloody sputa and bleeding gums.

November 5.—Bloody sputa; blood oozes from tongue and gums and nose.

November 6.—Bloody sputa; blood oozes from mouth and nose.

November 7.—Bloody sputa; died at 12 p. m.

## NECROPSY TEN HOURS AFTER DEATH.

Body still warm; limbs, face and trunk full; surface of deep saffron yellow color; intense jaundice; lower dependent portions of head, neck, trunk and extremities mottled with dark purplish ecchymoses. Black vomit running out of corners of mouth. Thorax: Heart firmer and more contracted and of not so decided a yellow color as in uncomplicated yellow fever. Under the microscope, however, the muscular fibers were loaded with granular matter and oil globules. The pericardium contained two fluid ounces of yellow serous fluid. The right auricle contained a golden-colored clot, attached to the auriculo-ventricular valve. The formation of the clot appeared to be due to the supervention of the pneumonic in-

flammation. The lungs were congested; lower lobes of both lungs solidified, in state of gray hepatization and infiltrated with bloody purulent fluid. In the blood from the cavities of the heart, the majority of the colored blood corpuscles were normal in appearance; some were crenated and stellate in shape. No bacteria or vegetable or animal organisms were observed in the blood from the heart. Abdomen: Liver mottled upon surface, yellow and purple and bronze. Gives evidence of pervading malarial disease. The yellow fever deposit of oil globules and yellow granular matter was very evident in many portions of the liver. Under the microscope the liver was loaded with oil globules and granular matter and also contained black pigmentary matter. Gall bladder relaxed and apparently empty, contained about thirty grains of thick deep green, almost black, ropy liquid, which under the microscope was found to consist of desquamated liver cells, granular casts of the biliary tubes, and cells from the walls of the gall bladder, discolored by the coloring matter of the bile. The bile in cases complicated with malarial fever, presents a deep green color. Walls of gall bladder greatly congested and of deep purple color. Spleen enlarged to about twice the size and contained pigment particles. Kidneys congested; when washed, of deep yellow color. The bladder contained small quantity of golden urine, loaded with albumen casts and cells of tubuli uriniferi. Stomach and intestinal canal congested. Mucous membrane of stomach deeply congested.

*Case 2.*—Yellow fever; jaundice; severe pain in heart; slow pulse; death. James H. Campbell; age 48; native of New York; has resided in New Orleans twenty-two years; occupation, carpenter. Seized with pain in head, followed by fever Oct. 17, 1893. Entered Charity Hospital October 21.

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1873						
Oct. 21	90	94	26	30	102 °	103.5°
" 22	90	80	34	30	100.1°	103.5°
" 23	80	80	34	30	100.1°	100 °
" 24	77	78	30	26	99.2°	100.1°
" 25	80	82	28	27	101.7°	103 °
" 26	95	100	28	30	101 °	104 °
" 27	60	56	42	40	99 °	99 °

## REMARKS.

October 21.—Conjunctiva and skin very yellow; tongue red at tip and edges, coated and deeply furred in center; gums very red; patient emits a highly offensive odor.

October 22.—Jaundice, nausea and vomiting; bowels moist; very offensive smell emitted by patient; respiration rapid and panting; dull and drowsy.

October 23.—Patient complains of intense pain in the region of the heart, expressive of fright; in the evening partial suppression of urine; ice cold water administered by enema.

October 24.—During this and the preceding day the tongue and mouth have been so dry that the tongue is protruded with great difficulty; tongue furred and cracked; very red at tip and edges; intense jaundice; tongue swollen; speaks with great difficulty, dull and lethargic; urine contains albumen, granular casts and detached cells. Ice water injections into rectum has caused free secretion of urine.

October 25.—Tongue swollen, cracked and bleeding; jaundice intense; upper surface of tongue red and furred, under surface purple.

October 26.—There has been a marked rising temperature.

October 27.—Complaints of intense pain in right hypochondriac region; countenance anxious and disturbed; jaundice.

October 28.—Pulse slow, only 56 per minute.

Died Oct. 28, 1873, two or three hours after the last observation. Died with slow pulse, low temperature and rapid respiration. This patient entered in a state of intense jaundice and great prostration. Pulse so slow that it could not be counted.

*Case 3.*—Yellow fever; jaundice; urine contained albumen; rapid pulse; death. A. L. W.; native of Ireland; age 20; sailor; in port one month. Taken sick October 22, and was sent to the Charity Hospital three hours after beginning of illness. October 22, 1874, 8 p.m., pulse 125, respiration 35; temperature of axilla 104.2 degrees. October 23, urine contains albumen and casts; congestion of capillaries; face



very much congested; tongue red at tip and edges, furred in center; gums swollen and very red; great tenderness of epigastrium on pressure; 8 P.M., pulse 118; respiration 30; temperature 102.2 degrees; 8 P.M., pulse 120; respiration 32; temperature 104.1; urine loaded with albumen and casts; very scant. October 24, nausea and vomiting black vomit; can retain nothing on his stomach; 8 A.M., pulse 105; respiration 26; temperature 101.5 degrees; 8 P.M., pulse 102; respiration 25; temperature 102.4 degrees; urine scant, could collect but one fluid ounce; loaded with albumen and casts; black vomit continues. October 25, 8 A.M., pulse 96; respiration 24; temperature 100.2 degrees; 8 P.M., pulse 107; respiration 26; temperature 99.4 degrees; black vomit; urinary suppression; died shortly after last observation, October 26, 4 A.M. This case, which ran a rapid course, terminated with a temperature of the axilla but little elevated above the normal standard. The diminution of the rapidity of the action of the pulse and respiration, also corresponded with the diminution of temperature.

*Case 4.*—Yellow fever; jaundice; formation of bed sores and large abscess on thigh; death at the end of four months from effects of abscess of thigh; the pulse during convalescence was more rapid than in uncomplicated cases of yellow fever, which pass to convalescence and complete recovery, without the supervention of local inflammations. Emanuel Scheise; age 37; native of Germany. Has been residing on Frenchman Street. Entered Charity Hospital, Ward 25, Oct. 29, 1873. On entering the hospital the patient stated that he had been suffering with a high fever for three days. This fever was accompanied with violent pains in supraorbital, lumbar, and epigastric regions, and pains in the eyes and lower extremities. At the time of his entrance into the hospital the patient was jaundiced, had fever, nausea, and hemorrhage from the nose and gums. The capillary circulation was sluggish and the urine scant, albuminous, with casts of the tubuli uriniferi. The patient was treated with the sulpho-carbolate of sodium, 20 grains every four hours; ice water injections to the rectum, brandy and water charged with carbonic acid gas, iced milk, beef tea and ice bags to epigastrium. Although hemorrhage took place from nose and gums and jaundice supervened the patient passed safely through the active stages of yellow fever. When, however, convalescence should have been established, the pulse and temperature continued above the normal standard; the patient complained of great pain in left groin and thigh. The limb became enormously swollen. A large abscess finally formed which was opened on January 7 and discharged over half a gallon of offensive pus. The patient died February 24, after prolonged and intense suffering from the abscess and from several large bed sores, on the hips and over the sacrum. The following is a record of the pulse, respiration and temperature:

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1873						
Oct. 30	100	98	18	18	103.6°	103 °
" 31	88	92	20	20	100.6°	101.6°
Nov. 1	82	82	18	18	100.4°	101 °
" 2	78	88	20	20	100.6°	101.8°
" 3	100	98	21	24	103.8°	103.7°
" 4	100	..	22	..	102.6°	..
" 5	100	..	22	..	102 °	..
" 6	96	96	22	24	102 °	102.6°
" 7	86	84	20	20	102.4°	101 °
" 8	74	90	18	22	101.2°	102 °
" 9	70	80	20	22	100.6°	100.8°
" 10	82	..	20	24	100.4°	101.5°
" 11	70	110	20	24	99.7°	101 °
" 12	72	98	18	18	99 °	101.2°
" 13	85	98	20	22	99.2°	101.8°
" 14	100	98	18	18	100.8°	101.4°
" 15	94	..	20	..	100.4°	..
Dec. 1	90	110	20	24	100 °	103 °
Jan. 1	100	120	24	28	101 °	104 °
Feb. 1	110	140	28	30	101 °	104 °

## REMARKS.

October 30.—Complains of great weakness; conjunctiva of eyes yellow; surface slightly yellow; tongue very red at tip and edges; gums red and swollen; teeth covered with sordes; breath and odor of body very offensive; bowels constipated; passes urine freely; stomach irritable; tenderness of epigastrium; hemorrhage from gums and nose; thirst; great dryness of mouth and throat.

October 31.—Urine contains albumen and yellow granular casts, and cells from tubuli uriniferi; eyes congested, surface congested and yellow; pain in epigastrium, nausea relieved; conjunctiva of eyes yellow and congested; tongue red at tip and edges, and heavily coated in the center; gums red and swollen; urine high colored.

November 1.—Diarrhea; stools are very offensive and of a light yellow color; jaundice, capillary congestion; eyes congested, red and jaundiced; complains of pain in right ear.

November 2.—Complains of severe pains in groins; urine contains albumen casts and bile.

November 3.—Pulse frequent, full and strong; pains in groins very severe; lymphatics swollen and painful.

November 4.—Pulse frequent and strong; has fever; pain located in left thigh, which is swollen, painful and tender; albumen in urine, but diminished.

November 5.—Pain and swelling in thigh continue.

November 6.—Perspiring freely; pain in thigh very severe, it is necessary to use opium freely; the bowels are kept open and the patient supported with tincture of cinchona.

November 7.—Thigh swollen and hard and very painful; thigh painted with iodine, tincture of bark and sulpho-carb; alcoholic stimulants.

November 8.—Pain and swelling of thigh; applied ointment, compound of tincture of iodine and opium, f. 5ij and sulpho-carb. 3ij.

November 9.—Opium internally; with bitter tonics and alcoholic stimulants applied, together with the local applications to be productive of good.

November 10.—Pain less; improving; albumen in very small amount.

November 11.—Pain less; appears to be improving.

November 12.—Thigh not so painful, but still much swollen; patient sits up with some difficulty.

November 13.—Weak, but with some appetite.

November 14.—Pain and swelling in thigh continues; whole thigh from hip to knee swollen.

November 15.—Pain and swelling in thigh not so intense.

December.—During the remainder of November and during December swelling of leg continues, also hectic fever; temperature rises from 100 to 103 degrees; pulse 90 to 110.

January.—On the 7th of January abscess of thigh opened, discharging a large quantity of fetid matter; pulse report 100-120; temperature 101 to 104 degrees.

February.—During the months of February and January had sores formed upon hips and on sacrum; hectic fever; loose bowels; rapid pulse; great emaciation; fever; temperature from 101-104 degrees. Died worn out by fever and suffering Feb. 24, 1873.

In this case the patient passed safely through a severe attack of yellow fever, and then fell a victim to one of the occasional results of this disease, namely, abscess. The effects of the local inflammation in presenting the marked depression of the pulse are clearly shown in this case. I have recorded many cases illustrating the marked reduction of the beats of the pulse during the stage of so-called calm or depression and of convalescence in yellow fever, and will only adduce the following:

*Case 5.*—Yellow fever; jaundice; black vomit; hemorrhage from bowels; urinary suppression; fatal issue. Jacob Geir, native of Germany; age 39 years. Several years in this country. During the past seven months has been in the South, on a plantation near Baton Rouge. The white laborers, as well as himself were all attacked with fever. About two months before entering Charity Hospital, came to New Orleans, and was at that time suffering with malarial fever, which recurred at intervals up to the time of his admission. Admitted to Charity Hospital, Ward 22, Nov. 22, 1873, in the evening. November 23, 8 A.M., conjunctiva of eyes congested and yellow; skin of face and trunk yellow and congested; tongue red at tip and edges and furred in center. When the fingers are pressed upon the surface white spots remain into which the blood slowly returns and restores the florid congested appearance due to sluggish capillary circulation. Pulse 96; temperature 103.5 degrees. November 24, 8 A.M., pulse 84; temperature 101.2 degrees. Bowels loose during the night. Urine scant; nausea; threw up black vomit at 9:30 A.M. Reaction of black vomit strongly acid; urine albuminous, with granular casts of urinary tubes and desquamated cells from excretory tubes. R. Sulpho-carbolate of sodium 3 iij. Divide into six powders. One powder every six hours. 8 P.M., vomiting of black vomit continues. Since this has begun the temperature has progressively declined. Pulse 82; respiration 30; temperature of axilla 98 degrees. November 25, during the night passed by the bowels black excrements mixed with blood. Only three fluid ounces of urine have passed during the last twenty-four hours. Urine yellow, turbid, loaded with albumen, casts and cells. Casts and cells of deep yellow color. Great capillary congestion; dependent portions of body mottled and of a purplish yellow hue. Hands and feet cold; the depression of temperature extends up to elbows and knees. Pulse can be scarcely felt at wrists. Temperature 98 degrees; pulse 70; respiration 26. 6 P.M., temperature 100 degrees; pulse 60; respiration 24. Black vomit and bloody black discharges from bowels still continues. November 26, 8 A.M., insensible; pulseless; temperature 98 degrees; respiration 20. Died at 11:30 A.M.

*Case 6.*—Yellow fever; black vomit; death. *Post-mortem* examination three hours after death; characteristic lesions of yellow fever. Daniel McMenagale; age 18; native of Ohio; left his native State two years previous to the present attack; resided in Memphis, Granada and Vicksburg; came from the latter place, and has resided in New Orleans two weeks. Has had chills and fever at various times during the

past two months. Entered Charity Hospital Oct. 11, 1873, 6 p. m. I saw this patient for the first time at 8 a. m., October 12. Intellect dull; patient unable to give a connected account of the present attack of fever. Surface of body covered with petechiæ; gums red; tongue red at tip and edges; body of tongue coated with yellow fur. Epigastrium tender on pressure. Conjunctiva of eyes yellow and injected. Tongue cracked and bloody. Blood oozes from the tongue, and also from the gums. During the night the patient vomited freely, and the matters ejected from the stomach contained flakes of dark blood. Only a small quantity of urine, about two fluid ounces were passed, which contained albumen and bile, and casts of the tubuli uriniferi and excretory cells. Injections into the rectum of ice-cold water were ordered, and these appeared to restore to a limited extent the action of the kidneys: The following table embodies the prominent symptoms:

Date.	Pulse.		Resp.		Temp	
	M.	E.	M.	E.	M.	E.
Oct. 12	110	112	22	26	104.6°	105.5°
" 13	110	112	29	34	104.5°	104.7°
" 14	116	130	35	38	103.3°	103.3°

## REMARKS.

October 12.—Body emits a foul odor; surface covered with petechiæ: Intellect dull; tongue soft and cracked; blood oozing from cracks in tongue; tip and edges of tongue red; center coated with yellow fur. Conjunctiva yellow and injected. Capillaries of surface congested, giving a dusky, mottled appearance. Urine scant and contains albumen, bile and casts of tubuli uriniferi, and few cells. Nausea and vomiting; vomited matter streaked with blood specks. Treatment: Ice-water injections; ice-bag over epigastrium. Brandy diluted with water charged with carbonic acid. Feed milk and beef tea.

October 13.—Patient dull and stupid; action of kidneys feeble. Condition of intellect due in part at least to failure of function of kidneys and retention of excrementitious matter. Ice-water injections have increased to a small extent the excretion of urine, but the amount is still far less than normal. Urine contains albumen, bile and casts of tubuli uriniferi. Patient has thrown up black vomit in considerable quantities. Black vomit acid and contains urea. Repeat cold water injections and ice to epigastrium.

October 14.—Patient dull and lethargic in the exercise of the intellect. Talks incoherently; very restless; attempts to get out of bed and speaks of going home. Has passed a small quantity of urine, albuminous and loaded with casts (granular and yellow), and also contains bile. Great capillary congestion of surface; jaundice; spits up black vomit against the wall and over the bed like tobacco juice; the black vomit appears to come up without any effort. Can retain nothing upon his stomach.

Died October 15, 6 a. m.

During the night of October 14 the patient discharged black vomit from his mouth, over his bed and against the side of the wall. The black vomit appears to come up apparently without an effort. Surface of the body of an intense yellow, with great capillary congestion. Only a small quantity of urine was collected from the 12th up to the time of death, although the nurse states that the patient has "passed his water in the bed," after the administration of the ice-water injections. The application of bags of ice to the epigastrium did not arrest the nausea and vomiting. The sluggishness of intellect and delirium increased progressively from October 12.

*Post-mortem* examination, three hours after death: Body of a golden color; lower portion of a purplish, mottled appearance from capillary congestion. Dark brown blood, black vomit, issues from the corners of the mouth. Blood issues from the left ear. Thorax: Lower portions of lungs congested; otherwise normal. Heart: Muscular structures of heart present a yellow appearance, as in fatty degeneration of this organ: Under a magnifying power of 450 diameters, the transverse striæ of the muscular fibers were found to be indistinct, and the fibrillæ were filled with oil globules, and granular albuminoid or fibroid matter; the oil globules were also deposited around the fibrillæ. The albuminous substance of the sarcolem elements of the fibers were evidently in an altered and degenerated state, being resolved into granular matter and fat. Heart still warm, and its fibers filled with dark fluid blood, which coagulated and changed to the arterial hue when removed and placed in glass vessels. Under the microscope, with a magnifying

power of 450 diameters, the vast majority of the colored blood corpuscles presented a normal appearance, while a few presented a crenated and stellate appearance. The blood corpuscles adhered together, forming rolls, as in the blood of inflammation. The blood contained oil globules. The dark pigment particles, as well as the colored corpuscles charged with pigment particles, characteristic of the blood in true malarial paroxysmal fever were entirely absent. After careful microscopic examination, I discovered no living organisms, neither bacteria, fungi, algae, or animalculæ of any description in the blood. Reaction of the blood very slightly acid. Fibers diminished in amount. Clot voluminous and soft. Upon standing, a small amount of golden-colored serum, containing also some colored corpuscles, was pressed out of the coagulum; the fibrin of the clots, however, manifested very feeble contractile powers. Pericardium greatly congested, the smallest vessels being distinctly seen, filled with red blood. This congestion of the pericardium appears to be characteristic of yellow fever. Abdominal cavity: Liver presented a yellowish mottled appearance. The mottled appearance of the liver was due to the congestion of the hepatic capillaries within the central portion of each lobule.

The periphery of each lobule, in the area occupied by the portal system of capillaries, presented the deep yellow color characteristic of the liver in yellow fever. Upon careful inspection of the surface, and of sections of this organ, many portions were found to be without any marked capillary congestion of the hepatic capillaries, and presented a uniform yellow color. Upon a superficial examination of this organ, as it lay in its natural position in the abdominal cavity, the appearance resembled that of the liver of health, the color approaching Spanish brown; when, however, it was carefully examined, within and without, the characteristic change induced by the disease was evident; and when sections were subjected to the gentle action of water, and the excess of blood pressed out of the capillaries the color was uniformly yellow, as in the livers of those who had died at a more advanced stage of the disease.

The depth of color of the liver in this case was due to two causes: 1, to the great congestion of the hepatic (central) capillaries; and 2, to the presence of dark granular masses of hematin, scattered chiefly through the meshes of the portal system of capillaries, and which had evidently been deposited during the preceding attacks of malarial paroxysmal fever.

It is probable that such cases as the one now under consideration have led superficial observers to assert that the liver presents no characteristic lesion in yellow fever. Under the microscope, the liver was observed to be loaded with oil globules. Fatty matter in the form of oil globules of various sizes, was accumulated within and between the cells. The structures of the liver were firm, and the blood also changed to the arterial hue upon exposure to the atmosphere. While, therefore, the microscopic examination revealed the effects of preceding malarial disease, at the same time, it also clearly illustrated the pathologic changes induced by the yellow fever poison. The muscles of the walls of the abdomen and of the chest, when exposed to the atmosphere assumed a brilliant scarlet color, wholly unlike the dark color of the muscles in malarial fever.

Gall bladder entirely empty; contained no bile. Kidneys: Congested and of a yellow color, resembling

the color of the heart and liver. The yellow color of the kidneys was especially evident when sections were washed under a gentle stream of water. Sections of the kidneys, with Valentine's knife, examined under magnifying powers of various degrees, revealed the presence of oil globules, granular albuminoid or fibroid matter, and detached excretory cells within the Malpighian corpuscles and tubuli uriniferi. The blood vessels of both the cortical and medullary portions were congested with blood. Both the cortical and medullary portions presented a yellow granular appearance. Many of the uriniferous tubes presented a yellow opaque appearance, being completely filled with yellow granular matter, oil globules of various sizes and detached epithelium. This yellow opaque matter resembled in all respects that composing the casts of the tubuli uriniferi found in such abundance in severe cases of this disease. In some tubules the epithelial cells could not be discerned, either because they had been detached and removed, or else because they were obscured by the oil and granular matter with which the structures were infiltrated. In portions of the kidneys the oil globules were observed around as well as within the tubuli uriniferi.

**Bladder:** The urinary bladder contained about eight fluid ounces of golden or orange-colored urine. Reaction of urine, acid; specific gravity 1012. Albumen present in considerable amount. Under the microscope, detached cells from the tubuli uriniferi and yellow granular casts were observed in considerable numbers; but as usual there were no crystalline forms of urinary deposits. No living animal or vegetable forms were observed in the urine. Urine contained no grape sugar.

**Alimentary canal:** Stomach and intestines somewhat congested upon the exterior. Mucous membrane of stomach moderately congested in some portions, and in others patches were observed of a deep red color; it was also denuded of epithelium in some parts.

**Black vomit:** The stomach contained about eight fluid ounces of thick, grumous, dark, purplish black, bloody looking black vomit. Under the microscope the black vomit was found to contain some oil globules of the milk administered to the patient, with numerous black masses of hematin, altered blood corpuscles, epithelial cells and patches, and fibroid and granular casts of the mucous membrane of the stomach and broken capillaries.

The black vomit, although taken from the stomach only three hours after death, and while the body of the subject was warm, emitted a foul, putrid odor, as of decomposed blood. Upon careful microscopic examination I discovered no animalculæ or vegetable plants (fungi or algæ) in the black vomit. Reaction of black vomit slightly acid.

The spleen was enlarged and somewhat softer than in health, but much firmer than in recent cases of malarial paroxysmal fever.

(To be continued.)

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL, WASHINGTON, D. C.—At the regular monthly staff meeting held on the 2d inst., the Senate Committee on appropriations has reported favorably on the item of \$15,000 for maintenance of the hospital.

## NEW INSTRUMENTS.

### A MASTOID GUIDE AND SEPARATOR.

BY SETH SCOTT BISHOP, M.D.

PROFESSOR OF OTOTOLOGY IN THE POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL OF CHICAGO.

This instrument is so constructed as to serve two purposes in operations on the external auditory canal and mastoid process. The end of the handle is fashioned into a periosteum separator for the canal, and is useful in Stacke's and other operations that require the separation of the integumentary canal from the bony meatus.

It is used as follows: After the incision is made behind the attachment of the auricle, and the mastoid periosteum is lifted from the bone by the large elevator as far as the border of the bony canal, this small separator is introduced between the posterior osseous wall and its periosteal covering with the convex surface of the instrument against the bone. The end of the handle is then pushed carefully inward with the scraping surface directed firmly against the bone until it reaches the middle ear. The instant it arrives at this cavity can be determined by the fact that resistance to the onward progress of the separator ceases at that point. Now the cutaneous canal and periosteum are lifted as far as necessary by lateral movements of the scraping edges.



In caries of the bone in the tympanic cavity, great care should be exercised to avoid wounding the facial nerve, in case the Fallopiian canal is diseased or partially destroyed. This precaution, however, is just as necessary when knives are used, as is the present custom.

This separator has several advantages over the knives: It preserves the periosteum; it does not cut the cutaneous canal; it does not chip and hack like the knives; it is easier to manage; it is adapted to both large and small canals, and it reduces the number of instruments to be looked for and handled. The scraping edge should not be sharp enough to cut the fingers of the assistant who holds it as a mastoid guide.

Its advantage over the mastoid directors now in use is in the shape of its foot plate, which is tapering from heel to toe. This form admits of its being introduced into the aditus or the antrum through an opening that is too small for the present broad instruments to enter. Its wedge shape facilitates its passage through a narrow opening in the bone, when the latter is softened by caries, where the other guides refuse to enter.

I have found by a series of experiments with this instrument that the facial nerve can be protected from injury by the chisels, gouges and curettes if the guide is held with the foot plate resting in the aditus ad antrum, and the handle so directed across the patient's cheek as to lie in a line with the lower border of his upper teeth or lip. In this position the foot plate lies over the Fallopiian canal, and must be held steadily in this position so that the operator's

instruments will come in contact with the guide before they can penetrate deeply enough to reach the Fallopian canal and facial nerve.

This instrument was made for me by Charles Truax, Greene & Co., of Chicago.

Columbus Memorial Building.

### Proceedings of the First Meeting of the American Academy of Railway Surgeons.

Held at the Grand Pacific Hotel, Chicago, Ill., Nov. 9 and 10, 1894.  
(Continued from page 134.)

FOURTH SESSION, SATURDAY, NOVEMBER 10, 9 A.M.

DR. H. J. MAYNARD in the chair.

DR. A. RHU, Marion, Ohio, was called upon to act as Secretary during the temporary absence of Dr. Webb J. Kelly.

DR. R. S. HARDEN, Surgeon Erie Railway Co., of Waverly, N. Y., read a paper on

#### THE BEST METHODS FOR APPROXIMATELY DETERMINING THE AMOUNT OF DAMAGES SUSTAINED BY A TRAUMATISM, FROM A MONETARY STANDPOINT.

In determining the proximate amount of damages by traumatism from railway accidents, we will invariably find ourselves embarrassed, and as Dr. Fitzgerald, of California, says, "involved in metaphysical distinctions and subtleties difficult of satisfactory application." Each case must be decided with reference to the circumstances peculiar and applicable to it. First, I believe all elements not proximately the cause of such traumatisms, should be eliminated. The railway corporation should not be held responsible for remote results, dependent upon aught else than actual negligence or fault of their own. Certainly, if a person suffer from a traumatism, and at the same time from psychic shock, the latter should be carefully considered or eliminated, and damages considered mainly upon objective indications upon the same lines followed by accident insurance companies. Prospective claim for damages, coupled with the inevitable hypnotic element, render the effort to determine the amount of actual or approximate damages satisfactory to claimant, even upon a basis of pure justice and equity, extremely difficult.

Sympathy for the injured and popular sentiment against wealthy corporations evolves suggestion, and prospective damages excites auto-suggestion, the latter stimulating the imagination and in time, if the case be not settled, aggravating the actual objective conditions, and causing subjective and psychic disturbances realistic to the hypnotic mind of the patient, which are often serious in themselves and sometimes even fatal. These well authenticated conditions exemplify the importance both to the injured and the company of early settlement.

In my own experience as authenticating physician for insurance companies, I have often heard the expression by attending physicians that they found it extremely difficult to cure their patients on account of their expectancy of prospective claims or benefits, hence, delay in settlement of claims against the company is attended with increased and increasing liability on account of the development of neuroses and other conditions resultant, it may be, from suggestion and auto-suggestion or hypnotism purely; but at the same time, to the claimant tangible, and before the courts often considered as proximate sequences of the original traumatism. "A result may be physically secondary and consequential, and yet in legal contemplation be proximate."—(See Col. Report, Vol. IV, page 345.)

In determining approximate amount of damages it should first be ascertained whether the company's act is the proximate cause of the injury. The legal test is—and we must constantly bear that in mind—"Was the injury of such character as might reasonably have been foreseen or expected as the natural result of the act complained of?" "A party is not, in law, chargeable with results which do not naturally and reasonably follow as the consequence of his conduct."—(Sackett's Inst. to Juries, page 274.)

The decision of the Supreme Court of Pennsylvania in the case of Ewing vs. Pitts., Cin., Chi. & St. Louis R. R. Co., has an important bearing upon this point also. While we are not to treat this subject from the standpoint of the claim agent we must bear in mind, as we proceed, the legal

aspects which in all cases may be prospective. We cite the above case reported in *The Railway Age*, Feb. 19, 1892.

The syllabus reads as follows: "Permanent injury to the nervous system resulting from fear caused by a collision on defendant's road, due to defendant's negligence, in consequence of which the cars were thrown against the plaintiff's dwelling house in which she then was, will not support a cause of action; the permanent injury is not the natural result of negligence complained of." Continuing the court says: "It is plain from the plaintiff's statement of her case, that her only injury proceeded from fright, alarm, fear, nervous excitement and distress. There is no allegation that she had received any bodily injury. If mere fright, unaccompanied by bodily injury is a cause of action, the scope of what are known as accident cases would be greatly enlarged. For in every case of collision on a railroad the passengers, although they may have sustained no bodily harm, will have a cause of action against the company for the fright to which they have been subjected."

Thus we find, as a matter of law, damages to be reasonable must be the natural and reasonable result of the company's act or negligence. The liability of the company having been already determined or admitted, we then come to the question of reasonable approximate monetary damages. We must now take into account many circumstances, among them:

Mental distress or anxiety.

Psychic or hypnotic elements.

Loss of time and its actual monetary value.

The approximate amount of permanent injury.

The approximate effects of traumatism upon the expectancy of life.

Constitutional diseases and previous conditions.

Prospective damage by impairment of earning a livelihood.

Deception, means of.

Importance of early settlement as a means of restoration to health, and the duty of the railway surgeon to place the matter before the unfortunate claimant in its true light.

Many other matters might be mentioned, but the scope of this paper forbids.

Among the leading methods of examination, we will first emphasize the importance of avoiding suggestive questions, (the importance of this will be explained fully in other portions of this paper).

Referring to instruments of precision, we will not often find their use necessary; occasionally in the hands of the specialist, the dynamometer, audiometer or aesthesiometer may be found of service, and likewise the electric battery, but the use of the latter is exceedingly unreliable as a test of nervous or muscular excitability, if we are to accept the views of prominent authorities, and it has been thoroughly demonstrated that the preservation of normal faradic excitability in a muscle, does not prove that the muscle is not paralyzed.

1. Probably the first circumstance of importance in our examination and approximate estimate of damages, will be the mental anguish or distress of the claimant, consisting perhaps of grief and sorrow over the loss of a limb, becoming deformed, or suffering impairment of future earning capacity, etc. The courts having decided such mental anguish and grief to be proper elements for damages. (See case *Schmitz vs. St. Louis, I. M. & S. R. Co.*) The court in this case declares: "Mental anguish in a boy 9 years of age, consisting of grief and sorrow over loss of his limb, and becoming a cripple for life, is a proper element for damages in an action by him for injuries sustained by the alleged negligence of a railway company at a highway crossing," also that "prospective damage by the impairment of plaintiff's capacity for earning a livelihood after his majority, is a proper element in an action for personal injuries by a minor 9 years old, although his petition contains no specific allegation in regard thereto, and there is no direct evidence on the subject."

2. We should consider the psychic or hypnotic features of the case, bearing in mind that human nature would not be what it is if expectant pecuniosity did not in some measure hypnotize the claimant. There are many cases on record which we will not, for want of space recall, where slight and unimportant injuries developed various emotional and hysterical symptoms, followed by preferment of claim for damages, and where such psychic neuroses have developed into very serious mental trouble, and resulted in large amounts being awarded the plaintiff by the jury and followed by a complete restoration to health.

Oppenheim, who is probably the highest authority we can quote, says: In his experience and in his view, psychical disturbance and change, amounting almost to insanity, have



a more prominent place in the history of accident cases than is generally accorded them. He speaks of anxiety growing into real pathologic entity. If this be true of the German, then we should certainly find it more frequently among our blended nationality in this country who are, as a rule, of a highly nervous temperament. Charcot says that "traumatic suggestion" often takes the place of "oral suggestion." Sir James Paget declares the fault is rather in weakness of the will than in its perverse strength and that when the patient says: "I can not," it looks like "I will not," but it is "I can not will." He says hosts of cases establish this fact that patients will not or can not make the necessary effort to resume work so long as the settlement of their pecuniary claim is unaffected.

Apropos of this element, and perhaps disproving fraudulent intent, is the statement of Brouardel and Pouchet that they discovered in cases hypnotized into convulsions the convulsive ptomaine, and in one greatly depressed and shocked an anesthetizing ptomaine; probably these ptomaines are the results of psychic shock. Seguin says it has been known for several years that in perfectly healthy persons serious nervous symptoms may be produced by hypnotic or by non-hypnotic suggestion; he also mentions a source of persistence and aggravation of symptoms, strangely overlooked by nearly if not all writers, namely, "sympathetic care." In my own experience this has for years engaged my attention. A long-faced, kind-hearted and sympathetic nurse or attendant I have found as fatal, in some cases, especially those of traumatic neuroses, as the bite of a cobra. How many present ever saw a case of "traumatic neuroses" complicating a severe external traumatism? It rarely does so. A passenger, drunk or asleep, escapes the symptoms of "traumatic neurosis" in great measure, at least it is so admitted by all writers. They are not hypnotized by the horrifying excitement of their environment.

The fact that cases of psychic neuroses are long in recovering, or perhaps do not fully recover, Dr. Seguin claims is an argument that there is organic lesion.

Many cases of supposed malingering are, no doubt, honest types of "hypnotic neuroses." We should take this fact, now so well authenticated, into account, and consider carefully every feature of the case. It is my opinion that cases of glaring fraud are not common, but a very large element of unconscious and unintentional fraud nevertheless exists in these cases of traumatic neuroses or subjects of auto-suggestion. In private practice we are constantly misled by our neurotic patients, where no other element exists to influence deception than one of morbid exaction of sympathy or desire to cause their friends to share in their sufferings. Patients will manifest the greatest surprise if it be suggested that they should resume work. When a man has been prostrated by illness or injury and convalescence has set in he must make some voluntary effort to regain his former activity.

3. *Loss of Time and Its Actual Value.*—This will depend in large measure upon the conditions and circumstances attending each case. We must consider in this connection only damages for actual value of time lost. We shall refer, in a classification of injuries commonly met with, to the approximate value of time lost, etc. The practical question is, What is the actual pecuniary loss? The party suffering from a traumatism may claim that they would not have had such an injury or accident with its attendant risks for a large amount, but we do not take into account solace of that character. The courts have so ruled.

4. *The Approximate Amount or Extent of Permanent Injury.*—In the mind of the traumatized sufferer, this element we will usually find exaggerated. The courts and juries have never imposed upon the surgeon that he should promise recovery, or contract to unite bones which have suffered fracture, and I believe it is also a fact that courts of law do not, as a rule, find against corporations or defendants in litigation cases, damages for aught but such conditions as cause actual pecuniary detriment; hence we must exclude deformities which do not involve loss of function and also eliminate fright neuroses, which, though permanent perhaps in character, are not properly to be considered as the proximate sequence of the company's negligence or fault.

It is at once evident that a deformity or neurosis which involves a permanent impairment of function and resultant loss throughout the balance of the life of the party should be considered, and compensation corresponding to the pecuniary loss in each case advised. Such cases are extremely rare, aside from the injuries attended with loss of limb, ankylosed joints and severe sprains, accompanied with rupture of tendons or ligaments. We should exercise extreme caution in all other cases of alleged permanent injury, as

the expectancy of monetary reward is notoriously a prominent factor as an incentive to fraud. Thousands of well authenticated cases have been reported, and I have myself testified to permanent disability in more than one case and found, to my disgust and chagrin, that the payment of a handsome award for the alleged permanent damages was followed promptly by a rapid recovery. A case in point, reported by my uncle, Dr. Lewis A. Sayre, will illustrate this feature, where a man was treated by him for a fracture of the spine, by suspension and plaster jacket, resulting in perfect recovery two years subsequent to a railway company's paying him a judgment of \$30,000 for permanent disability.

The mention of this case calls to mind the astounding fact lately published that the railways of Europe paid, prior to 1888, for spinal injuries alone, upwards of two million dollars. In the light of the present day, and largely as a result of the brilliant and remarkable efforts of the members of the National Association of Railway Surgeons, the fact is made clear to railway managements that a large share of this money was fraudulently obtained. The mimicries of spinal tenderness are often simulated, and it is now a recognized fact that spinal tenderness, by itself, has but little significance in reference to diseases or injury to the cord. In considering the permanent character of alleged spinal injuries we should learn an important lesson from the observations and experiments of Manley upon seventy-one human beings and twenty-two animals and also the experiments of the late Professor Watson, showing the extreme improbability and rare occurrence of permanent injury to the spinal cord from extrinsic or excentric injuries; also that injury to the spinal cord is exceedingly rare in traumatisms not involving fracture. We should also bear in mind that many cases of functional paraplegia have been observed to recover after settlement of claim.

In a digest of 400 consecutive cases of railway injury by Dr. Howard J. Williams, of Macon, Ga., 4 cases of apparent spinal traumatism occurred, 2 of which proved to be shams, 1 was attended with fracture and 1 with hemorrhage into the cord. Among a much larger number of cases of railway traumatism in my own practice during the past twenty-two years, I have met with but one case of spinal injury and that was attended with fracture, followed at once by paraplegia, and death after several years.

Pope, the eminent surgeon, says, "After tabulating 230 cases of spinal concussion from railway injuries, that the great majority of them were tinged with the coloring of imposition."

Pain in the region of the spine is not, in itself, indicative of anything more serious than muscular or ligamentous strain or "entasis" as it is designated by some French authors, and cystitis often ascribed to paralysis of the neck of the bladder, will often be found to be simply the result of residual urine while in the recumbent position. Numbness and "tingling" may be symptoms of significance, although subjective, but is often due to local or external injury.

5. *The Approximate Effects of Traumatisms upon the Expectancy of Life.*—In determining this element or factor from a monetary standpoint, we must take into account the age and previous conditions of health of the injured party and the degree of shock. It is a well established fact that those past middle life suffering from severe traumatism, attended with serious shock, do not so fully recover therefrom, and it is a matter of common experience and observation that they do not attain to the usual period of longevity in many cases. It will also be well for us to bear in mind the fact that a feeble constitution, or one enfeebled by disease, is more likely to be shattered or permanently injured and life itself or the expectancy of life cut short. These and other like conditions bearing upon the expectancy of life, should be noted and considered in mitigation of amount of monetary award for damages, as the company is not responsible for conditions not naturally and actually the result of their negligence or fault. If the life be cut short by reason of previously existing disease, or as a result of prior injuries in any degree, then we should eliminate to that extent, approximately, the liability of the company and the amount of award.

6. *Constitutional Diseases Having an Important Bearing upon Traumatisms.*—We will find it important to consider carefully the indications pertaining especially to phthisis and syphilis, bearing in mind the very large percentage of the population affected in some degree by these formidable constitutional conditions. We will very often find serious traumatic results complicated by these insidious enemies of the human race, both of which hide behind the mask of secrecy. Sagacity and tact are requisite to ferret out these and all



other conditions, not actual sequences of the company's fault, that exact justice be done to both parties; and while the courts do not usually debar from compensation on account of these taints, we must consider them in order to form a correct estimate of the probabilities of recovery.

Herbert W. Page, M.A., M.C. Cantab., F.R.C. Surgeons of England, in his excellent work on "Railway Injuries," 1892, says: "That while victims of railway collisions are not by any means exempted from liability to suffer from every form of lesion of the spinal cord and its membranous coverings, accumulated experience leaves no longer any doubt that these grave results are most uncommon and that it is the extra-spinal structures which, in ninety-nine out of a hundred cases, bear the brunt of the violence and suffer from it," and "that secondary and remote degeneration of the cord, in cases where there has been no distinctive evidence of injury, is very rare indeed." It would appear from these brief references to the phantom "railway spine," and the views of the highest authorities that we must not consider spinal affections or traumatism even, when attended with syphilitic taints, as permanent conditions entitled to monetary compensation as such.

7. *Prospective Damage, by Impairment for Earning a Livelihood.*—This we referred to in the beginning of our paper, quoting from "A Page of Law," from notes of recent decisions by the courts in *The Railway Surgeon*, of Sept. 11, 1894. We consider this, as referring more particularly to minors. It may be there is no present disability on account of the age of the injured, but in justice and equity we must consider his future, and the probable impairment of earning capacity based upon the nature of the case, his environments, prospects, etc. The subject is covered under the head of permanent injuries, etc.

8. *Deception.*—Not in the language of sentiment, but of sober fact, who can measure the extent to which people will go in this direction, and we are not now speaking of auto-deception but of the wilful malingerer? Herbert Page says: "The means of deception are curiously alike." This, because they learn through the press of symptoms of disease and injuries, or acquire such knowledge by suggestion from friends; but we will only allude briefly to this element; its powerful influence in railway cases is notorious and in this day thoroughly understood.

9. *Importance of Early Settlement.*—We should exercise care in early settlement that no injustice be done the claimant. The company can afford to be liberal with him, and perhaps award him in excess of what even he himself or his friends might consider ample compensation for actual damage sustained. They can afford this in many cases for the reason that, as a rule, they save money by so doing on account of many features already mentioned in this paper, but in my opinion, it becomes our duty not as claim agents, but as honorable members of an honored profession to make plain to the claimant the advantages to him from an early adjustment of his claim, not from a monetary point of view, but with regard to his own physical welfare. What does money amount to, obtained after years of litigation and mental worryment, which, in itself, often completely breaks a man down, compared with his health? He should be shown the physiologic and psychologic facts that are so well authenticated as tending to compass his physical and mental impairment. It is certainly a well recognized fact that early settlement is, in many cases, a curative agent.

#### CLASSIFICATION OF INJURIES.

In attempting a classification of the more important traumatism, those commonly met with in railway practice, and the best methods of obtaining the approximate amount of monetary damages, we must consider the fact, now so well established, that the consequences of railway injuries are more grave than those attending accidents in other branches of industry; this both on account of the nature of the violence producing them, and from the fact that nearly all railway traumatism are septic when they come under the care of the surgeon. Often the shortsightedness of the railway company, in not fully comprehending the economic value of competent and skillful treatment at the hands of surgeons fully abreast of the times, and the failure to adopt a surgical service that would result in the selection of a staff of such skilled and experienced surgeons, results in a large monetary loss to the stockholders of such corporations. I will only allude to two cases, among many thousands of like nature. One, where \$20,000 was obtained as a verdict, in lieu of \$5,000, which would have been the probable limit if the injured man had received proper treatment. The doctor in this case—for he certainly was not a surgeon—applied

elastic constriction upon the proximal portion of the extremities for forty-eight hours, and gangrene supervened with the medico legal results mentioned. The other case I have already mentioned, that reported by Dr. Lewis A. Sayre. Decisions of the courts, holding the company responsible for conditions following—even where clearly the result of such improper treatment—indicate to us that we can not eliminate damages in any degree on that ground.

1. We will consider compound fractures, as they are undoubtedly much more frequent than simple fractures in railway surgery and fraught with vastly more serious results especially, as we have indicated, in the hands of surgeons who do not practice aseptic surgery, and strange as it may sound to you experienced gentlemen, at least 50 per cent. do not. Only a few years since such conditions were expected to suppurate and granulate, and "laudable pus" was an indication of successful treatment, and the monetary damage and loss greatly enhanced thereby, it being generally conceded that a compound fracture would entail double the time in healing and be attended with many times the cost of medical attendance over a case of simple fracture. Any rules or schedules of fees for such injuries made ten years ago, certainly would require revision at this time, as most cases of compound fracture treated under strict aseptic principles are but little if any more formidable, or attended with much greater monetary damage to the claimant than in the case of simple fracture. In a given case of compound or comminuted fracture in which we find the external wound has healed by first intention, differing but little, if at all from the simple fracture, and where no great blemish or deformity remains, or any loss of function is apparent, we will not usually find it incumbent upon us to consider any element other than loss of time and its value, as permanent loss of function is very rarely observed following the conditions described; we should, however, bear in mind the approximate amount of time requisite for repair and restoration to normal degree of useful function, remembering always that muscles are only restored to vigor and normal power after fracture, by voluntary effort and proper exercise. Many a patient has become a hopeless cripple, simply because he "could not will," or did not, at any rate, exercise his will power—as Dr. Seguin puts it. In these cases the courts seldom make any exception, therefore, we must often find it necessary to consider such conditions. Under favorable and proper conditions we will be able to approximately determine the extent of lost time, from the observations of surgeons of large experience, but in individual cases it will vary somewhat.

1. *Fracture of Femur.*—From my own experience and that of others, I should consider in a case of compound fracture of the femur, that the degree of disability was total for at least six months, and partial six months; and at least four months of this time we should consider that total helplessness obtained, requiring an attendant. In this case we should also make an exception to ordinary fractures, compound or otherwise, on account of the inevitable shortening and the fact that but few people suffering this fracture escape some degree of deformity. In estimating the monetary damage this must be considered and aside from this, I believe, as compared with other fractures of extremities in continuity the damage would be four-fold. It is comparatively easy for the claim agent to approximate the amount by methods familiar to him, and followed by the Pension Department, taking the simple fracture of the lower extremity or forearm as a basis or starting point. Fractures of femur—intra-capsular—are so exceedingly rare in railway practice—as aged people to whom they are common, are infrequent travelers—they need scarcely be considered, but on account of the fact that they seldom if ever unite by bone, and that they are attended by serious deformity, the monetary damage exceeds by far that of any other, unless it be fracture of the pelvis.

2. *Simple Fracture of the Femur.*—Excluding cases of non-union—such fractures are exceedingly rare—and the cause of such non-union, usually some dyscrasia, or lack of osseous element, the fault of the patient's own system, we will not usually find the damage much, if any less, than in the case of compound fracture of the femur, provided perfect asepsis has been followed out in the latter. Taking into account, however, the greater expenses attending this fracture—about three times that of simple fracture of the arm or leg—and the greater degree of suffering, tedious convalescence, slow restoration of muscles to their former activity, and from the functional ankylosis of the joints, and the slight deformity resulting from what Prof. Frank Hamilton declares the "inevitable shortening," we must consider them,

and approximately determine the damage, after taking into account the claimant's circumstances, earning capacity, etc. as indicated in previous classifications.

Fractures of the femur near, and involving the knee joint, on account of resulting ankylosis, and perhaps destruction of the joint, are much more serious, and should be classed with compound fracture of the femur not treated aseptically.

3. *Compound and Simple Fractures of the Leg.*—We classify them together, because as before stated, the approximate damage is, or need not be, under asepsis, but little if any greater in the former than the latter. Fractures in this region are undoubtedly oftener attended with non-union and deformity than in the upper extremity; in other respects the conditions and considerations obtaining with respect to damages are about the same; possibly a slight difference as regards the period of convalescence, should be considered. Fractures of the lower extremity, not having so perfect a circulation, process of repair does not so quickly or certainly follow. Cases of non-union or necrosis seriously impair the nervous system, and through the agency of sepsis break down the whole system and render the question of damages a serious one, and such cases if brought into the courts are often attended with judgments for large amounts. This should be borne in mind. If such conditions be attributed by the claimant to fright or shock at time of injury, then we should consider the decisions of the courts bearing thereupon which I have quoted; and for the simple reason that but very few coincide in their views with these decisions, I will enochao upon your time by quoting a recent decision from the *Medico-Legal Journal* of New York, of September, 1894. In *Haile Curator vs. Texas and P. Ry. Co., United States Circuit Court of Appeals, 60 Federal Reports, 557*, it was held that, "when a passenger on a railway train receives no bodily injury in an accident, caused by the excitement, hardships, and suffering resulting therefrom, the company is not liable in damages therefor, since insanity is not a probable or ordinary result of exposure to a railway accident." In the light of this and former decisions quoted, we must not consider fright or psychic shock. Non-union or necrosis would not be the "ordinary result" of such conditions, and surgical experience has fully proved them to have invariably resulted from well-known systemic conditions in the vast majority of cases.

4. *Fracture of the Arm and Forearm.*—In these fractures we will find the same general conditions to be considered as already mentioned in other fractures. We should consider the difference in right or left, as the usefulness of the member is not so important a factor in the left as in the right arm. A person suffering fracture of the former will not be so long disabled as in the latter, consequently the element of lost time and its value, differs materially. Considerations of permanent injury will seldom attach to fractures of the arm or forearm, unless complicated with injury to joints, which will be classified separately.

The slight deformity usually following fracture at the wrist, (Colles fracture) if not attended with loss of function must not be taken into account, as such slight deformity is the "proximate and usual result," under the most approved treatment.

The approximate amount of damages in case of fracture of the arm, is a proper basis of damages for other fractures, as it is seldom attended with permanent results and future impairment of usefulness. The value of time, expenses incident to it, and reasonable compensation for partial loss of function, beyond, say three months, which would be a fair approximate of the total disability, in a case, compound or simple, not complicated with loss of tissue or comminution of bone. Under contusion and lacerated wounds, mention will be made of such cases.

Fracture of ribs, not attended with perforation of lung, we will not often be called upon to consider. Fracture of pelvis, when not fatal, is a formidable condition of as grave a character as fracture of the femur, and attended with permanent deformity and serious physical shock, followed by permanent impairment of health.

*Fracture of Fingers and Toes.*—Fractures either of digits or phalanges, is attended with loss of time proportionate to that resulting from fracture of arm, but function is sooner restored and approximate amount of such damage not to exceed one-half that of the latter.

5. *Dislocations.*—This class of traumatisms is quite rare in railway practice, and so seldom attended with permanent results that we may with propriety pass it over, only calling attention to undiscovered or neglected cases which, "in spite of" the ignorance or neglect of the surgeon must be considered as proximate, and damages attach by reason of perma-

nent deformity and disability. An exception should also be made of dislocation of the astragalus which is often attended with deformity.

6. *Amputations.*—In this class of traumatisms the same circumstances and conditions prevail as in fractures, with reference to loss of time, suffering, etc. But as regards the degree of permanent disability and approximate effects upon the expectancy of life, there is manifestly a difference especially in the latter. It is a well-known fact that amputations cut short the expectancy of life. Reflex conditions are common in stumps, which often produce serious nervous and even psychic disturbances. Amputation is the opprobrium of surgical art, and beyond the impairment for manual labor there is an element or sense of opprobrium, a mental anguish over the existing deformity. In many such cases I have observed a hypersensitiveness so great that upon the slightest manifestation of pity, sympathy, or any allusion whatever by a warm friend even, he would forfeit their esteem. The approximate amount of permanent damage for earning a livelihood, resulting from amputation of the arm or fore-arm is taken by the Pension Department as a basis of all traumatisms and diseased conditions as well; from \$30 to 45 per month being the pension allowed for such loss of arm or fore-arm. In this Government award other conditions, or resulting conditions, are not followed by any farther increase of pension, the minimum pension named being considered the equivalent of allowance for total disability, unless it be in cases of total helplessness where an attendant is required; and in that case the amount allowed is \$72 per month. From this, allowing for the conditions recognized by the courts quoted in the beginning of this paper, it would be comparatively easy to approximate the total amount of damages in any case of traumatism, taking into account conditions mentioned heretofore and also the normal expectancy of life.

The approximate and just monetary award in other amputations does not differ greatly, except as regards expenses in attending them. The disability for the performance of manual labor would depend somewhat upon the avocation of the claimant, but the loss of an extremity, either upper or lower, is usually considered as total disability. Amputation of digital or phalanged extremities should be considered, as the grasp of the hand is impaired, and the symmetry of the member destroyed; but as compared with the loss of the arm, the damages would be very small, unless all or most of the digits were amputated, when the damages would reasonably be nearly as great as from the former.

7. *Contused and Lacerated Wounds.*—These, the most common of all railway traumatisms, are often serious in character and often complicated with injury to or fracture of osseous structures, or injury of periosteum resulting in necrosis, and in many instances injury of peripheral nerves causing reflex conditions in remote portions of the body or brain. Unless there be actual loss of tissue, we do not, under modern asepsis, often meet with such conditions resulting from traumatisms to the soft tissues. Tetanus and tetany, now known to be of septic origin, are almost unknown where sepsis is prevented by efficient antiseptic agents. It is obvious that the railway companies are, in an economic sense, greatly the gainers by the wonderful results of such antiseptic treatment, as the expenses attending the modern treatment of lacerated wounds are not one-fourth what they were but a few years since, and permanent injuries resulting are far less frequent.

In any case of crushed or lacerated wound, we must observe the same conditions as in the case of compound fractures, considering the loss of time, etc., and taking into account the deformity or impairment of function; and also the uncalled-for damages resultant from the mistake of the company of employing back numbers to do modern surgery.

We would consider scalp wounds attended with fracture as serious, for the reason that they are so often followed by serious results. Aseptically treated, these wounds when not attended by fracture, heal rapidly and seldom become elements in cases of claims for damages.

8. *"Entasis" or Sprains.*—We find this class of injuries to be about 10 per cent. of all railway traumatisms, and will be called upon to consider them by reason of the permanent disabilities often resulting. Sprain of the knee joint often terminates in inflammatory conditions, followed by destruction of the joint and permanent deformity or loss of limb. Damages should be apportioned in such deformity as in other cases of impaired function, and so on. Sprain of the ankle joint we often find a source of permanent impairment, the same conditions pertaining to the wrist joint with its ligamentous and complex articulation. Rupture of tendons

or muscular tissue from sprains is met with, resulting frequently in permanent impairment of function but not often in serious damage.

9. *Injuries to the Eye and Ear.*—These we will send to the specialist who is employed, or should be, by the company, as "Uncle Sam" sets them the example.

10. *Rupture, or Acute Hernia.*—This is of infrequent occurrence, being met with in only about 2 per cent. of all cases of traumatism. Damages could reasonably and approximately be determined as indicated in amputation of the arm, from amount awarded by the Pension Department.

11. *Scalds and Burns.*—This class of injuries occurring only in 3 or 4 per cent. of all cases, is often of serious character, and usually fatal. The super-heated steam of the engine boiler is a terrible agency, and where a surface of the body equal to one square foot comes in contact with it, for sufficient length of time to scald the true derma, death of the victim follows. In cases not so seriously burned, great suffering results, attended with severe nervous shock and followed by serious deformity. If the face be the portion receiving the impact of the steam, as is frequently the case, if recovery take place the patient is subsequently found to be greatly disfigured. The method of "blowing out the ashpan," is often attended with terrible results to the engineer or fireman, as I have myself in several instances observed. In determining the approximate amount of damage in these cases we will usually only be called upon to consider the disfigurement, impairment, or loss of eyesight, as the shock from burns is not, usually, attended with permanent neuroses. Many other conditions might properly be mentioned, but I have only sought to refer to the traumatisms commonly met with.

This will conclude my consideration of this important subject, and I am fully conscious that I have very imperfectly fulfilled the task allotted me: "*The Best Method of Approximately Determining the Amount of Damage Sustained by a Traumatism, from a Monetary Standpoint.*"

#### DISCUSSION.

DR. JOHN E. OWENS, of Chicago—I find very little to say at this moment, except perhaps to express my appreciation of the value of this paper. It is comprehensive and covers a great deal of ground. It has been carefully prepared, and I have been very much instructed by it. At the same time in the discussion I would feel myself involved in an inextricable network were I to state the method of determining from a monetary standpoint the result from traumatism. There are so many elements involved that each case must serve as its own, or should be a problem of itself, and must be decided upon its own merits. I presume that the only discussion I ought to enter upon would be that from the standpoint of a surgeon or physician. At all events, so far as an adjuster is concerned, I have had very little experience, and I have never encouraged it among the surgeons on the lines of roads that I happen to be interested in. There are so many legal points involved in the case, so many circumstances that belong to the train service that I find, and I think others find, it would be impossible for them to wade through all and arrive at a just legal conclusion, to say nothing of the conclusion the doctor or physician himself might arrive at. When I asked a rather prominent gentleman something in reference to such matters, he said: "Is this meeting one of claim agents, of lawyers, or surgeons?" I told him in many cases he would find all these combined in the doctor, and I believe that is the case in some few instances. Again, I believe that the two positions, the position of adjuster and the one of surgeon are somewhat incompatible with each other. If it is known that the surgeon is not an adjuster, the patient unwittingly and sometimes more palpably shows animosity which interferes with the easy adjustment of the case. At the same time we can do considerable. The surgeon or physician, if tactful, can do very much in disabusing the patient's mind of these various conditions of exaggeration and influence brought about by cupidity, which the adjuster or certainly the attorney for the company can never do.

We never know what influences have been brought to

bear on patients (plaintiffs) before they come into the court room. To show you I am right in this matter, I will venture to read some letters which I have secured. (These letters were then read.)

Since being notified that I was to discuss this paper a little, I have talked the matter over with some gentlemen who are very familiar with the workings of the question, and I will read just a few extracts of a letter from an attorney connected with a railway:

"Adopting the language of the clinics, every traumatism may be said to be manifested by two distinct sets of symptoms; the one objective, sensate; the other subjective, insensate; and the law following in the footsteps of surgery allows compensation for each of these manifested effects, combining the two in order to ascertain the extent of the physical impairment as a basis of determining the actual pecuniary loss which to some degree of correctness may be estimated, and at the same time looking at the subjective symptoms as a direct basis for compensation, the amount of which is wholly speculative, conjectural, and is measured only by human sympathy, the only check against which, if indeed there is any check, is what is called judicial discretion, which is but the sympathy of the judge set against the sympathy of the juror.

"Thus the compensation which the law allows consists of two distinct elements: One a compensation and re-imbursement for pecuniary loss; the other a *solatium* wholly speculative in amount for physical pain and mental suffering.

"Here the law in this, as in all other classes of wrongs and injuries, seeks to reimburse the injured person in the pecuniary loss which follows as the natural and proximate result and consequence of the injury. Into this measure of compensation, decreased earning capacity, loss of time, money expended about the treatment and cure of the injury and restoration of the physical condition and all extra expense made reasonably necessary and proper by the injury, enter as elements. The reasonableness and propriety of the expense will vary and be dependent upon differences in the circumstances and conditions of different persons according as they are refined, cultivated, intellectual, accustomed to the conveniences or elegancies of life, or as they may be brutish, coarse, ignorant, accustomed to hardships and poverty.

"The locomotive engineer who earns by his occupation \$2,500 a year, loses both hands in a railroad wreck under circumstances which render the railroad company liable. How much should the company pay on account of lost earning capacity? The simple answer in the abstract is: "He should have such sum annually as equals the difference between the sum he would have been capable of earning each year during his life had he not been injured, and the sum he is capable of earning during the same period. How much is that? How long would he live? If he would have lived to be 80 uninjured, yet how many years and up to what age would he have been capable of earning \$2,500 a year as an engineer? Being engaged in such dangerous occupation, what was his life expectancy? Or being so engaged, what was his expectancy as to immunity from injury as one of the risks of his employment incapacitating him as an engineer and for which the railroad company would not be liable?

"The theory, the abstract is easy. The question in the concrete, the present sum of money to be paid is the difficult thing to be answered.

"It has been contended by some, and even by some judges, that such a sum of money should be at present paid as when invested at the usual legal rate of interest would produce an annual sum equal to the annual loss in earning capacity. According to this method, if the annual difference should

equal \$5,000 and the annual rate of interest 5 per cent., a jury should award \$100,000 present damages. Yet this is obviously unjust, for the reason that the injured person during his life would not have received as much as in all probability he could have earned uninjured, and at his death his heirs would be entitled to the principal which the ancestor would never during his life have been able to accumulate.

"In my judgment the best method of determining this question, should be based upon, but in some respects different from the method of estimating the present cash value of dower estates, life annuities, or annuities for other fixed periods. This method is the result of calculations as to the present value of a fixed annual value or sum continuing for an uncertain period. The probable duration of the period being estimated from the life tables. The method is fully explained in the Wigglesworth Tables, and others.

"Thus a woman 40 years of age having a dower estate valued at \$1,000, the present cash value of such an estate is only \$630.

"In estimating annuities and dower interest, both terms of the proposition are fixed, one, however, being uncertain as to duration. In the question now discussed neither term is fixed for the earning capacity of man is affected, strengthened or impaired by many other causes than his physical and mental condition. And besides, while we have life tables showing the probable duration of the natural life, hence an estimate of the present sum to be paid an injured person based upon the existing tables would be much wider from the mark than on the estimates for annuities and dower interests.

"In the innocence of my youth I used to think that 'it is always the wounded bird that flutters,' but since I have been an attorney for a railroad I have seen full many a bird flutter that was not wounded. As to any basis, method or standard by which the amount of compensation to be allowed for physical pain and mental suffering may be even approximately measured, we are utterly at sea. The courts in allowing compensation for pain and suffering have arbitrarily and widely departed from the rules of law applicable to the measure of damages in all other cases. While this departure from the ordinary rules may meet the approval of our sense of humanity, it can not be reconciled with any correct principle of law, except in cases where the injury has been wilfully or wantonly inflicted in which punitive damages or smart money is allowable not as compensation to the injured person, but rather as a punishment to the wrong-doer.

"That the pain exists at all is a fact known alone to him who suffers it, while others are left to believe or disbelieve its existence accordingly as they may judge of the manifestation thereof by the alleged sufferer; who can say whether my tooth aches or that I suffer constant pain in the spinal column increased by finger pressure, without relying on the evidence of such pain emanating from myself alone? These injuries, these elements of damage, the symptoms of which are purely subjective, are indeed the most dangerous class of cases to railroad companies, and to them railroad surgeons should give careful attention in order as far as possible to detect malingering.

"There is no 'best method' for determining the compensation that should be allowed for physical pain and mental suffering, for the allowance of such compensation is wholly without method, measure or standard of any kind, beyond the varying and uncertain emotions of the human heart."

I believe myself that from a doctor's standpoint, I might venture to detain you just a second more by saying that for the railway surgeon the following points seem very essential, and it is incumbent upon us:

1. To have a due appreciation of the cause, nature and extent of the injury.

2. An acquaintance with the pathology and prognosis of similar injuries where there is no possible liability, and where cupidity can not become an element in the problem.

3. A careful management of the injury according to the most approved methods.

4. An opinion based on the known pathology of the injury.

5. The exclusion of all litigation and other extravagant, unique and inexplicable symptoms which find no foothold in our more fixed medical and surgical literature.

Giving an opinion upon such a basis would enable our attorneys and our claim agents perhaps to more easily arrive at a proper settlement.

DR. W. H. MEYERS, of Myersdale, Pa.—The discussion brought out this point, in reference to men being under the influence of liquor, saying that the essayist was correct, but that some men played the part of impostors and were not in any way entitled to pay from the company. The Baltimore & Ohio Railway Company always pays and settles its cases promptly and liberally. The following is the history of the case:

A. J. I., married; aged 49; residence Uniontown, Pa.; claims to be injured internally in abdominal region in New Castle (yard) Pa., wreck. He says he passed blood from bowels at stool in water closet in ladies' coach; passage examined by Drs. Gildner, Meyers and W. H. Meyers, Jr., and found no blood on examination in water closet nor in snow under water closet. The statement made by Mrs. Amanda Jacobs, 6135 Sangamon Street, Chicago, and others was that he did not complain of any injuries until after men returned from looking at the wreck. Drs. Gildner and Meyers found nothing apparently wrong, except that he was under the influence of some stimulant. Dr. Gildner and Dr. Meyers made a personal examination of patient, with reference to his pulse, examining his eyes, resorting to auscultation, percussion, etc.

DR. REED—The question, as stated in the program, the best method for approximately determining the amount of damage sustained by a traumatism from a monetary standpoint, is one that affects every railroad company in the country. It is one in which the railway surgeon is always called upon sooner or later to determine, and is one in which he is often placed in the most embarrassing position. If he is called upon to testify on the witness stand, this is one of the questions which the attorney for the defense will always ask, either privately or on the witness stand. It is one in which if there is no suit the surgeon is again asked by the company to settle. Now, the question of getting at this matter is one I think of great importance. I have written to quite a number of surgeons who have had experience in this matter, and I at one time prepared an editorial, or rather a paper on this subject, for *The Railway Surgeon*, in which I tried to set forth some of the principles that should govern railway surgeons in estimating these damages. After discussing the matter with the manager of *The Railway Surgeon*, who had supreme control, it was decided that it was not advisable for us to discuss a question of this kind. Now, it does seem to me, gentlemen, that while this is a question that is of serious importance, it is right that we should discuss it. We have no right to turn our back on a fire that is destroying our building. It is our duty to put it out if we can. We, as railway surgeons, can not afford to go on the witness stand and testify to anything that is not the truth. We can not afford to perjure ourselves for our companies, neither can we afford to go on the witness stand and testify in such a way as will destroy a just claim. It is our duty as railway surgeons to testify as to the truth, let it be what it will. Then comes the question, How shall we determine the value of an



injury? Take, for instance, a party who is injured in the arm. We will say there is a Colles fracture, and that the company was liable for the injury. Now, how are we going to determine how much that is worth, and at the same time be fair to the patient and to the company? This is the question that has been brought out in this debate, as I understand it. It seems to me we can, by accumulating facts which every railway surgeon has an opportunity to do, arrive at a general conclusion as to the value of a certain class of injuries. How are we going to do this? We can not apply any ironclad rule and say that a fractured arm is worth \$500, or that a certain limb is worth \$1,000, because there is a gradation of variation. One man's arm may be worth to him \$5,000, while another man's arm may not be worth half that much. I am speaking now of the money value in different men. Why? Because in one case a man may have an occupation whereby he must use one arm more than another, or perhaps any other member of his body; while in the other case, the man may be able to continue his occupation, making just as much money as he did before the loss of the arm. These are points that have to be considered, and the best method of arriving at them is what we want to attain if possible.

It has been my custom for the last fifteen years to take into consideration first the condition of the patient, and the age. Age has something to do with value. A man, 21 years of age, has an earning capacity, so far as age is concerned, superior to a man of 70 years of age. That would be one factor. We should take into consideration the earning capacity of a man or woman, as the case may be, relative to his or her occupation. One laborer, we will say, earns \$500 a year, while another man of higher attainments will earn \$1,500 a year. Another will earn \$2,000 a year, and still another \$5,000. If that party is maimed in such a way as to interfere with his earning capacity, to what extent is he damaged, and that should be a factor in considering the damages sustained by the traumatism. Then again, we must take into consideration in addition to the earning capacity, the expectancy of life which has some bearing on age. Furthermore, we must consider the amount, as the doctor stated in his paper, of actual pain and injury that the party has sustained through traumatism; in other words, the amount of suffering. What is that worth? I have been in the habit of rating a certain amount for suffering sustained by the pauper, just the same as it would be for the millionaire. One would suffer as much as the other, so that the rating is equal or on a level. But the earning capacity of the pauper would be entirely different from that of the millionaire, or of some one whose capacity for earning would be \$1,000 or \$2,000 a year. Then we must take into consideration the amount of time lost and the value of that time rated on the man's earning capacity, which should be based on his age, his salary, or the amount he could earn if he was not injured. I think if we take these matters into consideration we can approximately at least set a value on a broken arm, based on these three leading principles: Age, value of earning capacity, and the amount of damage that we would fix for the actual amount of pain sustained. But, at the same time, when we go before a jury, these questions are generally fixed by this body, and it is hard for us, with all the care we may take, to go before a jury and convince them as to the fixed amount of value a certain party should have for a certain injury. But at the present time, I think the legal departments of our railroads are largely coming to the idea of settling these questions without going into court, as far as possible, and here is the place where you can use these principles to the best advantage. You can rate up a man's injury approximately close to its true value, so that you can say conscientiously of this man that he has a fractured arm,

that he has been off duty for six weeks, and that his time is worth so much a week. We can say there is a certain amount of permanent injury that is worth so much for the balance of his life, taking into consideration his earning capacity. By this method we can arrive at an approximately fair estimate. We should, as railway surgeons, consider these points and keep careful records of our cases. I have records of cases for over fifteen years. I know the length of time the party has been off duty; I know his earning capacity, and know what we have paid him. By taking the average case of fracture of the arm, the average time lost, the average value of time in a certain class of cases, you can estimate the amount within a few hundred dollars of the actual value of each party's time. The main question to settle is this, Should a party be paid for the actual amount of pain they have had for a certain class of injury. One man having a fractured arm will suffer much more pain than another of the same character, because he may be a sensitive nervous man, and consequently suffers far more because of that than the other man who perhaps has more animal nature, and is less sensitive from a nervous standpoint, yet each one loses the same amount of time. So here is a gradation again. I hope we shall hear more on this question. It is one that has not been discussed to any great extent. We can find no literature on the subject except instructions given by accident insurance companies. I feel that it is a subject of sufficient importance for us to discuss and if possible fix a schedule for our guidance in this class of injuries.

DR. ARTHUR D. BEVAN, of Chicago—I think we are treading on dangerous ground. One of the dangers to the good name of railroad surgery is the danger of allowing railway surgeons to be made tools of by the claim agent department and by the law department. I am sorry if I have to differ from the author of the paper and the past speaker, but I should say distinctly that this is not a medical question. It is purely a legal question, and one which belongs to both the law and claim departments. We should not, if we begin our Association with the motto that it is for "the higher order of railway surgery," allow anything of this kind to creep into our work. I may say to you emphatically that I do not believe we should allow railroad surgery to be prostituted to the work of handling this class of cases. We have nothing whatever to do with settling for an injury to a limb or as to the value of loss of life. I speak with some preparation upon this subject because I was down for a discussion of the paper on the best method of determining the value of life where death was caused by accidental means. I have taken some pains to run over the work with some of my legal friends, and without exception they have agreed with me that it is a purely legal question, one which cannot in any way be discussed in a purely medical society. I do not believe that we can do anything more important, or take any more important step in placing this Academy of Railway Surgeons on a high plane, than by recognizing the fact that as railway surgeons we have nothing to do with the legal or claim department. When a man is injured you simply state to the claim or law department the outcome of the injury, and the length of time it will last. It is not for you to determine how much a jury, or judge, or company will allow him as compensation. I therefore wish to take a decided position in regard to this question. There are many chief surgeons here and we ought to discourage the handling and settling of claims by railway surgeons. We ought, on the other hand, to demand that the law and claim departments continue to take these matters in their own hands. Railroad surgery is believed by the public to be notoriously partisan. Your testimony on the witness stand is taken with a great deal of incredulity simply because we allow ourselves to be dragged into this kind of work. We ought to take a decided



stand in this, that all papers read and discussed on these subjects should be recognized as outside of our sphere, as simply being read and discussed because they are of general interest just as any outside matter might be to the physician.

DR. C. K. COLE—I agree with Dr. Bevan as to the relation of the railway surgeon to the patient, the legal department of the road, and to all concerned, and I believe that is true of Dr. Harnden, and the position taken by him, as also Dr. Owens who opened the discussion. The remarks of Dr. Bevan are remarks which have been heard before and on lines which have been somewhat fully discussed in similar organizations to this, and I think we are fully agreed that we should not be partisan, that we should not be biased, that we should give testimony which will be accepted and acceptable to the court and to all concerned, and yet we can not get away from the fact that we have a dual function as railway surgeons. We are executives of the road we represent, but that does not deny to us the privilege of giving fair and impartial testimony. As witnesses we are judicial and I believe, as a matter of fact, we are impartial and non-partisan. I consider this a very vital question for this Academy to discuss. I can not conceive of any more important subject and yet it is to my mind a purely medico-legal question. I take it, Mr. President, that it is so important a subject that if we discuss it fully—if we could take the paper read, have it edited and condensed with the discussions already had, we will evolve facts which will enable us to approximately value life in connection with this class of accidents or cases injured upon our railroads. I had it in my mind to make the proposition that the paper and discussions should be epitomized with a view for further discussion at a subsequent meeting. I had intended to discuss the paper itself, but Drs. Owen and Reed have gone over the ground so fully that I hardly feel warranted in consuming the further time of the Academy to say any more than I have.

DR. W. H. ELLIOTT—In the main I agree with what Dr. Bevan has said on this subject, but I do not think the line of the surgeon's duty in this case has been as clearly stated as it might be, and I rise for that purpose. In the law department of the road I represent, they do not ask the surgeon to take any part at all in settling the claims—in fact, he is not allowed to do it. In the directions given to the surgeons, it is distinctly stated that the surgeons have no right to settle claims, nor to make any promises on part of the company, but they are expected to use all honorable means to prevent law suits. Now, I believe the duty of the surgeon is just this: I do not think it is his business to estimate the money value of an injury. I think that is outside of a surgeon's usual capacity, and furthermore, I think if done it will compromise his position. What I conceive to be the surgeon's duty is this, besides stating the extent, duration, and the exact conditions of the disabled party, that it is a medical question, that he should state clearly to both the law and claim departments of the road he represents just how much the injury, if it is permanent, interferes with the man's earning his livelihood, not how much money he can make a day. The surgeon should give the law and claim departments some basis so that they can make their figures. They are to make the figures, and you are to give the information upon which they are to make a settlement. Then too, the medical man is the only one, I think that can state fairly what has been the amount of suffering in this or that case. He has watched by the patient's bedside, gone there perhaps at midnight to give a hypodermic injection, and he knows, he is accustomed to estimating suffering. He is not a doctor if he does not estimate suffering and try to relieve it. He can state, if the patient is a highly nervous subject, that the suffering has been intense, while

a laboring man, whose injury seems to be a severe one, suffers much less as compared with the other patient from what you would expect from such an injury. After giving an opinion on these two points the business connection of the railway surgeon with the case ceases.

DR. F. H. CALDWELL, of Sanford, Florida—Ten years ago I told my superintendent when we had a hospital system on the road, that I occupied a dual position. I was an employee of the company and an employee of the employees. They pay so much a month to the hospital fund. It was not a charitable institution, and they had a claim upon me as well as the company, and I declined to take any part whatever in the settlement of claims. It would injure my influence for good with the employees, and it would detract from my confidence which the company had in me, and I did not think I could consistently take any action in this way. The president and superintendent of the road sustained my position and since that time I have had nothing whatever to do with damages. The method pursued by the company I represent is this, that as the papers come into my office with the request for information relative to the nature and extent of the injuries received, I indorse the extent and probable outcome of the injury and return them to the office, and that is the last I know of the matter. The rest is settled by the claim department. I showed Mr. Plant this program, but he had already received a copy of it. I told him of the importance of this discussion, we went over the program together, and he said any discussion should be *sub rosa*. "It is all right for you gentlemen to discuss this matter among yourselves and have a fair judgment as to the amount of damages that should accrue." Dr. Cole has made a point which I think is a good one, that if this discussion should be published broadcast, and an anti-railroad attorney should get hold of it, he would make good use of it before a jury if any of us are called upon (which we are frequently) to testify in cases of this kind. I agree fully with those gentlemen who say that this matter should not be published broadcast; that if we do as Dr. Reed suggests, viz., get up a schedule, if there is any important case on hand, it will be brought before a jury and used against the company. The surgeon's duty to his patient is to get him well, if possible. If called upon to go before the court, his duty is to "tell the truth, the whole truth, and nothing but the truth;" whether it be for or against the company he represents. I tell you, gentlemen, that the onus which comes upon us as witnesses before a jury is due to a very large extent to the fact that it has been demonstrated that a large number of surgeons—I do not say any of the gentlemen present have done it—have shown their preference on the witness stand in favor of the company. The sooner we realize that fact, and the sooner we realize the fact that a plain statement of facts made before a jury is the best, the sooner will our testimony be given weight.

DR. LEMON, of Denver—There is no doubt but that all of us as railway surgeons, when cases get into court, have to give opinions. I have made it a rule, which I consider a good one, to confine my statements to the physical signs alone. I always object to answer the question regarding pain. I do not believe any of us can determine how much pain one patient will suffer over another. That is something we can not estimate at all. That is something we should ignore and simply decline to answer. I have frequently said to lawyers, that is something I can not estimate, but the other signs I can.

DR. REED—I desire to make one correction. Dr. Caldwell said I spoke of a schedule of prices. I did not lay down a schedule of prices, and if that impression was conveyed I did not intend it. I meant a schedule of certain things, as it were, that should govern our judgment as to the amount of value, as, for instance, the age, the occupation of the party, and damages, what is the actual injury sustained; that we should be able to designate how much each one should be given according to the patient's situation. I did not mean to convey the idea that we should have fixed prices. We would have to fix the price on principles, and not on any ironclad plan.

DR. HARNDEN—I think the paper has been misinterpreted somewhat by some of the gentlemen, in that I disclaimed any intention in the paper of our becoming claim agents. I would like to know if there is any gentleman in this room who acts as claim agent or does a claim agent's business. I stated in the paper that we as railway surgeons are to act as advisers, and are not expected to take the place of claim agents.

(To be continued.)

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00

SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,

No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.

W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, FEBRUARY 9, 1895.

A PROFESSIONAL DUTY.

There are certain obligations a man takes upon himself when he enters one of the learned professions. Among the most important of those duties is that of advancing the general good of the profession itself. Every conscientious physician who loves his work for its own sake, must feel that to a large extent his own standing in the community is measured by the general standing of his profession. To make that profession powerful, to make its influence felt in all directions, in which the profession have an interest, organization is a necessity. We must unite for general advancement, general encouragement of our interests, and mutual improvement. Under what banner can we fall into line more appropriately than under that of the AMERICAN MEDICAL ASSOCIATION?

Membership in that ASSOCIATION, is based on correct local standing. No one not a member of a State or local medical society in good repute can become a member of our already great ASSOCIATION. It is therefore evident that the local society and the State society are fostered and sustained by the ASSOCIATION.

Many gentlemen applying for membership in the ASSOCIATION, have been obliged to wait until they had first joined their local society. This is the practical effect of the law, but *there are hundreds of physicians who are not aware that they may join the ASSOCIATION by simple application, properly certified by the officers of their local society.*

Will our members each for himself, look into this matter in his local society, and by inquiry find out who are members? Let this matter be pushed in the local societies; the JOURNAL will be made better and better, larger and larger, in equal pace with

the growth of the ASSOCIATION. The JOURNAL has already grown to be one of the largest, but we are yet far behind the *British Medical Journal* and the *Semaine Médicale* in the journalistic race for pre-eminence. The medical profession of America more than any other, should have the greatest journal. It is within its capabilities, and within easy reach. Jealousies should be sunk in this matter, for no private publisher can be able to gather the whole profession under his interest, nor so far as we are aware, do any of them expect it.

We urge our members to do their whole duty in increasing the ASSOCIATION membership, at every meeting of their local society, and in six months the work will have been measurably accomplished.

If there is personal feeling, let it slumber; if there have been disappointments, let us forget them; if we want changes in form or matter, let them be urged on the floor where all have an equal voice.

Let us unite as a professional brotherhood, bound by every tie of patriotism, and professional honor!

RELATION OF GOUT AND URIC ACID.

DR. ALEXANDER HAIG, (*British Medical Journal*, Dec. 8, 1894) gives us an extremely simple explanation of the relation of gout to the excretion of uric acid. He finds that when the latter substance is taken into the stomach it acts as a decided stimulant, producing a feeling of buoyancy; this condition is succeeded by depression, disinclination to exercise and headache. The first of these conditions is accounted for on the theory that the uric acid lessens the alkalinity of the blood, and hence this substance is not taken up from the tissues, so that for a time after its ingestion the circulation actually contains less uric acid. Later, when the alkalinity of the blood is restored and uric acid again finds its way into the circulation we have depression and malaise.

DR. HAIG on these premises gives us a theory in explanation of the fact so often noted that many gouty persons improve on a meat diet. This he thinks is due to the free uric acid which such substances contain, and which for a time secures temporary amelioration of the symptoms only to be followed by an aggravation of the disease.

We confess that this view of the matter, attractive and simple as it seems, does not appeal strongly to our judgment. In the first place, if uric acid is absorbed from the tissues, why does it not lessen the alkalinity of the blood, the same as when taken up from the stomach? We do not think that the writer has answered this query. Again, the improvement often noted in gouty subjects, when on a meat diet, is frequently due to the fact that the diet, as a whole is very much lessened.

The logical deduction from DR. HAIG's theories would be a vegetable diet for gouty subjects, but we

know that many patients are not benefited by such regimen, but on the contrary improve when vegetables are restricted.

The truth is that a number of toxemias are dependent upon perversions in the digestive tract, which clinically can not be differentiated from the ordinary forms of uric acid poisoning, and these are often greatly modified by changes in the quality of food. Some patients can not digest fats, others must avoid starches and sugars, while still another class can take proteids only in certain forms.

In the treatment of the uric acid diathesis, too little attention has been paid to the absolute quantity of food taken. It is of little consequence what diet is given, provided the digestive tract is healthy and free from fermentations. To avoid uric acid production we need only reduce *luxus consumption* to the vanishing point.

#### POLLUTION OF NAVIGABLE STREAMS.

House bill, No. 8481, which provides for the appointment of a Commission to investigate the subject of the contamination of such lakes and streams as are the source of water supply to more than one State, still slumbers in committee so far as we are informed, and a petition was introduced into the Senate February 20, from the Pennsylvania Board of Health praying for the passage of the bill.

We are not advised of the exact text of the bill, but it is evident that some measure of this kind should be enacted. Were there a Department of Public Health, all such investigations would naturally fall under its scope, but in the absence of such a Department, special legislation is necessary.

The British Rivers Pollution Commission, instituted by Parliament many years ago, set an excellent example of what such a commission could do to advance the interests of public health, by ascertaining facts and making recommendations for the securing of pure water supply. In this country, work of this character has been done by the Massachusetts State Board of Health, the Illinois State Board of Health and perhaps others, but this work was necessarily limited to State waters, with exception perhaps of the investigation of the waters of the Illinois River, which emptying as it does into the Mississippi, was an object of some solicitude to the good people of St. Louis and other places in Missouri.

But it is obvious that the water of such rivers as the Ohio, and the Mississippi, where the river itself constitutes the State boundary of many States, should be investigated by impartial authority. That authority can only be found in the general government, and as the population deriving water supply from rivers is steadily increasing, there is a more pressing need for action each year.

*Let there be created a Department of Public Health!*

#### LICENSE OF HOSPITALS.

Moved thereto by the inadequacy of existing laws and ordinances to deal with the rapidly growing brood of "faith curists," "Christian scientists," *et hoc genus omne*, and more directly by the difficulty of suppressing a notorious fraud, the "REV." JOHN ALEXANDER DOWIE—a "faith healer" who has been successively, but not successfully, tackled by the State Board of Health for practicing medicine without a license, by the city authorities for maintaining an unsanitary establishment and concealing deaths occurring in his "tabernacle," and by one or more of his victims for obtaining money under false pretences—the Health Commissioner of Chicago, DR. ARTHUR R. REYNOLDS, has succeeded in procuring the enactment of a municipal ordinance the enforcement of which should make short work with this tribe.

It forbids the establishment or maintenance within the city limits of any hospital, other than those of the United States, of the State, the county and the city, except upon license of the Commissioner of Health, who is empowered to make "strict inquiry" into the location of every hospital, the purpose for which it is conducted or maintained, its fitness for such purpose, the nature and kind of treatment given and the qualifications of its chief physician or surgeon under the laws of the State; and to issue, refuse or revoke a license upon the facts disclosed by such "strict inquiry." The chief physician or surgeon or superintendent shall make a report to the Commissioner on or before the fifth day of each calendar month, showing a complete record of such hospital during the preceding month, including the number of inmates received, discharged and died during the month, the causes of deaths and such other information as may be necessary to an intelligent sanitary supervision of the establishment.

For the purposes of the ordinance a "hospital" is defined to mean any place used for the reception or care, *temporary or continuous*, of the sick, injured or dependent (including women awaiting confinement) or used for the treatment of mental or physical disease or bodily injury. Under this definition it is held that "faith cures," quack "dispensaries" and "institutes," "massage parlors," "anatomical museums," lying-in establishments, opium and drink "cures," and kindred institutions must obtain licenses and come under the supervision of the Department of Health, or cease business.

The beneficial scope of the ordinance cannot be overestimated. Its judicious enforcement should largely reduce the aggregate of swindling under the guise of medical and surgical treatment, of the notorious immorality of the "massage parlor" and of the butchery of young women and infants in the dens of procuresses licensed as midwives. Reputable establishments will no doubt welcome the enactment, and it may be profitably copied by other communities.

## MEDICAL COLLEGE "NOTES AND COMMENTS."

By the omission of a reference number preceding the Atlanta Medical College, in the table of Medical Colleges on page 60 of the current volume of the JOURNAL (issue of January 12) the "Notes and Comments" on pages 61 and 62, are made to refer erroneously to the respective colleges by one minus number each. Thus, the "note" numbered 9 should refer to the Atlanta Medical College, and "note" 10 to the Southern Medical College and similar transpositions throughout. As, for example, the note to the Woman's Medical College of Pennsylvania, numbered 36, which reads: "Partly due to the fact that we began our compulsory course next year," etc.; the note numbered 37 belongs to this college and reads: "The recent reduction in the number of students was probably due to the lengthening of the course of study to four years and the advance in the standard of entrance requirements adopted by the college." As the Registrars of one or two colleges—DR. WILLIS G. TUCKER, of the Albany, and DR. R. F. RUTTAN, of the McGill—have been kind enough to point out, the article will be used for reference and no usual correction will be noticed; therefore, and in compliance with requests from others interested, the table and notes will be republished in full in an early issue of the JOURNAL with the comments identified by the college titles.

The returns of the Albany Medical College, made Nov. 1, 1894, were noted at that time "not complete." Under date of the 1st inst., DR. TUCKER furnishes the revised list of attendance, as follows: First-year students, 84; second-year, 54; third-year, 58; total attendance, 196—as against 173 for the last previous session.

DR. RUTTAN, Registrar of the Faculty of Medicine of McGill University, also furnishes a revised list of the same date, as follows: Total attendance, 401—there being 121 in the second year, and 72 in the fourth year; the total attendance at the last previous session was 350.

## CORRESPONDENCE.

## The Practical Importance of Well Established Facts in Therapeutics.

To the Editor:—In order to explain the undeniably miraculous effects of the large dose of alcohol by which on the Alps I was restored from a condition of profound general prostration to one of ability and health, Dr. Davis is obliged to ignore his so-called established facts as regards depression of the nervous system, the diminution of muscular force and the alteration of blood consequent on defective oxygenation and retarded metabolism, and to be driven back on its supposed anesthetic action on the partially sensitive vagus and the insensitive vasomotor nerves. He thinks a dose of chloroform or ether would have produced the same effect. I do not think so. With chloroform I should have been put to sleep never to awaken again. If my vagus and

vasomotor system required a sedative it must have been supplied by healthy blood, for as soon as the circulation was restored and my extremities became warm, the sickness disappeared and my muscles recovered all their power. But the established facts of Dr. Davis are the effects only of the misuse of alcohol. They are seen in perfection in the drunken man. Before the days of chloroform I was present at an operation when the patient was carried from the operating table unconscious from the supposed effect of the shock. He awoke some hours after and to the astonishment of his attendants he asked when the operation would begin. He had fortified his courage by a bottle of brandy without the knowledge of the surgeons and the anesthesia was not limited as in my case to his vagus and vasomotor nerves. It should never be forgotten that the effects of alcohol are not solely determined by the quantity administered—a quantity more than sufficient to make a healthy abstainer drunk might be useless in a case of great exhaustion. It is essential that its effects should be estimated less by the quantity than by the condition of the patient. The effects of small doses must be our guide. This subject was treated by Professor Cerna of Texas, in a very exhaustive manner only last year, *Therapeutic Gazette*, 1894). He says: "In small doses alcohol excites the puerperal and sensory nerves, stimulates the cerebral functions, increases reflex action, increases cardiac action by direct contact with the heart itself, causes a rise of arterial pressure, raises bodily temperature, is a conservative of tissue and a generator of vital force and may therefore be considered as a food."

I was an assistant with Dr. Edward Smith and I can personally testify that small doses of alcohol increased the respiratory action and the evolution of carbonic acid. I am also satisfied that to be favorable, the administration of alcohol must be so adapted to the condition of the patient that the established facts of Dr. Davis shall be conspicuous only by their absence.

But let me endeavor to eliminate the question of nervous irritability by the relation of an experience which must be common to the majority of medical practitioners.

Forty years ago the large towns in England were annually devastated by typhoid fever. In 1846, one-fifth of the entire population of Leicester had the fever. We had then no clinical thermometer. The diagnosis had only just been made and was not universally accepted. We had no trained nurses and an abandoned prison was used as a temporary hospital, of which I had charge. At the end of the year I published an account of 186 cases treated with the cold wet sheet and my mortality was 30 per cent. less than that of my colleagues in the hospital. Typhoid fever was then far more serious, far more infectious, far more fatal than it is to-day. The daughter of a farmer living in an isolated farm house in the forest came on a visit to the town. She contracted typhoid fever and was taken home. She recovered, but both her parents had it and the farm servant died of it. The undertaker who lived in the village more than a mile away, caught the disease which spread to his family and neighborhood. A blacksmith lived at a solitary house on the turnpike road. His son, a youth of 12 years, was employed as errand boy to fetch medicines and medical comforts for many of these patients and he took the fever. During this epidemic, I lost half a pound daily for one month. I paid this boy a visit at 10 o'clock at night. He was in the fourth week of the attack. I found his parents sitting by his bedside awaiting his death. He had taken no food for several hours and they said he could not swallow. He lay before me unconscious, his eyes half closed, his lips black with sordes, his tongue like a piece of red mahogany, his pulse imperceptible, his extremities cold, the respiration slow and shallow, the stomach tympanitic and the evacuations were

passing under him. Nevertheless there were no râles in the lungs, and the heart was still fluttering. I sat by the patient for three hours, and I gave him brandy; at first by drops, lest I should choke him and in order that he might rather inhale than swallow it. Then I gave it by the teaspoonful, and before I left he had taken half a pint. Little by little, the circulation was restored, the extremities became warm and life became a possibility. Beef tea and brandy formed his diet for a week and his recovery was eventually complete. Does any one seriously believe that this result would have followed the administration of milk or milk and water?

Now, sir, these were not the symptoms of nervous irritation but of a profound prostration of the nervous, circulatory, respiratory and vasomotor systems and due first to the poison of typhoid, and second to the paralysis of assimilating power and the drain from the intestinal mucous membrane. The alcohol, large as it was when compared with the weight of the patient's body, produced none of its well established ill effects. It did not make the coma more profound. It did not interfere with the absorption of oxygen, it did not retard metabolism and it did not lessen the heart's action. But according to my view and the experiments of Dr. Cerna, it acted as a food which needed no digestion, no assimilative process. Indeed, it was taken when digestion was no longer possible, and being absorbed by the force of mechanical diffusion it was carried into the blood, then sent directly to the heart which it stimulated to increased action, then to the lungs, where it supplied the material for heat production.

Under the stimulus of warm blood every part of the body was excited to renewed vigor. The brain was aroused from its lethargy of impending death, the vasomotor system was forced into new action, the capillaries made blood from the wasting muscles, digestion recommenced, and all these actions were begun and continued under the use of this marvelous remedy.

With respect to the treatment of pneumonia and the effect of alcohol in my own case, Dr. Davis asks what I would say in regard to the case of an elderly physician who was promptly bled and treated according to the antiphlogistic system and nevertheless lived to a ripe old age? To which I would say, that this treatment would have been well adapted to my own case, and that modern physicians have carried their fear of venesection to a ridiculous extent. With dullness and fine crepitation in all the right lung and in the left also to the level of the fourth rib, with excessive rusty sputum, with great congestion and distension of the right heart, and a rapid intermittent pulse, threatening paralysis or as it is now called "failure," there was every indication for the relief which venesection undoubtedly affords. Surely it is wiser and safer to diminish the congestion by this means than to allow the blood to fill up the pulmonary vesicles and to force its way outward through the bronchial mucous membrane. But failing this very reasonable practice, the only way left was to stimulate the heart so as to force the circulation and overcome the difficulty. The administration of alcohol immediately steadied the action of the heart, stopped the intermissions, reduced the frequency of the pulsations, and increased their power; and thus by improving the general circulation the lung congestion was relieved. This was all it did and rest, nursing and good constitution did the rest. But I believe that these would have failed without the assistance of alcohol.

Now sir, I am not so ignorant as to regard longevity as a test of the value and effects of alcohol. Unusual longevity is to be found in every condition and rank of life. Men obtain great ages in spite of bad habits, bad surroundings and injudicious treatment. But I think it worth noting that a physician could hardly use a drug for over fifty years without

detecting some of the evil effects attributed to it by Dr. Davis, if such in reality occurred. I agree with Dr. Davis that the effects of alcohol on the living body require something more than the impressions of an anesthetic patient. I would commend the experiments of Cerna to his special notice. But there are cases like those I have ventured to describe, where the conditions are definite and the results clear and indisputable. In these cases the margin of error is extremely small, and if you should think further illustrations are required, I could certainly prove its value as a therapeutic agent in a variety of morbid states, with the same certainty that attaches to the administration of an ordinary aperient or a dose of morphin.

Yours very obediently,

J. H. STALLARD, M.D. Lond.,

M. R. C. P., M. R. C. S.

#### A Further Contribution to the Subject of Malaria as a Waterborne Disease.

WASHINGTON, D. C., Feb. 1, 1895.

To the Editor:—In your issue of January 26 last, is an article entitled, "A Further Discussion on Malaria, a Waterborne Disease," by Dr. W. H. Daly, Pittsburg, Pa., which treats of malarious waters as a new idea, and at its close gives a bibliography of the subject, beginning with a paper published in the *Medical Record*, September 15 last, and enumerating nine other articles which have appeared since that date. This might lead some of your readers into the mistake of supposing that anterior to that issue of the *Medical Record* this question had received no attention from the medical profession. Medical officers of the Army by their service in various parts of the country have the incidence of endemic disease placed strikingly before them, and it is not therefore a matter of surprise that they should have given much attention to the propagation of endemic fevers. Dr. Daly will find a full discussion of the prevalence of malarial remittents at Fort Bridger, Wyoming, and the grounds on which they were referred for causation to malaria in the water supply of the garrison in an article on "Mountain Fever and Malarious Waters," *American Journal of Medical Science*, Philadelphia, Pa., 1878, n. s. LXXV, pp. 17-43. He will find a full discussion of the subject also in a chapter on the etiology of the paroxysmal fevers in Part III, of the "Medical Volume of the History of the War," and in the Reports of the Committee on Water Supplies of the American Public Health Association, in the volumes of the reports and papers of that Association, as also in the articles "Malaria" and "Water," in "Wood's Reference Handbook of the Medical Sciences."

For several years past, medical officers of the Army have been reducing the malarial sick rate and building up a new reputation for military posts that were formerly regarded as specially insalubrious, by providing pure water supplies for the men under their care. Particularly at certain of the Texas posts has this been done, as at Forts Brown, McIntosh, Ringgold and Clark. The report of the Surgeon-General for the year ending June 30, 1892, makes special mention of this in the following language:

"In the report from this office for the fiscal year ending June 30, 1890, which summarizes the statistics of sickness at our military posts during the calendar year 1889, the remark was made (page 37) that if Fort Brown, Texas, were expunged from the list of our military stations the prevalence of malarial disease in our Army would be greatly reduced. Fort Brown has not been abandoned, but its malarial record has been expunged, with a consequent material lessening of the malarial rate of the Army. During the calendar year 1889, the post had an admission rate for malarial disease of 1,676 and a non-effective rate of 38.58 per thousand of strength. During the year 1891 the corresponding rates were 16.13 and .35. This change which practically alters



the status of Fort Brown from that of the most unhealthy to one of the most healthy garrisons in the Army has been accomplished solely by the use of a pure water for drinking and cooking, an accidental consequence of the introduction and use of an ice machine. Formerly the water supply was pumped from the river into settling tanks and distributed for use. It is so pumped and distributed now for general purposes; but the water for cooking and drinking is obtained from a steam condensing coil connected with the ice machine. Distilled water was introduced in 1890 and the extraordinary change in the health of the garrison can be attributed to nothing else than to its use; for all the other sanitary conditions and surroundings of the post remain as they were during the years of insalubrity and high rates."

Fort Ringgold, Texas, gives corroborative testimony to the foregoing. Here distilled water was introduced in 1886. The post surgeon considers that its use has reduced the sick rate one-half since that time, and that most of his admissions for malarial disease are among troops whose duties have taken them away temporarily from the post. As a matter of published record the admissions at this station have fallen from 2,304 per thousand of strength during the calendar year 1885 to such rates as 562 in 1889, 865 in 1890 and 1,366 during the past year. Respectfully yours,

CHARLES SMART, Major and Surgeon, U. S. A.

### Morphinism in Children.

BROOKLYN, N. Y., Feb. 1, 1895.

To the Editor:—I am desirous of adding to the clinical literature of morphinism in children. If any reader of your JOURNAL has noted a case, and will furnish me details, I will appreciate the favor and give full credit.

J. B. MATTISON, M.D.

## BOOK NOTICES.

**Clinical Gynecology, Medical and Surgical, for Students and Practitioners.** By eminent American teachers. Edited by JOHN M. KEATING, M.D., LL.D., and by HENRY C. COE, M.D., M.R.C.S. Illustrated. Cl., pp. 994. Philadelphia: J. B. Lippincott Company. 1895.

This volume contains articles by the late William Goodell, William H. Baker, Francis H. Davenport, Hunter Robb, Bache McE. Emmet, Barton C. Hirst, Matthew D. Mann, William M. Polk, J. Whitridge Williams, Henry T. Byford, Paul F. Mundé, Herman J. Boldt, Henry C. Coe, William T. Lusk, Chauncey D. Palmer, Chas. Jewett, and John Polak, Edward E. Montgomery, Dudley P. Allen, Louis A. Duhring, and Milton B. Hartzell.

The surviving editor, Dr. Coe, states that owing to the untimely death of Dr. Keating, the completion of the work devolved upon the present editor, who has as far as possible carried out the plans and wishes of his lamented predecessor. While seeking to preserve that coherence which is desirable in a text-book, he has in the main allowed each contributor to consult his own judgment with regard to the arrangement and phraseology of his article, believing that in this way the individuality of each would best be preserved. The introduction is of unusual interest as the last printed words of the late Prof. Wm. Goodell, and he has assumed unconsciously the reminiscent and prophetic vein. We can give our readers no better idea of his style on this occasion than by quoting his own words:

"One advantage accruing to the writer of an introductory lies in the circumstance that he is not limited to any given text or narrowed down to a special topic. Untethered to thesis or theme, he can range at large over the whole field of the subject-matter and treat it pretty much as he pleases. Now as Mentor he can preach his homily; now as pupil he can con his hornbook.

"In this survey of gynecology I shall not hesitate to bor-

row from my previous writings on the subject, without credit and without stint. I shall also use the pronoun of the first person, not from egotism, but in order to invest my own views with that personality which the editor has urged all his collaborators to assume. Nor, on occasions, shall I hesitate to show myself a proselyte of the gate—one who does not wholly yield up his creed to all the articles of orthodox medical belief, or subscribe to all the obligations of its ritual.

"With the ancients the Golden Age was in the past. With us it looms as the promise of the future; and indeed a great future lies before us. At the brink of the twentieth century let us look back upon the one that is fading away, and a truly wonderful one it has been."

And then the writer follows with a hasty but comprehensive review of the gynecology of the century now drawing to a close. We think him too sweeping when he asserts that the scientific treatment of appendicitis, of perityphlitis and of all intestinal and visceral lesions have come from the advances in gynecology. The truth is that modern abdominal surgery including gynecology proper, has come as a result of the immortal discoveries of Pasteur and the consequent technique of Lister. The writer of this remarkable introduction makes one of the most powerful appeals for the preservation of the ovaries, and as a citizen and patriot not less than a physician, he inveighs against the custom of the time by which the propagation of children has almost urges conservatism in the use of the knife (see page 20) for ailments very frequently having their origin in the nervous system rather than in the reproductive organs.

"Nerve-strain," says our author, "or nerve-exhaustion comes largely from the frets, the griefs, the jealousies, the worries, the bustles, the cares and cares of life. Yet strangely enough, the most common symptoms of this form of nerve disorder in women are the very ones which lay tradition and dogmatic empiricism attribute to ailments of the womb." (Horace summed up these worries in the phrase, *res angustæ domui*.)

The other chapters in the book are written from a clinical standpoint, and are the views of men of great experience as will be seen from the list above given. The work is systematic and we feel sure that it is as a whole the equal of any similar book, and in many respects it is immensely superior to any gynecology recently issued. The surgery of the rectum and anus, and of the breast is given respectively by Dr. Montgomery and Dr. Allen.

**Surgical Pathology and Therapeutics.** By JOHN COLLINS WARREN, M.D., Professor of Surgery in Harvard University; Surgeon to the Massachusetts General Hospital. Illustrated. Cl., pp. 832. Philadelphia: W. B. Saunders. 1895. Price \$6.

Instead of dedicating this book to anybody, Professor Warren has the following motto from the Georgics of Virgil:

*"Felix qui potuit rerum cognoscere causas  
Atque metus omnes et inexorabile fatum,  
Subiecit pedibus strepitumque Acherontis arari."*

Which Dryden has freely translated:

*"Happy the man who studying Nature's laws  
Through known effects can trace the secret cause,  
His mind possessing in a quiet state  
Fearless of Fortune and resigned to Fate."*

The book is divided into thirty-two chapters beside the appendix as follows: I, Bacteriology; II, Surgical Bacteriology; III, Hyperemia; IV, V, Simple Inflammation; VI, VII, VIII, Infective Inflammation; IX, The Process of Repair; X, Gangrene; XI, Shock; XII, Fever; XIII, Surgical Fever; XIV, Septicemia; XV, Pyemia; XVI, Erysipelas; XVII, Hospital Gangrene; XVIII, Tetanus; XIX, Hydrophobia; XX, Actinomycosis; XXI, Asthma; XXII, Glanders; XXIII, Snakebite; XXIV, Tuberculosis; XXV, Surgical Tuberculosis of Joints; XXVI, Tuberculosis of the Soft Parts; XXVII, Diseases of Bone; XXVIII, Tumors; XXIX, Carcinoma; XXX, Sarcoma; XXXI, Benign Tumors; XXXII, Aseptic and Antiseptic Surgery.

The appendix contains articles on the blood serum therapy in rabies; tetanus; treatment of cancer; methods of pre-

paring erysipelas toxin; examination of tumors; staining methods—tumors; so-called parasites of cancer; decalcification of bone. There are 132 illustrations in the text and 4 full page plates.

It is thus seen that the scope of the book is limited strictly to the subjects included in its title. It therefore can not take the place of the more elaborate works on pathology or bacteriology, nor does it assume to do so. The teaching is quite in accord with modern advanced views, but if the author has a leaning it is always in the direction of conservatism. He is always guarded and makes positive assertions only where the proof is undoubted, and usually produced.

In regard to the *Lustgarten bacillus* he says:

"The question of the microbic origin of syphilis has been extensively discussed and investigated, but as yet no definite conclusions have been reached which are generally accepted by bacteriologists."

In regard to the cause of inflammation our author, as we think properly, denies the extreme view of Heuter that all inflammations are due to bacteria, and he recognizes mechanical violence, and chemic action including heat and cold, as agents in the production of certain inflammations.

While usually quite clear there are occasional obscurities, thus on page 162 the author says: "Nearer the central point of the inflammatory process the cut surface has a pork-like aspect." We confess with due humility that we do not know what a "pork-like aspect" is. The chapter on the process of repair is admirably written both as to matter and form. We think, however, the writer is in error where he attributes the priority in the application of the double ligature in tying the larger vessels, to Senn and Ballance and Edmunds, for Prof. Moses Gunn long ago taught that method, and in 1870 formally proposed the "constricting silver ligature" as a substitute for ordinary ligation in innominate aneurysm. The purpose in the case mentioned was not the same as that mentioned by our author on page 254, but the principle was clearly enunciated of occluding the vessel by approximation of its walls without rupture.

The chapters on tumors are excellent and interesting. In regard to the Coley treatment of inoperable sarcomata the author says: "The experience of many prominent surgeons with this method of treatment has not been satisfactory. There is little doubt that it is of little if any value in the treatment of carcinoma. The fact that a considerable number of cases of sarcoma have been benefited by this treatment, and that a few have been cured renders it desirable to experiment further in this direction."

To aid in the correction of the next edition, we note a few errors of proof reading, among them "Kelbs" instead of Klebs, page 67, and "Recklighausen," page 87. These are scarcely worthy of notice as they are such as might occur in any work. It might seem a little perfunctory to devote so much space as is here given to the subject of hospital gangrene, a disease that in the present day has only a historical interest, but as it might possibly "come again some day" when the germicides are away, perhaps the chapter is not altogether in vain.

We congratulate the author on the production of an admirable book, alike creditable to himself and to American surgery, and we venture to predict its entire success. The field was ready, and this work will well occupy it, until a more recent favorite shall appear upon the scene.

#### Fourteenth Annual Report of State Board of Health of New York.

This report, which is for the year 1893, was transmitted to the Assembly by the Governor February, 1894. It consists of two volumes of 869 and 510 pages respectively and a volume of maps. The report gives in detail a statement of the work performed and of all expenses connected therewith. The Board invites attention to the annually increasing amount of work done. The report justly gives credit to the work of the U. S. Marine-Hospital Service. It says:

"Owing to active and efficient work on the part of government inspectors abroad and at ports of embarkation, cholera, which broke out in Western Europe in the spring with renewed vigor, did not gain a foothold in this country."

The Board, however, were not idle, for the threatened invasion caused greater activity on the part of all employed in the health service of the State. Great advancement of hygiene throughout has resulted not only in the prevention of a threatened epidemic, but in the public education and better appreciation of sanitary science, and its practical application. One of the most important duties of the Board consists in the examination and approval of submitted plans for systems of sewers, sewage disposal and water supply of villages, towns and cities throughout the State, and a great portion of the report is properly taken up with a detailed statement of these examinations. The vital importance to the public of the water supply, and of sewage disposal, has created the need for such work by a properly constituted board, and it is impossible to place an estimate on the value of such service. The New York Board is doing excellent work and the report well illustrates it.

## PUBLIC HEALTH.

**Smallpox in Iowa in 1894.**—Dr. J. T. Kennedy, Secretary of the Iowa State Board of Health, in reviewing the health of that State during 1894, says that more than twice the number of cases of smallpox occurred than ever before in the history of the State, in any one year, and the casualties therefrom have been greater. Chicago has been a constant menace, and has furnished nearly all the initial cases. The disease appeared at over twenty different points, and the aggregate number of cases has been over one hundred. At scarcely any point, however, did the disease get beyond the family originally attacked, and at only two points, New Hampton and Pacific Junction, was there any considerable number attacked. Dr. Kennedy compliments the local health boards for their prompt compliance with the rules and regulations of the State Board, whereby the disease was "remarkably well handled" respecting quarantine, disinfection and vaccination.

**Physical Training of Youth.**—A writer in the current number of the *Atlantic Monthly*, after analyzing the various systems of physical training in vogue in the public schools of a number of American cities, comes to the conclusion that no one of them is exactly suited to the requirements of American youth—that the aims of mere muscular development and military action and bearing dictate to a harmful extent the character of the exercises which obtain favor in our schools; and adds: "It is not too much to expect that the character of our physical training will shape in a certain measure the destiny of our nation, for history is emphatic in proving this of other times and peoples; and so it behooves us calmly to examine our ideals, and see if the highest that can be kept in view, considering our peculiar needs, are not those of self-poise and deliberation, and the grace and strength of mind and body which flow from them."

**Booming the Crematory.**—*Florida Health Notes* begins, in the January, 1895, number, a collection of original contributions and extracts "bearing on the discussion and growing practice of this disposition of the dead"—to wit, cremation. It learns that the crematory in San Francisco is so crowded with business that it has to refuse three out of ten offerings made; and a sanitary conference, composed of more than one hundred physicians from all parts of the State, recently passed a resolution declaring emphatically in favor of cremation and urging that it should become the national method of disposing of the dead. In Boston the records of the Massachusetts Cremation Society, whose crematory is near the Forest Hills Cemetery, show that up to June 1, 1894,—that is, five months after the opening of the crematory—there

were forty incinerations, the number constantly increasing each month. In May there were sixteen in all. "Socially considered, all classes of people have been represented in this new mode of disposing of the dead here, and all ages—from 94 to 5 years—figure in the official entries of cremation. The system is a perfect success, and the average time required for the complete reduction of the body to ashes is about one and one-half hours."

**Antitoxin Production.**—The New York City Board of Health is increasing its antitoxin "plant." A new laboratory, to cost \$5,000, is being fitted up at the Willard Parker Hospital, at the foot of East Sixteenth Street and will be in readiness in a short time.

**Asiatic Cholera.**—A cable dispatch of the 2d inst. reports that cholera has broken out at Pera, a suburb of Constantinople. The disease is practically at an end in the Argentine Confederacy, where the most vigorous measures were resorted to—even to burning infected houses with their contents.

**An Epidemic Predicted.**—Colonel Maurice calls attention in the *United Service Magazine* to the Chinese claim that there are 500,000 men massed around Pekin. This force has already been there for some time, and it is likely to remain for several months longer. It is an elementary maxim of military tactics that a large force of men should not be gathered until a short time before they are to be employed; otherwise an epidemic, resulting from enforced lack of sanitary arrangements, is almost inevitable. Therefore, the writer predicts that as soon as warm weather begins in the spring there will be a most frightful outbreak of pestilence in some form or other, probably in many forms, but beginning with malignant typhus in its most virulent shape. Colonel Maurice suggests that while there is yet time all foreigners in Pekin be withdrawn under adequate protection.

**Smallpox.**—During the first thirty-six days of 1895—January 1 to February 5 inclusive—there were 222 new cases of smallpox reported in Chicago, a daily average of 6.3. During January the daily average was 6.5; during the first five days of February the average had fallen to 5.2 per day, but the mortality had increased from 17.6 per cent. for the aggregate, to 23.8 per cent. for February; this increase is attributed to the unusual severity of the weather since the first of the month. Remaining under treatment, midnight February 5, in hospital, 116. Reports of the disease in Detroit are conflicting; Health Officer McLeod reported twenty-eight cases under treatment at the close of the month—eighteen in hospital, ten in homes. From unofficial sources it is learned that Surgeon Hutton, M.-H. S., to whom had been tendered the position of Health Officer, has declined the appointment. Secretary Wingate, of the Wisconsin State Board of Health reports, February 4, five new cases and three deaths in Milwaukee during the week ended February 2; total under treatment, forty-three; in hospitals, fourteen; in homes, twenty-nine. There were also six new cases during the week in Greenfield, Milwaukee County.

**Quinin in Palustral Fevers.**—At a recent meeting of the Paris Therapeutical Society M. Bardet stated that, until lately, quinin salts were administered to travelers who intended visiting tropical or malarious countries. But at a recent meeting of the Paris Therapeutical Society (reported in *Gaz. Med. de Paris*) M. Bardet stated that the number of diseases in which these salts are applicable is diminishing, especially since Ross (India), Miranda-Azevedo (Brazil) and Treille (Algeria) have shown that the tropical bilious fevers are more to be feared than the paludal fevers. These attack especially Europeans living in hot countries whose hygiene is defective and who are given to alcoholic excess. The hygiene of armies sent to these countries should be carefully supervised and the supply of alcoholic drinks interdicted. This gives better results than the prophylactic use of quinin; the latter should be reserved for cases when it is

indispensable, as for example, during prolonged stay in low marshy regions. It is necessary to keep in mind the irritating effect of quinin on the digestive tube, which weakens the individual and also renders him insensible to the quinin salts. Ferrand observed that the use of quinin is attended with many inconveniences. For preventive purposes he thought quinquina was preferable.

**Artificial Foods and Infant Mortality.**—Statistics from the lists of registered deaths in England compiled by Dr. Hugh R. Jones (*Brit. Med. Jour.*) show that 42 per cent. of infant deaths may be referred to digestive disorders. Infant mortality in Norway and Sweden, where almost every child is nursed by its own mother, is but 10 per cent. In Wurtemberg the mortality of breast-fed children is 13.5 per cent., of artificially fed children, 42.7 per cent. In Munich, respectively 15 and 85 per cent. In lower Bavaria, where maternal nursing is the exception, the mortality is 50 per cent. Dr. Hope, Medical Officer of Health of Liverpool, investigated the methods of feeding in 718 fatal cases of diarrhea in children. Of these but 30 were breast fed; 391 were reared wholly on artificial food, while 297 were partly nursed and partly fed on artificial food. Those wholly nursed fare the best, and those partly nursed are better off than those wholly fed on artificial foods. It is clear that maternal nursing should be encouraged, and early weaning and the substitution of artificial foods for the breast-milk should be discouraged; but the tendency is the opposite in all classes of society—a tendency which is increased by the increasing employment of women in industrial and commercial occupations.

**Intermittent Water Filtration.**—In his report to the Massachusetts State Board of Health on water filtration, Mr. G. W. Fuller compares the manner of operating filters in Europe and in this country, to the advantage of the latter. In Europe the filters are operated with the surface of the sand continuously covered with water, while in this country the intermittent method of operation is usually followed, in which from time to time the water is shut off from the surface for a certain period, the beds drained dry, and the pores between the grains of sand become filled with air. The advantage of the intermittent action is that it provides within the filtering material an additional amount of oxygen with which the bacteria may perform their functions, while the advantage of the continuous action is that, when it is selected, the area of the filter beds need not be so great as for intermittent action. From his experimental filtration of the Merrimac River water at Lawrence, Mass., however, the fact appears that there is no marked difference in the average results obtainable by the two methods, the explanation being that a practically sufficient quantity of free oxygen is held in the water as it flows to the filters; oxygen has never been absent in any of the samples of the effluent from the continuously operated tanks, long series of analyses of the effluents being made from both continuous and intermittent filters.

**Cheaper Sulphur.**—Sanitarians who believe in the bactericidal properties of  $\text{SO}_2$ , and followers of that school of medicine whose "third great doctrine" is the psoric origin of at least seven-eighths of all chronic diseases, will rejoice to learn that the great Louisiana sulphur deposit—variously valued at from \$30,000,000 to \$100,000,000—has finally been made available. This vast mass lies some hundreds of feet below the surface in Calcasieu parish and is overlaid by an immense quicksand, to get through which hundreds of thousands of dollars have been spent and several companies bankrupted without ever getting sulphur enough to make a brimstone match. The last fruitless attempt was that of a Belgian engineer who endeavored to conquer the quicksand by freezing it solid and boring it through, erecting valuable refrigerating machinery for that purpose; but the quicksand would not stay frozen, and that system of mining had to be abandoned. Recently the Standard Oil Company got control of the property and set about mining in a fashion the very opposite to that of the Belgian engineer. Instead of using freezing as the means of getting at the sulphur, it is trying heat. Superheated water is forced

through a ten-inch pipe, on the sulphur, melting it, and the liquid sulphur water is then pumped up. Exposure to the air, so as to evaporate the water, leaves almost pure sulphur. A New York *Sun* dispatch says the experiment has been a success beyond expectations. It was tried for the first time only a few days ago, and several tons of sulphur obtained at the first strike. It has been operated successfully ever since.

**Antitoxin Treatment of Diphtheria.**—The JOURNAL is indebted to Dr. C. O. Probst, Secretary of the Ohio State Board of Health, for the report of Dr. W. T. Howard, Jr., of the Pathologic Laboratory of the Western Reserve University at Cleveland, concerning the antitoxin treatment of diphtheria at Ashtabula—"the largest series of cases yet treated with the antitoxin in America," so far as the Secretary is aware.

In all, eighty-two cultures were made by Dr. Howard, to-wit: twenty-nine times in convalescent cases to determine whether or not it was necessary to continue quarantine; in twenty-eight instances for diagnosis; and in twenty-five cases treated with antitoxin. In some of the quarantine cases reported, examinations showed the presence of diphtheria bacilli for many days after the disappearance of the false membrane. In these cases the quarantine was not raised until the throat was proved to be free from diphtheria bacilli, a very much safer procedure than the ordinary time limit usually followed. From the results it appears that the diphtheria bacilli disappear from the throat in a shorter time in cases treated with the antitoxin than in cases treated by the ordinary methods.

The twenty-eight cases treated by Drs. Alrich, Dickson, Dorman, Flower, Gilchrist, Morse and Pardee, between Dec. 17, 1894, and Jan. 5, 1895, were divided into four classes, as follows: Mild five, of medium severity ten, severe seven, malignant six. In every case in which the remedy was used benefit was noted. In all but one case the improvement was marked. In mild cases and in cases of medium severity the affected part cleared up rapidly, decided improvement being noted within twenty-four hours. The dosage varied with the severity of the case. The mild cases received from 12 to 20 c.c. of the remedy in all. The amount given in cases of medium severity varied from 35 to 55 c.c. Cases classed as severe received from 28 to 79 c.c. One of the malignant cases received 113 c.c. in five days. The usual initial dose was the contents of one of the phials (22 to 25 c.c.). The further treatment of the case was governed by the severity of the symptoms and the patient's apparent needs. Where it seemed necessary another dose was given within a few hours, but usually the second dose was not given until after twenty-four hours.

Characteristic changes following the injections were fall in the temperature, slowing and strengthening of the pulse with, in some cases, a rise in the arterial tension. Changes in the appearances of the false membrane were marked. Within twenty-four hours it would lose the characteristic dry, dull, and opaque appearance and grayish color, and become pale white or gray in color and moist and somewhat translucent in appearance. Frequently in this time it would loosen and curl up at the edges. In a variable time, from twenty-four hours to several days, the false membrane would separate, often in large masses. The mucous membrane could then be seen to be more healthy in appearance than in cases not treated with antitoxin. Drs. Flower and Dickson lay especial stress upon this point and note the fact in the reports of their cases. After the use of the remedy, often within twenty-four hours, patients were markedly brighter in appearance.

Of the twenty-eight cases treated, three died, a mortality of 10.7 per cent. The three fatal cases are of particular interest:

The first, N. F., a boy of 6 years, had been ill with diphtheria six days before the treatment was instituted. Two weeks previous to this he had had measles, complicated by bronchitis. When first seen there was a thick false membrane on both tonsils, on the pharynx, extending over the roof of the mouth, and in both nares. He was hoarse and could not

speak above a whisper; the larynx was evidently involved. The cervical glands were very much swollen. Temperature, 103; pulse, 150, weak; respiration, 30. The prostration was great and the case was looked upon as entirely hopeless. He reacted somewhat to the antitoxin and lived two days after the first injection. Before death, although he was intubated, the respirations were 70 per minute and he evidently had pneumonia. Cultures made from the throat showed diphtheria bacilli and large numbers of the staphylococcus aureus. Clinically and bacteriologically this was a case of severe mixed infection.

The second fatal case is of equal interest. N. C., female, 27 years old, ill six days before antitoxin was administered. She was seen by Dr. Dickson with her physician, Dr. Flower, on the third day. They both thought the case hopeless then. At the time of the first injection of antitoxin, there was a thick grayish-yellow false membrane over the tonsils, pharynx and roof of the mouth. She was hoarse, could not speak above a whisper and complained of pain in the larynx and trachea. The cervical glands were markedly swollen. The pulse was weak, 140 per minute. The face and lips were cyanotic. She had not been able to swallow food for twenty-four hours. Under continued large doses (113 c.c. in all) of antitoxin she showed decided improvement. The false membrane cleared off entirely and the throat was clean by the afternoon of the fifth day after the first dose of antitoxin. That morning her pulse was stronger and better than any time during her illness and it was thought that her chances for recovery were good. That afternoon, suddenly, she became pulseless at the wrist and died in a short time of acute dilatation of the heart. As far as the study of the good effects following the administration of antitoxin is concerned, this was the most interesting case presented for observation. She invariably showed marked improvement after each injection of the remedy and the false membrane disappeared in the most satisfactory manner. She had no local treatment after the antitoxin injections were instituted, except an occasional gargle of a solution of Sailer's tablets. The diphtheria bacillus was found in pure culture in the false membrane.

The third fatal case was that of a baby 4 months old, ill with diphtheria four days before antitoxin injections were given. The rectal temperature was 105; the pulse 120 to 160; the respirations accelerated. A false membrane covered the tonsils, uvula and pharynx. Antitoxin was administered on the fourth day of the disease and was followed by a marked improvement; the throat being clear of false membrane on the third day. The child died, however, on the evening of this day. Cultures which were made just before the antitoxin was given showed the diphtheria bacillus and large numbers of the staphylococcus aureus. The child probably recovered from diphtheria and died of septicemia.

In all of the fatal cases the antitoxin treatment was instituted late in the disease. "In the first two of the fatal cases there was involvement of the larynx and the first and last cases were severe types of mixed infection." The first two were said to be the most malignant of the epidemic and on account of their severity were the first cases to receive the antitoxin. The best and surest results were obtained when the antitoxin was administered within the first forty-eight hours of the disease, though there were several malignant cases which showed rapid improvement and recovered when the treatment was not instituted until the sixth day of the disease.

These experiences have in the main confirmed those of other observers in regard to the efficiency of the antitoxin treatment of diphtheria. They tend to emphasize the experience of most of those who have used it—that the earlier the treatment is instituted the better the results and the smaller the doses necessary, and the additional facts that in cases not treated until late in the disease (third to sixth day or later) and in cases of mixed infection, the best results can not be expected.

Study of the cases of diphtheria in Ashtabula and at the Harbor (where diphtheria was endemic) reported to the Health Department from Jan. 1, 1894, to December, 1894, just before the present epidemic started, shows 114 cases with 19 deaths, a mortality of 16.6 per cent. From Dec. 6, 1894, to January 1, 1895 there were reported eighty-two cases of diphtheria with twenty deaths, a mortality of 24.4 per cent.

In this, as in most epidemics, it is probable that the most severe cases were among the first and that the most susceptible individuals were attacked earliest, but after due allowances have been made for these factors the antitoxin treatment has been followed by a most gratifying lowering of the mortality.



As soon as the supply of antitoxin warranted it, an attempt was made to immunize all individuals in infected houses as far as possible. For a variety of reasons this plan could not be applied to every household. Altogether twenty-five persons were given antitoxin for immunization; of these seven contracted diphtheria, but nearly all had mild attacks. It is not improbable that several of these were already infected at the time of the injection. The amount used varied with the age and body weight, from 1 to 4 c. c. being given. In several cases this was followed by erythema and urticaria. In one case the victim in a few minutes was seized with a violent paroxysm of sneezing, which was shortly succeeded by an attack of asthma. Some hours later this was followed by a troublesome urticaria. But as a rule no discomfort followed the administration of the remedy whether it was used for treatment or for immunization.

With patients receiving the antitoxin, little or no local treatment was used. In cases which were not brought under the antitoxin treatment until late in the disease (third to the sixth day) sprays of hydrogen peroxid or of mercuric chlorid when used were always stopped. As routine treatment in connection with the antitoxin, as cleansing agents and for the mechanical effects, patients were made to use a mild gargle of boric acid solution or a solution of Seiler's tablets, both of which may be regarded as harmless. In some cases, however, even this was omitted. The patients were encouraged to eat, and when their condition called for it, were freely stimulated; for this alcohol and strychnin were chiefly relied upon.

## ASSOCIATION NEWS.

**The Section of Neurology and Medical Jurisprudence** have arranged the following symposiums for the May meeting at Baltimore: Epilepsy, Medically, Surgically, and Therapeutically considered; Hypnotism, and Mental Therapeutics, and its Medico-Legal Relations; Electricity, some new Therapeutic Relations and Questions of Treatment. Short practical papers on these topics are urgently solicited. Other papers on subjects belonging to this Section will be welcomed.

## SOCIETY NEWS.

**The Bussey District Medical Society** held a regular meeting at Tracey, Iowa, January 31.

**The Iowa State Medical Society** will hold its forty-fourth annual meeting at Creston, April 17-19.

**The Capital District (Ill.) Medical Society**, at its annual meeting in Springfield elected the following officers: President, Dr. E. J. Brown, Decatur; Secretary, Dr. B. M. Griffith, Springfield; Treasurer, Dr. R. C. Matheny, Springfield.

**Ramsey County (Minn.) Medical Society.**—The thirty-first annual meeting of this society was held January 28. The following officers were elected for the ensuing year: President, Dr. C. E. Riggs; Vice-President, Dr. Willis E. Hallowell; Secretary, Dr. Charles R. Ball; Treasurer, Dr. A. A. Pine.

**The Rome County (N. Y.) Medical Society** perfected its organization January 30, by the election of the following officers: President, Dr. C. C. Reid; First Vice-President, Dr. T. M. Flandrau; Second Vice-President, Dr. E. J. Lawton; Secretary, Dr. Calvin B. West; Treasurer, Dr. James Middleditch.

**The Medical Society of Southwestern Iowa** was organized at Creston, Iowa, January 30. The following officers were elected: President, Dr. B. W. Torrey, Creston; Vice-Presidents, Drs. Cokenower, of Clarinda; E. Potter, of Corning; Stanton, of Chariton; Bosbyshell, of Glenwood; Mulhern, of Greenfield. Treasurer, Dr. Paschal, of Bedford; Secretary, Dr. F. E. Sampson, of Creston. The next meeting will be held in Creston February 21.

## NECROLOGY.

V. W. May, M.D., of Lawrence, Kan., February 4.—William Wallace Cook, M.D., of Woodstock, Ill., February 4, aged 39.—Jamin Strong, M.D., of Cleveland, Ohio, January 28, aged 69.—F. W. Ostrander, M.D., of Brooklyn, N. Y., January 29, aged 90.—Dr. Brandt, of Warrenton, Mo., January 15.—A. T. Stephenson, M.D., of Harrodsburg, Ky., January 12.—Heinrich Harpke, M.D., of Milwaukee, January 12, aged 68.—Miles R. Bohannon, M.D., of Lynchburg, Va., January 19, aged 69.—W. A. McCulley, M.D., of Independence, Kan., January 22.—Cyrus Haven, M.D., of Hannibal, N. Y., January 25.—Wm. M. Fee, M.D., of Melbourne, Fla., January 27, aged 73.—Dr. Stover, Wayland, Mo., February 4.—Francis J. Hammond, M.D., Indianapolis, February 1.—Horace Gaylord, M.D., Pontiac, Ill., January 30.

## MISCELLANY.

**The Philadelphia Medical Club** held its annual meeting January 30. The following officers were elected for the ensuing year: President, Dr. Hobart A. Hare; First Vice-President, Dr. Henry Beates; Second Vice-President, Dr. A. K. Minich; Secretary, Lemuel J. Deal.

**Monument to Charcot.**—The committee appointed to collect funds for the purpose of erecting a monument to Charcot, of which Professor Brouardel is the President, has collected 30,000 francs and as soon as the funds from foreign countries have been turned over, the lists will be closed.

**Von Helmholtz' Library.**—The German Emperor has ordered his Chancellor, Prince Hohenlohe, to purchase the library of the late Prof. Hermann von Helmholtz for the Imperial Institutes of Physics in Berlin. The library is supposed to be the best private collection of works of their class in the empire.

**Jugulation of Pneumonia.**—Petresco, of Bucharest, claims to have successfully jugulated pneumonia by enormous doses of digitalis. In 1891 he had treated 825 cases, with a mortality of 2.06 per cent., and in 1893 he claimed to have treated successfully 1,061 cases during the previous twelve years. (*Rev. de Med.*) He gives one to three drachms daily of digitalis leaf in infusion (5i to 3viifs), a tablespoonful being given every half hour.

**Diagnosis and Treatment of Diphtheritic Angina.**—In twenty-eight cases of angina with false membrane, and suspected diphtheria, only eight had the Löffler bacillus, seven had streptococci, five had staphylococci, eight had different microbes, coli bacilli, pneumococci, etc.; of these eight cases, two died. Catrin has practiced in all cases repeated touching every two or four hours with a solution of potassium permanganate (1 to 100). This solution is neither caustic nor painful.—*Revue des Science Medicales*, Jan. 15, 1895.

**Treatment of Acute Articular Rheumatism by Malakin.**—In a trial made on four rheumatics, Montagnon found that malakin was never harmful even in great doses; that it augmented the quantity of urine; facilitated the elimination of uric acid, and distinctly lowered the temperature; never produced ringing in the ears, or digestive troubles. The ordinary dose is 6 grams in twenty-four hours. It may be carried to 10 grams without danger, in divided doses.—*Revue des Science Medicales*, Jan. 15, 1895.

Cerna, "Notes on the Newer Remedies," 1895, states that malakin (a substance closely related to phenacetin) is best given in wafers or capsules; the single dose is 0.5 to 1 gram, and "for children it can be administered in some kind of fruit jelly, in corresponding doses."

**Washington State Board of Health.**—The Washington State Board of Health and Bureau of Vital Statistics held its regular annual meeting at Olympia, January 21. Dr. J. B. Eagle-



son, of Seattle, was elected President, and Dr. G. S. Armstrong, of Olympia, was re-elected Secretary. The other members of the Board are Dr. N. Fred Essig, of Spokane, Dr. John T. Lee, of Tacoma, and Dr. E. E. Hegg, of North Yakima. The Board decided to establish a laboratory for bacteriologic and experimental work, and appointed Dr. A. B. Kibbe, of Seattle, Director and Bacteriologist.

#### **Society for the Relief of Widows and Orphans of Medical Men.**

—The Society for the Relief of Widows and Orphans of Medical Men of New Jersey was incorporated in 1882 and has continued to grow both in influence and membership. Since its organization, 241 physicians of the State have become members; of which number 22 have died, 28 been dropped for various reasons, leaving at the present time 191 active members. The Permanent Fund amounts to \$1,338.42, and it is intended eventually to allow small annuities to widows and minor children in cases of need. The amount already paid to the families of deceased members amounts to \$2,478. The total cost of running the society during the past year was \$19.67.

**Syphilitic Gangrene of the Tongue.**—At a meeting of the Paris Society of Dermatology, reported in the *Gazette Medicale de Paris*, M. Mendel presented a man aged 55, with gangrene of the tongue very probably of syphilitic origin. The patient presented himself at the Hospital Saint Louis with his tongue enormously swollen and the anterior third, green and pulpy. Two days later this greenish part sloughed off in the form of fetid detritus, and the remainder showed a separated surface already undergoing repair. Two or three similar cases have occurred in carcinoma of the tongue, but it seems probable that in this case we have to deal with syphilis, in the form, possibly, of an unusually large phagedenic gumma. The patient had syphilis in 1882 and has been very poorly taken care of. The characteristic signs of cancer are lacking—cachexia, glandular enlargement, otalgia and spontaneous pains, fetidity and loss of blood.

**Suicide of Physicians.**—Dr. J. U. Hall, one of the editors of the *Colorado Climatologist*, offers as the causes of the increase of suicide among physicians, first, the proneness of medical men to resort to artificial stimuli when overworked; and, second, the overcrowding of the profession whereby the struggle for existence is made so bitter that many conclude that life is not worth living. In his own State, as member of the Colorado Medical Licensing Board, Dr. Hall has helped to license 2,066 physicians since 1881. The total population of Colorado by the last census amounted to only 442,000. Thus they have in fourteen years licensed one physician for every 213 inhabitants. Dr. Hall adds: "It is needless to say that a large part of these have moved on, and are now trying to find a still easier place. If all had remained, we should have died for lack of sufficient oxygen to support us"—an alternative less objectionable only than suicide itself and no less deadly.

**Argon—the New Element.**—At the recent meeting of the Royal Institution in London, on the 31st ult., it is claimed that the existence of the new element, discovered by Lord Rayleigh and Professor Ramsey and to which they have given the name *argon*, was fully demonstrated.\* It is said that the discoverers have finally succeeded in separating it from the atmosphere on a large scale and have sent a portion to Professor Crookes and a portion to Dr. Olszewski of the University of Cracow, to liquefy and solidify, and that these physicists have found that the new substance gives a spectrum of its own and has its own boiling point, freezing point, critical temperature and critical pressure, all different from those of any other element. The cable dispatch says: "Argon gives two spectra, the red and blue, and it is this which raises a doubt whether the investigators are dealing

with one or two substances. If the latter should prove true then there is a new vista opened up, and it is suggested perhaps one of these substances will prove to be Professor Crookes' ideal protyle, the ultimate basis of matter of which all others are only combinations."

**Treatment of Syphilis by Mercurial Injections.**—Lendin has observed in 106 subjects the comparative action of subcutaneous injections of 1, calomel; 2, salicylate of mercury; and 3, mercuric thymol. Forty-three patients were treated with injections of calomel in doses of, gr. 0.05 to gr. 0.2 (in all 186 injections—100 double and 86 single). Of these forty-three patients, thirty-four were treated with calomel from the beginning; the other nine had been given other medicaments as well. The injections of mercuric thymol (83) and of salicylate of mercury (852) were made in sixty-four subjects, in doses of from gr. 0.05 to gr. 0.1, in the region of the great trochanter. These were poorly borne and were replaced by mercury internally and by inunctions. The reaction caused by the calomel injections was always more pronounced than that following the other salts. Suspension in glycerin produced an abscess in 24.5 per cent. of all cases, while suspension in oil produced only 9.7 per cent.; moreover, large and very painful swellings were produced which greatly annoyed the patients. Injections of the thymol and salicylate, on the contrary, in most of the cases were not followed by any inflammatory reaction, or if any appeared it was very slight; with no abscesses and an elevation of temperature in only fifteen cases. The author concludes (*Jour. de Med. de Paris*) that calomel occupies the first place in cases treated for the first time, by reason of its rapid therapeutic action; in cases of relapse, on the contrary, there is no appreciable difference between these three salts of mercury.

**Liability for Personal Injuries is not Changed by Presence of Microbes.**—A novel application of an old rule of law has been made by the United States Circuit Court of Appeals in the case of the Crane Elevator Co. v. Lippert, decided Oct. 1, 1894. This was an action brought to recover damages for personal injuries. The party who instituted it testified that he fell, and struck his shoulder upon some iron. He got up and walked home. He felt some pain in his arm, below the shoulder. It was swollen the next day, but he returned to work, and after working about an hour he went home and went to bed. About four days after, a doctor was called. His arm was then badly swollen. After treatment by two or three different physicians, he went to the hospital, where he was in bed about a month and was operated on by a surgeon, by whom a piece of diseased bone was taken out of his arm. The medical testimony tended to show that, when admitted to the hospital, he was suffering from tubercular osteomyelitis, resulting from the presence of microbes or tuberculous germs in his system; that, if these microbes or germs had not been present in his system, the fall and consequent bruise would not have resulted in the serious injury from which he suffered. The point was, therefore, made by the lawyers that the injury sustained was not the proximate result of the fall, but arose from the presence of tuberculous germs in his system. The court, however, holds otherwise. It says that the wrongful act of the party sued subjected the injured party to other and dependent causes, which were set in motion by the original hurt. It was the hurt occasioned by the fall which afforded an opportunity for the active development of the poisonous germs which had theretofore been innocuous. For this it was answerable. It was the wrongful act which gave rise to the subsequent injury, and it was not apparent that the injury would have occurred in the absence of such cause. The principle applicable is that when there is no intermediate efficient cause, the original wrong must be considered as reaching to the effect, and proximate to it.

**The Bubonic Plague at Hong Kong**, by Yersin, (*Bulletin Méd.* Sept. 24, 1894) and (*Annales d'Institut Pasteur*, viii, 9.) "Note on the plague by Kitasato," (*Bull. Méd.* Sept. 23, 1894.) 1. The bubonic plague which has raged from the month of May last at Hong Kong presents itself with the symptoms and clinical characters of the ancient bubonic plague, which has been observed from time to time in the East. The micro-

\* (See this JOURNAL, January 26, p. 136).

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, FEBRUARY 16, 1895.

No. 7.

## ORIGINAL ARTICLES.

### FUNCTIONAL SPINAL PARALYSIS.

Read at the Chicago Academy of Medicine, Jan. 11, 1895.

BY SANGER BROWN, M.D.

CHICAGO, ILL.

Notwithstanding the progress that has been made within the last decade regarding the physiology and anatomy of the spinal cord, as well as the pathology and the pathologic anatomy belonging to the diseases of this organ, much obscurity remains. Many of the diseases of the spinal cord are not rapidly fatal, so that an opportunity for post-mortem examination can not be had at a period when the symptoms would suggest most strongly the desirability of such an examination. An autopsy in many cases is only available after the symptoms have advanced to such a degree owing to the extensive organic changes which have taken place, that examination of the cord at this period is of very little value in discovering the minute pathologic changes which may have given rise to the earlier symptoms. Nothing remains, however, at present but for clinicians to go on carefully reporting irregular and anomalous cases in the hope that the data thus afforded may finally in some way help to elucidate the pathology. It is in accordance with this purpose that the following case is reported:

*Case 1.*—F. O., Norwegian, aged 35, stone cutter, married, was admitted to the Cook County Hospital June 29, 1893. Nothing important in the personal or family history except that he had syphilis fourteen years ago. Habits regular, and he had always enjoyed good health prior to the present illness, which began about two years previous to admission while working at his trade. He worked in all kinds of weather and not infrequently in wet clothing. The first symptoms consisted of a numbness in the fingers and toes which gradually extended upward toward the elbows and knees respectively. There was also at the same time gradually increasing weakness and ataxia which had become so great eighteen months after the onset as to seriously interfere with his work. He could not hold or handle his tools as before, and would sometimes unexpectedly and involuntarily drop them, owing in part to lowered sensation and in part to muscular weakness, and his gait became awkward and uncertain. He knows that sensibility to touch was considerably impaired, but he does not feel so positive regarding the sensibility to pain. He had no trouble at any time with the functions of the eyes, bladder or bowels. About one month before admission he had to give up work entirely and was only able to walk with assistance. From this time forward he grew quite rapidly worse until one month after admission, when he was wholly unable to support himself on his legs and continued so for about six weeks. Examination upon admission revealed impaired sensibility to touch, and pin pricks, especially from the knees downward and less so from the elbows downward, progressively more marked as the distal extremities were approached, but normal elsewhere. The knee jerks were entirely absent, abdominal and cremasteric reflexes were normal, but the condition of the plantar reflex is not noted. Vision and the pupillary reflexes entirely normal. While in the hospital the patient was well nourished, ate and slept well, and was in fact in good general health. Though the appearance of his legs and arms would not indicate

actual atrophy they were rather small, considering the occupation of the patient, and he volunteered the statement that his arms particularly had gradually grown smaller during the last few months in which he had continued to work. As already stated, after he had been in the hospital about ten weeks, the latter six of which he was unable to walk, under the treatment of potassium iodid in full doses strychnia, iron and faradism he began to improve both in regard to motion and sensation and left the hospital fourteen weeks after admission to it, well enough to accept employment in a boiler factory four weeks after his discharge, and three months later all his symptoms had entirely disappeared except that his knee jerks had not returned.

As to his condition at this time his own statement has to be taken. He is an intelligent man and says that he frequently repeated the tests he had often submitted to while in the hospital. Indeed, so complete was his recovery at this time that his work requiring him to swing a thirteen-pound sledge was easily performed, and he could run down a street car, for instance, as readily as ever. A few weeks later he obtained employment at his trade at which he worked steadily and remained entirely well for about six months, when two weeks prior to his present admission, Aug. 20, 1894, the former symptoms somewhat suddenly returned and developed within a few hours to such an extent that he was unable to go on with his work. It should have been stated before that in this attack, and after the symptoms in the previous attack were pretty well developed there was a sense of considerable stiffness in the calves of the legs. In this latter attack, neither the subjective nor objective disturbance was so marked as in the first attack. In one month after the onset he was again entirely unable to walk and in essentially the same condition as before. His inability to walk on this occasion was of three months' duration when he began gradually to gain sufficient power for this purpose, and while the sensory symptoms have improved, if anything more rapidly than before, the improvement in the motor symptoms has been much less rapid. The treatment has been practically the same.

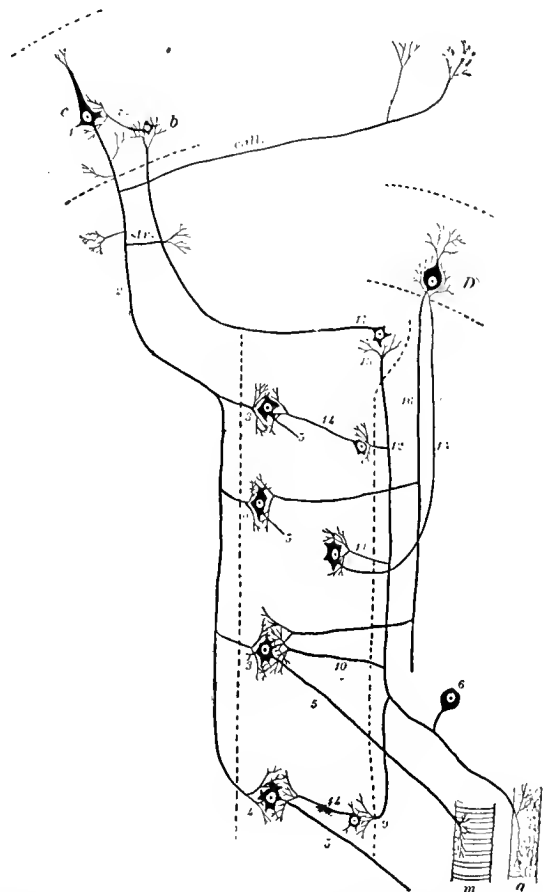
Somewhere in the hospital records it is noted that the gait has the characteristic ataxia of tabes, and the diagnosis of locomotor ataxia is recorded, but while there were evidently distinct signs of ataxy, it may fairly be doubted if the gait was very similar to that so often observed in genuine tabes. Since the patient has been under my observation, though the gait has been quite unsteady and he has been obliged to walk with a cane, I have not thought it strongly suggestive of tabes. It should be added that he can not stand alone with his feet together and his eyes closed, and though the fact is not, I believe, stated in the history sheets, it is very probable that the condition existed when he was first admitted.

The accompanying diagram, prepared by Professor Schaefer, of London, accurately represents the present state of our knowledge regarding the physiologic anatomy of the spinal cord and brain as regards the functions of motion and sensation.

Considering this case in reference to this diagram, in connection with some of the best established facts in the pathology of the nervous system, I beg to make the following suggestions. The symptoms could be accounted for by assuming a functional inactivity of the peripheral nerves supplying the muscles and integument of the extremities. It should be remembered that these are mixed nerves

containing both motor and sensory filaments. It should further be remembered, that the process could not be regarded as being confined to the extremities of one or two particular nerve trunks, but to the peripheral endings of all the several nerve trunks supplying the skin and muscles of the hands and feet.

Recent researches have demonstrated that the main function of the nerve cell is nutrition, and it is therefore reasonable to infer that if the function of the nerve cells (3 and 6) be impaired that the nutrition of their respective fibrous processes (5 and 7) would suffer, and furthermore, that the parts of these processes first to suffer would be the parts most remote from the cell bodies. This hypothesis would



*a*, skin on the surface of the body; *17*, a sensory cell in the medulla oblongata; *b*, sensory cell in the cortex of the brain; *c*, motor cell in the cortex of the brain; *D*, cell in the cerebellum where muscular movements are co-ordinated; *3*, motor cell in the spinal cord; *m*, muscle. The course of a stimulus at "*a*" can readily be followed to the cortex of the brain and back again to the muscle, resulting in a muscular movement.

explain why the disturbance of motion and sensation should begin in the fingers and toes and gradually extend upward. It would also explain why the knee jerks were lost, because the lesion would involve the reflex arc. (*a*, 7, 8, 10, 3, 5, *m*.)

The character of the early motor and sensory symptoms together with their mode of onset, excepting their chronicity, is very similar to that usually observed in cases described as ascending paralysis or ascending myelitis, but the absence of all constitutional symptoms, of disturbance of the functions of the bowels and bladder, together with the fact that complete and somewhat prolonged recovery ensued, make it apparent that the process did not advance to actual inflammation.

As the patient is an intelligent man, one other statement might be made which to some extent supports the view that the function of the cell in the anterior horn of the cord was at least impaired, and that is, without being interrogated upon the point he volunteered the assertion that his legs and arms shrunk considerably. In fact, if the shrinking noted by the patient were a slight degree of genuine atrophy it would be another evidence of the functional impairment of the cells in the anterior horn.

So far as the patient could judge, his recovery was complete, as he himself frequently applied all the tests to which he had been subjected while in the hospital, and could discover no impairment of motion or sensation, and he was even able to stand perfectly well with his feet together and his eyes closed, but he could never succeed in developing a knee jerk. Hence it would have to be assumed, unless he were one of those individuals naturally without a knee jerk, the full and complete functions had not been restored.

Hitherto, when functional disease has been invoked to explain disturbance of motion and sensation, the process has usually been assumed to have its seat in the cortical cells of the cerebrum, and there seems no good reason to doubt that such an assumption is generally correct, but at the same time there appears to me to be no good reason to suppose that functional disturbance might not be confined to the cells in the spinal cord.

In this case a functional disease might be assumed to exist, confined to the cells of the cerebral cortex, which would account for all the symptoms excepting the loss of knee jerks which ought to be increased, or at least present in cortical disease, inasmuch as the inhibitory influence which the upper motor segment (*a*) in the diagram normally exercises over the lower motor segment (*3*) would be impaired, and furthermore, hysterical (cortical) quadriplegia with such an onset and with such sensory symptoms as the patient presented has not been described, so far as I can recollect. I wish to repeat, therefore, that to my mind the type, course and distribution of the symptoms vastly favor the hypothesis that the lesion was spinal.

It might be added that the absence of lightning pains, the rapidly progressive weakness and the complete recovery tell conclusively against a diagnosis of locomotor ataxy; while if myelitis had been assumed to exist and had advanced far enough to have given rise to such severe and persistent paralysis as happened in this case, some more marked indication of permanent injury to the elements of the cord and disturbance of the function of micturition together with increase of the knee jerks might be expected. Neuritis advancing to so high a degree of paralysis would have been accompanied by severe pain, tenderness of the nerve trunks and marked atrophy.

That the functional disturbance above described may indicate the approach of an organic process would seem to my mind not at all improbable.

#### DISCUSSION.

DR. HAROLD N. MOYER—The case as presented by Dr. Brown and his deductions from it are very instructive. If we stop for a moment to consider the pathology of the nervous system we are at once met with three periods. The first includes purely clinical demarkations with the terms locomotor ataxia, spastic spinal paralysis, etc. We then come to the period of pathologic anatomy, and it was but natural the pendu-

lum should swing rapidly in the other direction, and that the term, locomotor ataxia, should yield to the term, posterior spinal sclerosis, and the term, infantile paralysis to poliomyelitis anterior acuta, and other terms distinctive of definite and fixed pathologic changes. That period, I think, has already passed, and we are confronted to-day with certain questions which negative somewhat the strict anatomic distribution of nerve lesions as, for instance, we no longer regard locomotor ataxia or tabes as a pure sclerosis of the posterior columns of the cord, but we class it under the general diseases of the nervous system; and so with many other affections. The reason of this is perfectly apparent. The first and most palpable lesion associated with a given set of symptoms was supposed to be by a direct and positive accounting for that set of symptoms, and he did not take into account the secondary conditions, that may have been produced by the later stages of an exhausting malady; in other words, a mixed change due to marasmus and other depressing conditions which come on late in the development of certain maladies. The pathologic anatomy of paralysis agitans is nothing more than a description of the pathology of the aged or those who die of exhausting diseases. Dr. Brown's paper is to my mind one step in advance along this general line. With regard to the differentiation which he attempts to make between functional and organic paralysis, I will try to point out what I conceive to be an error in his paper. He says that because the paralysis disappears and again returns, is to him evidence of functional derangement. While that may be according to the definition which the Doctor would attach to the term, functional, we know a vast number of organic lesions which pursue this course—paretic dementia, locomotor ataxia, and many other lesions which are associated with demonstrable and early pathologic changes in the nerve cells and nerve fibers, associated with such remissions as were noted in his case. I think also the Doctor's inability to distinguish between the possibility of a peripheral lesion and one involving the spinal cord is a point well taken, and one often lost sight of in the pathology of spinal lesions. I am confident that there is no means of absolutely distinguishing between peripheral nerve lesions and those which involve the anterior horns. I would differ, however, from the Doctor in regard to this being a purely functional lesion, but would not have too much importance attached to that difference, because this term, functional, and the term organic, are used altogether too loosely. I think there is a difference in the mind of almost every observer. One gives a certain definition and weight to the term, functional, and another a somewhat different one, and until the term is more definitely employed I certainly would not attach much importance to it.

I think the case is an exceedingly interesting one, and one that has been carefully observed.

DR. JAMES G. KIERNAN—As to this question of functional and organic conditions, I agree with both Drs. Brown and Moyer in the main, since I do not think there is such a wide difference as might at first be assumed. What is beginning to be true of general neurology was true of psychiatry. At one period lesions were found to explain every form of insanity; at another period there were no lesions at all, and at still another there were doubtful lesions. In dealing, for example, with cerebral conditions which would correspond with the so-called functional spinal conditions mania, melancholia, etc., it is practically settled now that in about 15 per cent. of the cases changes only are present, which are secondary to those which went on in the primary stage. The way to avoid controversy regarding functional and organic, which terms run all through pathology, is to introduce the term and recognize the condition which is present. This change or condition may be designated bio-chemical. Ap-

plying same analogy with regard to the psychoses to the neuroses, which are not very well defined pathologically, conclusions may be made backward from secondary conditions to what bio-chemic change must have happened in leading up to them. More than twenty years ago, Charcot described a case in which hysterical paralyses, implying a spinal element, had so long continued that they had been followed by direct spinal lesions which were secondary to disuse and not primary, as was evident on autopsy being made and revealing certain conditions. Dr. Brown's paper raises the question whether in a large number of these spinal conditions (I will admit this position is taken largely by railway surgeons) there is not a temporary bio-chemic condition which simulates, for the time being, almost all organic conditions. I am strongly of this opinion. For instance, a spinal condition may occur in neurasthenics. So-called spinal neurasthenia may simulate locomotor ataxia completely. When I say completely, I mean even the lightning-like pains, which in fact here are not true lightning-like pains, but topoalgia. When these conditions are continued long enough, in the place of a bio-chemic condition we have a condition of excitation of the local conditions which results in periodic organic change.

With regard to the case under discussion, a somewhat similar one was described about three years ago by Salemi Pace, under the peculiar title of "spinal amnesia." He intended to convey the idea by that term that some of the spinal centers temporarily, as it were, had forgotten their function under certain conditions of shock function, which was gradually regained, the manifestations, however, meanwhile simulating various well marked myelitic conditions and sclerosis of the posterior horns. If the claims made by the railway surgeon could be accepted this condition would be ideally represented. Over-exaggerated as these claims are, since the neurasthenic element is made to simulate everything from locomotor ataxia to myelitis, there are conditions where it may do that. I have been very incredulous as to these conditions, yet a year ago in consultation with Dr. Haskell, of Alton, I saw a case in which every one of the symptoms of locomotor ataxia were present, exclusive of the eye conditions. There was hyperemia of the optic disc, but no other change evident in ophthalmologic examination. There were bladder and rectal symptoms; the bladder symptoms were clearly of psychic origin. Up to this time the urine had to be drawn with a catheter for two weeks. I was satisfied it was one of those rare conditions of traumatic neurasthenia; the patient having developed all these symptoms subsequent to an injury which he had received from his own machinery. He was unable to pass urine without catheterization for two weeks. I was sure there was a psychic element in the case. The night after I saw him the catheter was unnecessary and the man went steadily on toward recovery. The knee jerks were absent, but subsequently reappeared.

In another case which was sent me by Dr. Ribert, of Omaha, the diagnosis of locomotor ataxia was positively made. The man had a gait similar to an ataxic, except it differed in that after he started to walk, and was observed closely, the gait got worse; whereas the ataxic gait, after the man gets started, gets better; in other words, the ataxic makes his cortex do the work, to a certain extent, of the spinal cord. This case had trouble of accommodation, and had hyperemia of the optic disc which had been diagnosed as optic atrophy. He had topoalgic pains which closely resembled the lightning-like pains of locomotor ataxia. That man entirely recovered under the Weir-Mitchell treatment, and static electricity.

A large number of temporary spinal disturbances, occur in lues, diabetes, diphtheria, etc. I am inclined to believe that in almost all the infectious diseases when the knee jerks



disappear conditions which closely simulate organic diseases occur but recover. These cases indicate that in the spinal cord a bio-chemic condition may occur which is not permanent, therefore is not organic, which closely mimics, nay, which precedes all these organic conditions, but which may recover under appropriate treatment. This would explain one of the phenomena everybody has noticed, the cure of "locomotor ataxia" by the quack, the religionists and the faith cures.

DR. JAMES A. LYDSTON—A few points suggested themselves as the paper was read. In the first place it seems with respect to the diagnostic manifestations in the case referred to, that we are too prone to come to a positively definite conclusion in our diagnoses, for the reason that we only have symptomatic phenomena to guide us. It is all very well for us to talk about diagnoses after our patient is dead and the necropsy table shows us various pathologic changes to guide us; but we are delving somewhat in unknown realms, particularly with respect to the cases referred to in the paper this evening, for we know with reference to the diagnostic manifestations of spinal lesions that we do not always have positive unmistakable symptoms to guide us. Particularly is this true with respect to tabes dorsalis, in which we know that in the majority of instances in the early stage there are no diagnostic symptoms to guide the neurologist in coming to a definite conclusion. And it is here that we find the ophthalmologist comes most actively into demand, for in a certain percentage of instances in which tabes dorsalis and various other spinal phenomena are at issue, the ophthalmoscope is the only means at our command of determining positively the diseased condition. It is particularly true with respect to these spinal lesions, and as I said at the outset of my remarks, it is only by careful examination on post-mortem that we find gross or microscopic pathologic changes to account for the various symptomatic phenomena that have caused the patient to consult us with reference to his condition. I have in mind at this moment, a gentlemen, a prominent business man in the city of Chicago, who to-day is suffering with tabes dorsalis and does not know it, nor does he deem it necessary to consult a neurologist with respect to his condition. It seems to me, that in view of these anatomic and pathologic considerations we must consider that, however apparent the disease is of a functional nature, it may be accounted for by circulatory and nutritional changes, and that these changes are caused by some focus or minute foci of disease at some point or points in the spinal cord. These remarks are substantiated by microscopic examinations, anatomic investigations and by physiologic occurrences. Another point that I wish to call attention to is the fact that the knee jerk is not always an absolute test in these cases; as the individual who is suffering with spinal disturbance may in some cases have no disturbance of the knee jerk that can possibly and unequivocally be defined. So that I would say, in conclusion, that cases of apparent functional spinal paralysis are evidences, no doubt, of some pathologic change at some point either focally, or diffusely distributed throughout the cord or the cortical substance.

DR. H. M. BANNISTER—I can add very little to this subject except to confirm what Dr. Kiernan has said by giving my own experience not quite so striking as his, but still in the same general direction. A case occurred in my observation in which there was typical locomotor ataxia, no symptom lacking so far as known at the time, yet it had not been recognized by the patient or his physician. The diagnosis was agreed upon, and although at that time the specific nature of tabes was not generally believed in, I suggested and advised the use of specific treatment. The man improved and died eight years after; I do not know exactly

what his condition was during that time, but I think he died of a complication of spinal disease.

The other case I will refer to bears closely on Dr. Kiernan's case. The patient was one of a neurotic family; one relative committed suicide, another was subject to various nervous troubles, two sisters were arthritic in the last degree, and he himself was subject to attacks of epileptiform migraine sometimes simulating true epilepsy. In connection with his attacks, occasionally he would have symptoms of spinal disease strongly marked—the girdle sensation, exaggerated knee jerk, disturbance of the bladder, etc. I do not recall all the symptoms at this time, but they were very suggestive of myelitis. They all soon passed away and left him well for weeks or months at a time. In connection with these attacks, one peculiarity of the case was that the knee jerk and deep reflexes were expressly exaggerated and the testing of them was a serious matter to him. It threw him entirely off his balance. All these symptoms were temporary, lasting from a few days to a week or two, and recurring at irregular intervals of weeks and months. The case was one which I considered was largely neurasthenic, complicated, however, with more serious nervous troubles closely approaching attacks of epilepsy.

DR. BROWN (closing the discussion)—The term functional disease has a somewhat loose significance. I employ it to designate a disturbance of the function of an organ when by our present methods of investigation no definite pathologic change could be demonstrated in that organ. For the reason stated, it is pretty evident that in this the disease is spinal, and it is hardly conceivable that inflammation could have advanced far enough to produce the symptoms described and then disappear so as to permit a prolonged and almost complete resumption of the natural functions. That the functional disturbance of the cord from which this patient has suffered may, so to speak, herald the approach of permanent organic changes seems to me not improbable, and if so it ought logically to be considered as the beginning of organic disease, while at the same time it is functional within the meaning of the term as above defined. Strictly speaking, the existence of functional disease may be doubted, but nevertheless if used as defined above it is a very convenient term.

## THE ETIOLOGY AND TREATMENT OF INTERNAL STRABISMUS.

Read before the Section on Ophthalmology of the College of Physicians, Philadelphia, Oct. 16, 1894.

BY HOWARD F. HANSELL, A.M., M.D.

PHILADELPHIA.

I can not hope to discuss this extensive subject exhaustively, and I shall, therefore, limit my remarks to a brief consideration of functional internal strabismus arising from the unconscious constant contraction of the ciliary muscle in its effort to sharpen the blurred retinal image of the hypermetropic eye. No theme in ophthalmology has received more attention. A perusal of the literature of the last few years impresses the reader with the unanimity of authors as to their belief of the origin of squint and its proper treatment; yet shows great diversity of opinion 1, as to the part played by amblyopia, whether a cause or effect; 2, the result on vision of tenotomy, and he can not fail to remark that no important or decisive progress has been made since Donders' time, nor are we nearer a solution of the vexed questions than he was. It is worthy of note that thirty years have passed away and our knowledge of the true nature of internal squint has not been materially increased. No such stagnation marks the history of



other branches of ophthalmology. We boast of our progress and justly, for has not the ophthalmoscope revolutionized the study of intra ocular, intra-cranial and constitutional diseases, and cocain and antiseptics the surgery of the eye? But hypermetropic squint, notwithstanding conscious failures in its cure, remains where Donders left it. His great discovery is accepted by the ophthalmic world. The most eminent authorities believe that hypermetropia causes squint. The exceptions are a very small minority. For my part do not question it nor, I believe, does any ophthalmologist within sound of my voice.

Does amblyopia precede or follow the appearance of squint? Is it the cause of the inward deviation or the result of the non-use of the eye? Strabismic weakness of vision or amblyopia is thus defined by Alfred Graefe: "During the existence of a strabismus or after spontaneous or artificial cure, the vision of one eye is diminished below that of the other, and close examination will reveal no cause or one entirely inconsistent with the grade of the vision." He ranges himself in opposition to those who say it depends upon the non-use of the eye or upon the uninterrupted dragging of the retina or nerve by the abnormal convergence, and agrees with Knapp that the unequal action of the external muscles does not develop astigmatism of the cornea and thus produce lessened vision. The arguments he uses are familiar and need not be repeated. He believes that amblyopia is congenital and of central origin, and that hypermetropia is the prime cause of squint, which is maintained by a shortening of the muscle; that but little improvement of vision can be expected after tenotomy. In those cases of amblyopia without squint, he has been able to determine an early squint, which spontaneously disappeared.

Stilling's plausible theory of the position of rest as the cause of strabismus does not seem to have gained adherents. It is scarcely tenable. It is true that, as he says, the bounds of relative accommodation have been overstepped in strabismus, and binocular fixation is no longer a factor in controlling the position of the eyes, but this condition is induced by some antecedent power in active operation, such as hypermetropia, or by some anatomic peculiarity. The squinting position is, no doubt, a subjectively comfortable and restful one, since it enables one of a pair of misshapen eyes to assume the position in the orbit made necessary by the functional, and later anatomic shortening of the muscle. The factors he quotes as corroborating his view—the axis of the orbit, the position of the entrance of the optic nerve and the topographical relation of the fibrous and soft parts—have been used as arguments by those who believe the position of rest is divergence. The homonymous images discovered by experiments made with his own and friends' eyes by momentarily opening and closing the lids while gazing at a star, or light, or by artificial diplopia by Graefe's test, indicate simply the presence of a common muscular anomaly—esophoria, and can not properly be compared with results obtained by examination of a similar number of subjects while asleep or under anesthesia. Before cocain was used in ophthalmology, it was no unusual occurrence to observe, during anesthesia for tenotomy, that the squint had entirely disappeared when monocular, or had been transferred to the other eye. Schneller, in opposing the origin of squint out of "elastic superiority," and his expressions apply as

well in disproving Stilling's theory says: "I remembered that strabismus either disappears or becomes materially lessened in the condition of rest. Yet more marked is this, in deep narcosis, when every active movement ceases. Every convergent squint is lessened; in some entirely ceases, in a few goes over into divergence. It is impossible to determine the effect of operation under narcosis. Not only does convergent and divergent squint diminish or disappear in many cases, but is never, so far as I know, increased. The same happens in the dead. Weiss reports a case where the convergent squint materially lessened in the dead. Also, I remember having seen, during life, a squint which was gone after death." Gardner, of Chicago, in a short paper in *The Archives*, in answer to Stilling's paper, says that squint which is found with amblyopia *acquisita* is usually the divergent form, arising in conformity with Nature's law that predicates that when an organ is not used, its function is gradually lost. "If one eye has become blind from one cause or another, the struggle for binocular vision ceases. When the good eye is directed to an object where convergence is necessary, the blind eye simultaneously converges by force of habit and in obedience to identical nerve stimulation, but as the object is not seen, convergence of this eye becomes unnecessary, and gradually it becomes unsteady, then lags behind and passes into a relative divergent strabismus which may or may not become absolute. The exceptions to this rule are those cases which have enough hypermetropia to induce pathologic convergence, when the amblyopic eye assumes the convergence. These are cases of amblyopia congenita and not *acquisita*." He denies Stilling's assumption that when one eye has turned in, the relation of accommodation and convergence is abolished. On the other hand, the normal exercise of the accommodation in the straight eye is possible only because the squinting eye assumes the convergence of both. Again, it is shown by numerous reliable writers, that it is possible to bring about amelioration or cure of the squint by resumption of the function of both eyes through the continued use of atropin and properly fitted glasses. Now, if convergence were the position of rest, all inducement to recover binocular vision would be wanting and a cure would be in opposition to Nature's law. Moreover, if abnormal convergence were the position of rest of hypermetropia we would find, not only convergent squint in hypermetropia but that it would be more common in hypermetropia than it really is.

The coördination of the visual axes, or the want of it, depends upon several conditions, namely, the refraction, the vision, the relative strengths of the several external muscles, the axes of the orbits and the innervation, including the conductivity of the nerves, the functional activity of their nuclei and of the cortex. Since our study deals only with purely functional deviations, we need consider only the bearing of the refraction, the vision and the innervation:

1. *The Vision*.—Congenital amblyopia, without anatomic changes in the media or fundus that can be detected by the ophthalmoscope or any other means, is associated with internal squint in about 75 per cent. of all cases. Vialet (*Arch. d'Oph.* Vol. xx, p. 289) analyzed 150 cases of strabismus, and found 122 with amblyopia. He says that in eight of fifty-one repeatedly examined cases, improvement of vision

began after tenotomy, and mainly in convergent strabismus with amblyopia of brief existence and low degree. We can only speculate concerning the relation of amblyopia to squint. We must confess ignorance of its true nature and of its etiologic connection. It is generally conceded to be congenital, though the misleading surname "ex-anopsia" still clings to it. That it can be benefited by operation is doubtful, "a pious hope rather than an assured expectation." (Noyes). That it does improve and in a short time disappear so that full acuity of vision is finally acquired in cases where, through accident, the good eye is destroyed, is illustrated by two cases reported by Johnson—one in the transactions of the American Ophthalmological Society of 1893, the second, in the *American Journal of Ophthalmology*, January, 1894. Why, then, does not the same good result ensue after tenotomy? For two reasons: 1, because the parallelism of the axis of the squinting eye with that of the other is seldom obtained—it is simply approximate and conjectural; and 2, there is no incentive to binocular fixation. The patient with sharp acuity in one eye will rely upon that eye for information of the outside world. The dull image in the cortex or visual center, even though that on the retina is accurately defined, will be recognized, if perceived at all, as an annoyance to be suppressed. A patient now under treatment, illustrates this point. Vision of L. is 20-15; R. 20-40. I have succeeded by various operations, in making the axes meet at several distances, but he sees the sharp clear image of the candle flame of the L. in the center of the large, indistinct, retinal or cortical image of the R., and instantly dismisses the latter by an inward or outward rotation of the R. The final result is only cosmetic. I can not agree with Fulton (Transactions, Ninth International Congress) and with Landolt, that vision of the squinting eye is improved after tenotomy, binocular vision being restored, and if the eye continues to squint, vision diminishes, but fully coincide with Wadsworth (*Boston Medical and Surgical Journal*, Jan. 20, 1887), that amblyopia is not caused by squint or that amblyopia improves after squint is corrected. I am inclined to go a step farther, and assert that convergent strabismus with amblyopia is seldom, if ever, permanently cured by tenotomy of the internal muscles and correction of ametropia, however accurate. Stereoscopic exercise, upon which Landolt lays stress, is a useful adjunct in restoring muscular fixation in heterotropia, by exercising weakened muscles, but is of very little service in developing the function of a congenitally imperfect eye.

2. *The Refraction.*—Seventy-five to ninety per cent. of convergent strabismus is found in hypermetropia. Snell (*British Medical Journal*, 1887) makes a higher proportion. He says convergent strabismus stands in direct connection with hypermetropia in 95 per cent. Donders has shown that the relation or connection between hypermetropia and internal squint is that of cause and effect, and his theory has been almost universally conceded to be the true one. Internal squint is occasionally found in E. and in M. In this small minority of cases it would seem as though some other hypothesis would be necessary, but this need is only apparent. It would doubtless be found as others have said, that hypermetropia preceded the M, and again where a myopic correction is worn, the strain on the accommodation of too

high a glass—or the attempt to correct, subjectively, an existing astigmatism, may produce exactly the same effect on convergence as the effort to overcome a shortened axis. Again, some writers attempt to disprove the truth of Donders' theory by claiming, that according to it every hypermetrope should at some time of his life have internal squint. This objection can be successfully refuted. Valude (*Archiv. d'Oph.*, Vol. x, No. 4), teaches the true doctrine of the relation of hypermetropia to internal squint, when he says that convergent strabismus does not depend upon ametropia alone, but that a neuro-pathic disposition is an important, sometimes the principal factor. Moreover, every one who has investigated the condition of the external muscles is convinced that esophoria is a very common anomaly in hypermetropia, and the phorias, or tendencies to squint differ from the tropias or actual turnings, simply and only in degree. The exceptions are rare when we find equilibrium in association with any material error of refraction. Thus we are again brought face to face with the incontrovertible fact, persistently and successfully advocated for the past twenty years, preëminently by the leading ophthalmic surgeons of Philadelphia, as was so ably presented to the Fellows of this College last spring by its honored President, that errors of refraction, particularly hypermetropia and astigmatism are the underlying cause of anomalies of muscular action and that no effort directed toward a restoration to equilibrium can be successful unless attention is first given to relief of accommodative strain by constant wearing of as near as possible a full correction of the optical defect. The general profession is under deep obligation to Weir Mitchell, Dyer, Norris, Thomson and others for the light thrown by their clinical studies on obscure intractable headaches and other disturbances of the nervous system, which showed that their cause was to be sought in accommodative or muscular strain. Ulrich concludes that squint is prevented in hypermetropia by reason of the muscles themselves through a relative weakness of adduction, corresponding in degree to negative accommodation or an absolute muscular incapability and the intellectual necessity of the visual act, which demand the fulfilled function of binocular vision and rebel against the disturbances of diplopia incident to commencing internal strabismus.

3. *The Innervation.*—Full binocular vision in uncorrected hypermetropia depends upon the accommodation, the convergence and their relation to each other. Whenever the desire for binocular vision is impossible of gratification, for instance, when excessive accommodation demands excessive convergence, or when the hypermetropia of one eye exceeds that of the other by several dioptries—2 to 4—or this desire has never existed, the axes of vision are turned toward, rarely from, each other. Thus we have two classes of hypermetropic squint—the alternating and the constant. Again, as has already been alluded to, the disturbance of the relation of accommodation and convergence in hypermetropia does not necessarily induce an obliquity of one of the axes, but may develop latent squint or esophoria. In the latter the desire for fusion is sufficiently strong to equalize, under pressure, abduction and adduction; in the former, abduction has yielded to the greater physiologic force of adduction. In normal muscular action and innervation, the muscles are in equilib-

rium—adduction equals abduction; R. sursumduction equals L. sursumduction, but, if by reason of the refraction of one or both eyes, unequal accommodation, or constitutional disturbances, the innervation or the power of the muscles to respond to the innervation become deranged, we have a pathologic condition of turning or tendency to turn. Here the tests employed under normal conditions to measure adduction and abduction are no longer reliable, and efforts to measure cerebral function, such as fusion force, by constant unalterable agents, like prisms, are attended with varying and inconstant results. Therefore to say that in heterophoria, adduction equals so much, abduction equals so much, and thus to estimate the strengths of the separate muscles is not consistent with scientific principles. While we measure adduction we are also measuring abduction. A prism angle held before one eye will, if not too high, induce contraction of the internal rectus, rotating the cornea inward. The opposite internal rectus will also be stimulated to contract, but if we want to hold single images the external rectus of that eye must contract equally to hold the axis straight. This, again, by stimulating, abduction excites the external rectus of the first eye in equal degree, or, the contraction of the internal rectus of the eye before which the prism is held, acting in lateral movement, stimulates the external rectus of the opposite eye. This can not rotate, but must be held fixed by its internal rectus, which in turn excites its corresponding external rectus in lateral movement in the opposite direction. Thus when we say adduction equals 20 degrees, we mean adduction and abduction are both equal to 10 degrees and each muscle overcomes 5 degrees. In testing sursumduction the same difficulties are met with and the physiology is still more obscure and complicated because eight muscles are involved in each experiment. In actual deviations of one of the axes, adduction and abduction can not be measured by prisms, since there is no binocular fixation and can be only approximately estimated by observation of the lateral movements of the balls. To learn the exact amount of deviation, it is essential: 1, that the patient shall be compelled by all available means to recognize double images of a candle flame at twenty feet and nearer distances; and 2, that the distance between the false and true light be measured by the angle of a prism or by lineal measurement. In manifest squint this distance will be found to vary but slightly from day to day, but in those cases which lie in the borderland between latent and manifest squint, when binocular vision alternates with diplopia the angular deviations are constantly changing, according to the innervation and fusion force exercised at the time of the examination. By this method of examination it will be found that in every case of internal strabismus, the squinting eye is rotated upward. The image of the candle flame will fall in the retina in a plane higher than the plane of the fovea, hence will be seen lower than the true image. In pure internal rotation the images should be on a horizontal plane. This can occur only when the patient's attention is fixed simultaneously on both images, a condition never found in manifest strabismus. In monocular squint, by which I mean cases in which one eye is always used in fixation and the other always is turned inward, the squinting eye is rotated obliquely inward and upward, and the false image maintains a

position lower than the true. In alternating squint, where either eye may be used in fixation, the squinting eye is rotated inward and upward, and when the fixation is transferred to the former squinting eye the inward and upward deviation is also transferred. These phenomena can only be interpreted by pursuing to its proper conclusion Donders' theory of hypermetropic squint.

Abnormal convergence is induced through the supra-normal contraction of the ciliary muscle necessitated in the effort for clear vision. The stimulus thus received by the ciliary branch of the third nerve is communicated to the several nuclei of that nerve in the floor of the fourth ventricle and an order for corresponding contraction sent out to all the muscles supplied by that nerve. If this stimulus could be limited to the interni, simple convergence would result, but clinically, it is shown that the resulting contraction is far more complicated and includes the superior and inferior rectus and the inferior oblique. The simultaneous contraction of these muscles rotates the cornea upward and inward—inward because the opposing external is quiescent, upward, because the two elevators thus set into action overcome the one depressor.

In alternating squint, the transference of fixation involves necessarily a transference of the strabismus. The cornea of the squinting eye is directed inward and upward and not inward alone. The degree of hypertropia bears a constant relation to that of esotropia. I have never found it less than 2 degrees and often as high as 6 and even more. If Donders' theory is correct that primarily hypermetropia and secondarily the accommodation in hypermetropia induces squint, it follows that it must also be the cause of the hypertropia. This condition has often been observed and noted without explanation. I have deemed it a matter of sufficient importance to make it the subject of several articles: 1, because hypertropia is as common as esotropia; and 2, because cognizance of the upward deviation demands a modification of the usual methods of treatment, as well as of the prognosis.

I agree with Carter and others in believing that in all cases of internal squint in which operation is advisable, the tenotomy should be divided between the two internal muscles, and that no permanent good result can be obtained by confining the procedure to the eye which at the time of the examination squints. In constant squint, where the patient can never by reason of amblyopia, voluntarily transfer fixation, binocular vision can scarcely be expected, but the best result is obtained by tenotomy of the interni, the superior rectus of the squinting and the inferior rectus of the fixing eye. It may also be necessary to suture the external rectus of the squinting eye. In alternating squint, where amblyopia is never present and the patient arbitrarily chooses either eye for fixation, binocular vision can be obtained as a permanent result in the great majority of cases, by tenotomy of the interni. The want of equilibrium of the vertical muscles is only apparent and should not receive direct surgical treatment.

In all cases, without exception, the error of refraction must be carefully corrected and a full correction worn, and since the curve of the cornea has been known to be modified by tenotomy, the final correction should be made after operation. In very young persons, tenotomy should be postponed until suffi-

cient time has elapsed to demonstrate the futility of restoring binocular fixation by atropia, glasses, prism and stereopticon exercises and other measures.

My conclusions, scattered here and there through this somewhat rambling paper may be tersely stated as follows:

1. Amblyopia is congenital and not acquired; is not improved by tenotomy when high or of long duration; is always present in monocular squint; is not a factor in alternating squint; can be replaced by full acuity of vision after the hitherto good eye has been rendered by accident or disease inferior to the squinting eye.

2. In monocular constant squint the cornea of the squinting eye is turned upward as well as inward.

3. In concomitant or alternating squint, the non-fixing eye is turned upward as well as inward, and with transference of fixation there will be a transference of both the upward and the inward deviation.

4. Donders' theory, extended to include all the muscles supplied by the third nerve, and not the interni alone, is a sufficiently satisfactory explanation of the upward deviation.

5. Atropia and full correction are, in many cases, curative agents.

6. All operations should be done under cocaine anesthesia.

7. In monocular squint, vertical equilibrium must be restored by tenotomy, while in alternating, division of the interni is sufficient.

## THE MENTAL CONDITION OF ARTHUR DUESTROW.

A REPORT SUBMITTED TO HIS ATTORNEYS.

BY CHARLES GILBERT CHADDOCK, M.D.

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At the instance of Hon. Charles P. Johnson, his attorney, I examined Arthur Duestrow, with a view to determine whether he was sane or insane. The circumstances to consider were that the client stood indicted for the brutal and motiveless murder of his wife and child; that he had been in confinement, in jail for several months; that he had manifested symptoms indicative of an abnormal mental state; and that the plea of insanity was the only possible preventive of punishment for his atrocious crime. These circumstances made it obligatory upon me to examine him with special reference to the possibility of his feigning insanity as a means of escaping the legal penalty that threatened him.

I visited the prisoner several times in the jail at the Four Courts in St. Louis. He received me kindly and was on all occasions when I was with him polite in manner and remarkably communicative. He always expressed himself with freedom and with every outward sign of sincerity. He willingly submitted to my physical explorations, and gave me every opportunity to satisfy myself.

*Physical Examination.*—He was 26 years of age, and his appearance accorded with his years. He was in a fair state of bodily nutrition, though he weighed several pounds less than he did at the beginning of his incarceration. Height, nearly six feet. His color was good, and his circulation perfect. The heart was found to be normal; pulse rate, normal. There were

no signs of pulmonary disease of any kind. His appetite was excellent and there was no evidence of gastro-intestinal disturbance. There were no symptoms to indicate a diseased condition of the kidneys. His general physical development was good, the muscles were quite firm and fairly developed, considering his past confinement; the skin presented no anomalies. Inspection revealed no marked physical sign of degeneracy. His head was slightly above the average size, and presented no asymmetry. The ears were well formed and the jaws did not deviate markedly from average standards in form.

*Nervous System.*—There was no indication of paralysis, paresis or incoördination; no tremor. Cutaneous sensibility was normal. The knee jerks were present and equal; the pupils reacted normally to light and accommodation, and were of equal and normal size. Articulation was perfect—distinct, unhesitating; no fibrillary twitching of tongue or lips. Sight and hearing were perfect, and there was nothing to indicate anomalies of any of the special senses. No complaint of pain of any kind was made, nor of vertigo. There were no scars indicative of epilepsy.

From these findings I assert that Arthur Duestrow was not suffering with any functional or organic disease of the peripheral nervous system or spinal cord; that there was no organic cerebral disease in his case; at least that the presence of such anomalies in him were not discoverable by any means known to science. Thus the only remaining possibility of disease was that of functional cerebral disturbance.

*Cerebral Functions.*—Emotional state or feelings: There was no sign of depression of feeling—an absence of all the outward expressions of a feeling of sadness or melancholy; the emotions changed with the change of thought, showing no sign of affective inhibition. In striking contrast with such a possibility, his mood, or state of feeling was, on the whole, one of mild expansiveness, expressed in an unmistakable show of satisfaction with self and a manner indicative of a sense of superiority to others.

This emotional state was one that could have no rational root in his circumstances. He was in confinement, deprived of all the amenities of life, associated with the lowest class of men and awaiting trial for his life. Instead of remorse, sorrow, anxiety, fear and depression, his manner, facial expression and conversation revealed a state of mental feeling in striking contrast with these. Had he been an innocent man he would normally have had great cause for fear, since in the newspapers which he received daily he read of the intense popular prejudice against him; as a malingerer, he would necessarily have recognized the small chance of escape he had, even though he simulated insanity to perfection. All these circumstances tending to bring him to some expression of doubts, fear or anxiety for his future, were absolutely without their normal effect on him. On the other hand, the absence of these natural feelings was not occasioned by indifference of his future. The ideas he expressed were in complete accord with his general mood; he was hopeful, ambitious, proud and self-assertive, and the ground for all these was evident in the thoughts he freely expressed, which, at the same time accounted for the apparent absence of remorse and regret. His feeling of satisfaction was so marked and so predominant as to perfectly withstand the presentation and emphasis of facts which would dispel it in any normal person; pervading



consciousness so exclusively as to overcome any tendency to irritation and anger that would naturally flow from strenuous contradiction and opposition to his views. If this remarkable state of feeling was assumed for the purpose of deception, it was done with a perfection and unchanging persistency that absolutely defied its differentiation from a genuine emotional state.

Aside from this state of mild emotional expansiveness, there was no exaltation of feeling in any way resembling the emotional state, characteristic of mania and maniacal states. Therefore, I pronounce the prisoner free from mania and melancholia, and from any disposition to feign either of these.

To form a judgment of his intellect, conversation was used to test his powers of perception, attention, memory, imagination, reasoning and judgment. His perceptions were lively and more or less accurate; he had fair power of attention, his thought was quite clear, his reasoning logical, and he displayed remarkable activity of imagination—all with reference to the premises which formed the material of his mental operations. He entertained a great variety of ideas of intricate construction and complicated association. These facts were sufficient to demonstrate that the prisoner was not afflicted with any form of mental weakness or confusional insanity, and that he made no effort to simulate such a disease. The forms of insanity incident to the originally normal brain having thus been excluded, the inquiry became reduced to the existence of the real or feigned existence of some degenerate form of mental disease. Of these forms, the foregoing considerations, taken with other evidences—which need not be enumerated—have already excluded all but one; namely, depressive reasoning insanity, periodical and circular insanity, and the mental diseases from the neuroses, epilepsy, hysteria, etc. Thus by exclusion it was certain that he was sane, or had or was feigning the only remaining form of degenerate insanity—paranoia.

Paranoia is the name of a *chronic progressive* mental disease, usually manifested in systematized delusions that are of primary origin; that is, delusions that do not arise out of preceding mental depression or exaltation. Commonly this disease is a result of conditions inherent in the brain organization of the individual which determine the form of the disease. Study of cases of paranoia shows that there is always a history of mental symptoms which antedate the development of the perfected delusions, and often other symptoms of a vicious constitutional state of the nervous system in general; and to these are added in many cases the existence of nervous and mental diseases in ancestry that have been influential through heredity. However, paranoia may arise in persons whose heredity is in nowise at fault, and in this case it is usual to find that some decidedly injurious influence has affected the individual early in life in such a way as to lastingly and inherently harm the nervous constitution. Since the constitutional defect which underlies paranoia is imperfection in generation and development, paranoia, with other mental diseases of like origin, is called degenerate. The degeneracy at the bottom of paranoia varies in degree, and we observe corresponding variations in the mental symptoms. Thus the deeper the degeneracy, the earlier the mental disease appears, and the more sure and rapid is the progress to a condition of permanent mental weakness.

The delusions of paranoia all concern the person directly. They are of two kinds: Delusions of persecution and delusions of grandeur. Again, the earlier in life paranoia appears, the greater the chance that the delusions will be of a grand character; hence primary delusions of grandeur indicate deep degeneracy and presage early development of permanent dementia. Arising late in life, the delusions of paranoia are almost certain to be of a persecutory nature, and their character may remain unchanged throughout life. Where primary delusions of persecution arise early in life and are on a deeply degenerate foundation, they are apt to change in character, and this change affords a trustworthy indication of the further course of the malady. This change of delusions of persecution is called the *transformation*. This consists of a change of primary delusions of persecution to delusions of personal aggrandizement. The transformation, whenever it occurs, is a sign that dementia will ultimately come on, and the earlier it takes place, the more rapid the progress to mental weakness will probably be. When the transformation has taken place, there is not necessarily an entire absence of the former persecutory ideas; rather they are overshadowed by the grand delusions. Occurring with the change of ideas, there is a corresponding change of feeling. While persecuted the paranoiac is morose, sullen, silent, suspicious, treacherous and often violent; after the transformation, he becomes talkative, friendly, self-satisfied, proud and important, and may even go so far as to excuse his former imaginary persecutors.

The process by which the transformation is accomplished varies. It may result from a chain of reasoning; it may take place suddenly as a result of an hallucination, a dream, etc. Whether the result of a reasoning process or not, the secondary delusions of grandeur are always intimately logically connected with the primary delusions of persecution. Thus one person concludes, as the logical outcome of his persecutions, that he is entitled to some great privileges of honor, position or fortune which usurpers are in the enjoyment of; and he attributes his persecution to those who occupy the place which he fancies belongs to him. Under appropriate surroundings of life and circumstances of education paranoiacs, after the transformation, become in their thought kings and princes, religious reformers, political enthusiasts, heirs to great estates, great inventors or discoverers. Love plays a prominent part in some cases. It is customary in text-books to make numerous classes of paranoia in accordance with the particular nature of the ideas expressed, but such subdivisions are of very minor importance; and besides in a single case we frequently find a combination of ideas which would require very numerous descriptive terms. Thus in all cases of paranoia, we find sexual elements; we rarely miss a distinct philanthropic motive, after the transformation; religious ideas are but exceptionally wanting; and political views of a delusional character are as common. The reason for this expression of false ideas on so many subjects lies in the fact that the whole mental personality is implicated, and therefore all thoughts and experiences are necessarily and intuitively brought into harmony with the fundamental mental tone.

In paranoia the logical and associative powers of the mind are not necessarily impaired; rather mental associations are facilitated as a result of the extra-



ordinary intensity of consciousness characteristic of the disease. This intensity of consciousness of a direct personal kind accounts for the instantaneous mental assimilation of all ideas, no matter how incongruous or contradictory, and the forcing of them into immediate association and logical relationship with the predominating delusions. Such a phenomenon as this is only possible before much mental weakness has supervened. This automatic assimilation of incongruous ideas shows that in such a case all power of critical examination of facts has been lost; and thus even here there is actually loss as well as distortion of mind.

Hallucinations and illusions, while not a necessary accompaniment of paranoia are rarely wanting, and when present they afford important sources for the creation and elaboration of false ideas.

It now remained to determine whether the prisoner presented a mental condition like that present in paranoia, and if so to ascertain whether it was a product of disease or voluntarily assumed to deceive.

The expansive mood previously described as presented by Arthur Duestrow, corresponds in all its features with that observed in cases of paranoia after the transformation has taken place. In this case the state of feeling was out of all harmony with actual external conditions. Was it in harmony with ideas entertained by the prisoner?

The prisoner's conversation was free and open; there was nothing in his manner to raise a suspicion of a lack of frankness; his mien was open and straightforward. Thus there was no difficulty in inducing him to be as communicative as desired. Without prompting, he went into a detailed description of ideas and experiences of a very remarkable character. He said that he had made the greatest discovery of modern times; namely, the fact of mind-transference and the ultimate possibilities of hypnotism and animal magnetism. By means of this discovery he was about to revolutionize all medical sciences, and liberate the world from crime, vice, and maliciousness. His discovery made clear to him much in his own life that had before remained inexplicable. Hypnotic influence and malicious thought-transference had been used by his enemies to control and persecute him. Thus he had been induced to drink, and injure his wife and child. After his incarceration began, the same influences had been used to persecute and annoy him constantly, thus driving him to attempt suicide. Machines, telephones, batteries, etc., had been used in this way, by placing them in hiding in his cell and elsewhere; and he had been made to have hallucinations and delusions by the same means. This state of unmitigated persecution had continued until he had suddenly discovered the nature of the means used and the great preventive to overcome their malicious use. Since this sudden discovery he was still the object of persecution, but he obviated its effects by using his great preventive. He explained the prevention now as the natural consequence of his being a great pioneer in a new field, likening himself in this respect to Christ, Columbus and others. In this influence of hypnotism, thought-transference and animal magnetism he found an explanation of all diseases and the way to cure all diseases. He gave the details of an elaborate and impossible theory of the relation of the spleen to the "glandular system," the blood, the body, the convolutions of the brain, and its effect to cause and cure

disease by means of animal magnetism. His preventive consisted in his knowledge that possession of the "positive and negative sparks" would keep off the influence of "malicious thought-transference." He had become so accustomed to use this preventive that he could apply it effectually even in sleep, to save himself from persecutors who sought to gain control of him by exercising their influence on him while he was presumably unconscious and unable to protect himself. He asserted that all persons who in any way looked like him, had the same thoughts, the same feelings that he had; that when he was persecuted, those like him were similarly annoyed and controlled. He explained an elaborate system of colored sparks which evidenced great imaginative ingenuity. He sought to show how he could anesthetize a person at a distance by taking chloroform himself and transferring its effects by means of thought. Since his discovery he had become able to exercise the influence on any one. He could make any person do what he willed, think any thought he desired, read their thoughts, etc., etc.

The prisoner made several attempts to display his boasted powers which was successful only in his confiding imagination. These attempts were offered as demonstrations of the truth of his assertions. He tried to tell the hour by means of the mind of a third person in sight of a public clock; to transfer the odor of a rose from a flower-shop blocks away. He told of various vulgar acts to which he had forced others by his power. There was a sexual tinge in much that he said. His discovery had enabled him to read the thoughts of men the world over, and thus he was able to foretell human events. In this way he had learned of his elevation to a high position as surgeon in the army; of his relationship to certain aristocratic persons in Germany; of his election to the College of Jesuits by the Pope for services in revealing the dire designs of members of the Church of God directed against the Church of Rome. Moreover, by the use of his powers he had converted all the physicians who deemed him insane to complete recognition of his sanity. He told how; controlled by malicious thought-transference, he had been made to shoot his wife and child, but explained that the wounds were merely superficial and that they had recovered and now understood what had forced him to act so unnaturally; he had seen his wife and child (illusions) and was therefore convinced that the proceedings against him were a farce and about to be dismissed. The effort to prove him insane was but a ruse of his enemies who sought to influence the lawyers and doctors and make them believe him crazy, in the hope to get him into an asylum. He would show at his trial that he was sane and all the doctors insane. He gave a history of himself which showed that he had repeatedly had illusions and hallucinations, and while under examination he frequently gave signs of having rudimentary hallucinations. His description of hallucinatory experiences was remarkable for its originality and for its perfect correspondence with that given by insane persons of their mental phenomena.

This recital of his ideas might be much further extended, but such a narrative could add nothing to the foregoing exemplification of the general nature and character of his intellectual operations.

The prisoner's description of his life in jail and the evidences at hand, showed that at the beginning

of his confinement he had delusions of persecution and hallucinations; that his mood, corresponding with these, was then silent, sullen and suspicious; that suddenly, after some months, a change had come which was the inauguration of his present state of thought and feeling. The persecutory ideas had persisted but had become subsidiary to the grand delusions and logically connected with them.

No kind of contradiction or demonstration caused him to change countenance or modify his views and assertions. There was perfect harmony between his grand ideas and his expansive mood.

The manner in which the prisoner conversed and defended his impossible and absurd notions was remarkable for the readiness and rapidity with which incongruous ideas and facts were accepted, distorted and explained from his delusional standpoint. The effect of trivialities in their suggestive relation to his mental operations was at once a matter of surprise and wonder to one observing it. It could not be adequately described in words. Never was there anything thus exhibited in any way out of harmony with his predominating state of consciousness. These were the most striking features of his mental condition taken with the constant display of his lack of critical powers.

In his ideas we find delusions of persecution, personal aggrandizements, sexual tinge, religious tendencies, philanthropic schemes, etc. He gives evidence of having had all the symptoms of the developments, course and transformation of the mental state seen in paranoia; of having at present the symptoms characteristic of that disease after the transformation has taken place. His hallucinations and illusions are characteristic in their minutest details of that malady. The instantaneous assimilation of all kinds of sense impressions and ideas, and their immediate harmonious association in consciousness, are again characteristic of certain stages of paranoia. Throughout all the system of symptoms he presents there is a perfection of harmony in their combination that leaves no doubt that he exhibits an exact portrayal of a definite type of mental disease, and that the type is paranoia. Were these symptoms feigned? Since they correspond in minutest detail in development and course with a very definite form of disease; and since they are of the greatest complexity, if feigned, their presence betokens the most profound knowledge of insanity, which could come only after years of study and observation of the insane in constant association with them. Such a knowledge could not be gained from books, much less imparted by word of mouth. If the prisoner can be shown to have spent years with the insane, and to have a mind far above the average, we may allow, for the nonce, that he feigned these symptoms. Allowing this, we should expect an absence of all the ordinary signs of feigning, as we do in this case. Allowing that the prisoner is simulating, with such a profound knowledge of insanity he would certainly choose an easier part to play. Mere delusions of persecution would serve the purpose of a simulator as well; there would be no need to go through the transformation; no need to bring in all ideas—sexual, religious, philanthropic, etc. However, in the symptoms presented by the prisoner there is an element which no person could successfully simulate, no matter if a master in knowledge of the insane mind; namely, that rapidity of reception, associa-

tion and delusional interpretation of all external impressions, experiences and ideas, no matter how inharmonious or contradictory they are in fact;—a process in which there is never any flaw, never anything incompatible with the fundamental state of consciousness. Such rapidity of assimilation and association of mental impressions is seen in other forms of mental disease, but never with the logical connection and systematic creation of mental combination that characterize it when present in paranoia.

The presence of this element, associated with the other mental symptoms in this case, is positive and unmistakable evidence of disease, and as positive evidence of an absence of feigning. In any case of feigned paranoia this element would necessarily be lacking; for it is impossible for a normal mind to act in this way. The normal mind, in possession of its ordinary critical powers is, as it were, by a psychologic law, forced to exercise criticism—to compare, weigh and consider; this requires time, and is shown outwardly in hesitation, delay, uncertainty, and equivocation in the expression of judgments. The paranoiac's mind, devoid of the power of criticism, has no need to weigh or consider; as it were, the explanation of any possible event that can be presented to his mind is ready, created before the event is perceived. In other words his mind receives everything automatically, is never surprised or led away from its predestined path of activity. The reason for this peculiarity lies in the fact that the operations of the mind of the paranoiac are directed by inner cerebral conditions; whereas, in a normal mind the mental activities are constantly modified by the logic of impressions coming through the senses. This process peculiar to the mind of the paranoiac, is involuntary and incapable of voluntary imitation.

The origin, development and transformation of the prisoner's delusions are sufficient to demonstrate their relation to disease; but it might be objected that some other proofs were required to show his false ideas to be insane, rather than sane delusions; for a delusion *per se* is no sign of insanity. A sane delusion is a false belief that has arisen as a result of teaching, ignorance, or erroneous interpretation of experience. Such a delusion may be so tenaciously held as to resist all powers of demonstration and argument, and require a course of careful education to eradicate it. A sane delusion may at any time become an insane delusion, when appropriate conditions arise in the individual. For example, many normal persons entertain delusions concerning so-called thought-transference. Under normal conditions this error has merely an abstract value for the mind that entertains it; it bears no concrete and immediate relation to the individual. To become an insane delusion such a false belief must be brought by the mind into direct bearing upon its operations; the person must find within himself reasons which convince him of this relation—he must interpret inexplicable inner events, activities and sensations as due to the operation of the influence which he has previously believed in only in an abstract and impersonal way. The changes within himself may be normal or abnormal; the absence of critical power which enables them to be brought into immediate relation with the false belief is always due to a diseased mental condition.

Thus in the prisoner's case, his delusions are insane

delusions because, in the abnormal absence of critical power, he brings them into direct relations with events, sensations and phenomena which are present only in his inner consciousness. These facts are sufficient to show beyond a doubt that Arthur Duestrow is insane, that he is suffering with paranoia, and that he is incapable of understanding the nature of the trial he is approaching.

I have never seen or heard of recovery in a case of genuine paranoia. I am confident that in this case an examination of the ancestral and individual history would reveal the degenerate basis of the malady. Remembering the comparatively early age (25) at which the disease reached complete development, the rapid and early completion of the transformation, and the absence of critical powers, it seems probable that dementia will supervene with comparative rapidity. By this, I mean as compared with the oncoming of dementia observed in ordinary cases of paranoia. It may be several years before the mental weakness becomes so apparent as to strike a lay observer. "Acute paranoia," so-called, is a curable disease, but to apply the word, paranoia, to any form of acute mental disease is to do violence to scientific nomenclature; there is no reason to regard this case as one of acute mental disease.

Aside from the probabilities mentioned, there are other possibilities that must be considered in this case. In any case of paranoia, remissions of short or longer duration may occur, and in such an event there is an apparent return to mental health for a time, but always ultimately the symptoms reappear, and the former delusional creations are again taken up and further elaborated. Moreover, a paranoiac may at any time simulate sanity, and that so successfully as to deceive all but the most experienced observers. The simulator of sanity reasons in this manner: "As long as I talk about my ideas, they will think me crazy and deprive me of freedom; therefore I'll conceal my ideas and accommodate myself to those who restrain me." This ruse is only too frequently successful in bringing about release from custody, and numerous paranoiacs have thus hastened from the asylum to kill some person representing an imaginary enemy. The ideas of the paranoiac are not necessarily "fixed" or unchangeable, and therefore it is to be expected that those at present entertained by the prisoner will alter more or less in time, though their general nature will not change until permanent dementia has supervened. A paranoiac may, like any man, become subject to an organic disease, such as paretic dementia; or his fundamental malady may become complicated by some acute mental disease.

Such a consideration as this, suffices to show the utter absurdity of defining a paranoiac as a person whose opinions differ from those entertained by the majority of mankind. Opinion, like a delusion, can never be a sign of insanity until it can be shown to have a foundation in disease.<sup>1</sup>

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<sup>1</sup> In this report, the legal requirements restricted the writer to the condition of the prisoner subsequent to the homicide; thus an important part of the medical aspect of the case was excluded. The facts, however, show that there is alcoholism in immediate ancestry, and hysteria in immediate collateral. The previous history of the

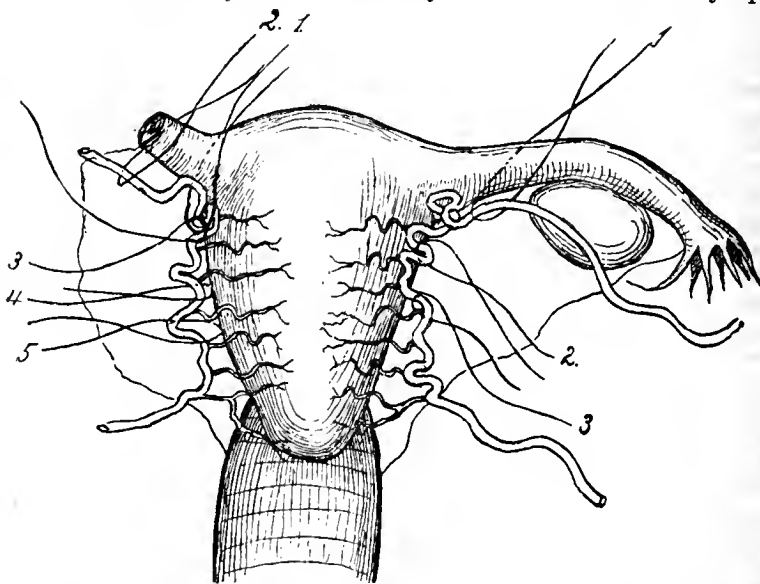
## REMOVAL OF THE APPENDAGES AND LIGATION OF THE UTERINE ARTERY TO THE UTERO-CERVICAL JUNCTION.

REPORT OF THIRTY CASES OF A NEW OPERATION.

BY BYRON ROBINSON.

CHICAGO.

The above operation I introduced about two years ago. The technique consists in ligating the appendages and then snipping them off. An aneurysm needle armed with a double ligature is then passed through the broad ligament at the cervico-uterine junction on the inner side of the uterine artery. The one ligature is tied along the side of the uterus including the perpendicular arteries of the uterus, the Fallopian tube, round and ovarian ligaments. The other ligature is tied on the broad ligament including the ligamentum infundibulo-pelvicum. Another method consists in ligating and removing the appendages and then simply ligating the uterine artery once or twice as it courses through the broad ligament by the side of the uterus as low down as the neck. The first method is the best, as it atrophies not only blood vessels but nerves and ganglia. We have ligated the uterine artery down to the cervico-uterine junction in nearly all of the cases. No symp-



This drawing is intended to show the method of operation. The right tube and ovary have been tied by ligature 2 and removed. Ligatures 1 and 3 are introduced on an aneurysm needle and tied. Ligature 4 shows the lowest point at which I have ligated. Ligature 5 might be considered to be within the danger line. The left tube and ovary have not been removed, but ligature 1 includes the tube and artery. I have ligated the uterine artery as low as the point indicated by ligature 3 on the left side. The drawing is somewhat diagrammatic, but the arteries are as natural in their position and relations as I could draw them. Lately I have only used one double ligature to ligate the artery fully as low down as No. 5.

toms of tissue death in the uterus have so far appeared in any of the cases. In some cases pain is severe from twenty-four to forty-eight hours, but it seems due to trauma by the ligatures on large numbers of nerves and ganglia. This pain can be quieted with  $\frac{1}{16}$  gr. morphin once or twice, for the main pain is generally over in fifteen hours. This operation can be widely applied in surgical gynecology. It pro-

prisoner shows marked mental dullness, delusions of suspicion, sexual perversity and intolerance of alcohol. The double murder was presumably connected with a state of alcoholism, and the fully developed mental distortion was manifested immediately after the murder. Thus far it remains uncertain whether the crime was directly the result of delusion, or the deed of an insane man excited by a triviality to ungovernable rage.

duces sufficient shock on the circulatory and nerve apparatus to quickly atrophy growing uterine myomata. The effect of ligating the uterine arteries as they course through the broad ligament is to atrophy the endometrium rapidly—checking endometrial secretions and hemorrhage. The pelvic floor is preserved intact by this operation, obviating the danger of vaginal hernia.

In a vaginal hysterectomy made by Dr. Lucy Waite with my assistance, a vaginal hernia followed several months after the operation. This operation brings on the menopause rapidly. It followed in two months in one case. The operation leaves a functionless, atrophic, normal positioned uterus, which so far among our patients has given no trouble. This report is based on thirty operations made during the last twenty-six months. In several of the cases I assisted Dr. Lucy Waite and Dr. Bertha Van Hoosen, and include them in the report. The utility of the operation consists in the following points:

1. It checks hemorrhage.
2. It arrests menstruation.
3. It elevates the uterus.
4. It shrinks the uterus.
5. It avoids the removal of uterine myoma.
6. It avoids vaginal hernia.

We have proved that the operation is suitable to every one of the above six propositions. Dr. Van Hoosen reports that not one of the cases in which I assisted her in operating has menstruated. I know of not a single case in which Dr. Waite and I operated where menstruation continued. We removed the appendages and tied the uterine arteries on a patient 37 years old, with a myoma extending above the pelvic brim. Three months later the tumor was decreased one-half; eight months later the uterus is what I should term almost normal in size. The operation shrinks the metritic uterus, which nearly always accompanies suppurating appendages. It shrinks the endometrium so that excessive secretions are checked. I have proved the shrinking or atrophying of the large, hard, metritic uterus, time after time, by subsequent examination. The operation elevates the retroverted uterus and maintains it in position. It is superior to hysterectomy, as it leaves a movable uterus.

Two months ago I operated with Dr. Verity, of Chicago, on a case with diseased appendages, and with a large, hard, retroverted metritic uterus. We removed the appendages and tied the uterine arteries almost down to the cervix. Eight weeks subsequent to the operation I examined the patient and the uterus was in distinctly normal position; it was movable and had shrunk at least one-third in size. Two objections might be raised against the operation:

1. The danger of gangrene.
2. The ligation of so much tissue.

I do not consider it an objection that one might penetrate the bladder with a ligature armed needle, or a ureter might be included in the ligature, as any other operation is encumbered with similar dangers. The idea that the ligatures might become infected and produce subsequent fistule, is not a serious objection. I would suggest that the ligature which includes the broad ligament should not include the Fallopian tube with its mucous membrane, as that might enhance the chances for suppuration. The needle could be passed just beneath the tube. This method ought not to protract the operation more than ten

minutes. In the thirty cases, one patient died from the results of the operation. The patient was a weak, worn-out woman of 37, who had a myomatous tumor for some six years. The broad ligament was tied in sections and the tumor shrank so rapidly in four days that it produced a kink in the bowel by dragging on it. The bowel was not completely obstructed. The patient went on well for four days, after which she suddenly sank in a few hours, without many symptoms. An autopsy revealed the fact that in four days the tumor had shrunk enormously, and a kink was found in the bowel. The debility of the patient and the worn-out nervous centers were to blame for this death. The other death among the thirty cases was due to urinary suppression on the sixth day in a woman who had almost flowed to death during six years with a large uterine myoma. The case progressed well for six days after the operation, when the urine ceased to be secreted and she died about thirty-six hours later.

## THE SURGICAL TREATMENT OF INJURIES OF THE HEAD.

TREPHINING FOR CLOT AND PRESSURE SYMPTOMS—NO FRACTURE.

BY R. E. HAUGHTON, M.D.

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In view of the great apparent progress in cranial surgery, in many forms of disease as microcephalus, idiocy, hydrocephalus, tumors, compression, clots of blood, cases where a transmutation of structure may take place, viz., hyperplasia of connective tissue, neuroglia of Virchow or glioma, I report a case to show what may be accomplished in the earlier stages of severe injury in aid of a final recovery. We must in some degree comprehend the structure and anatomy of the relations of the brain, how protected by its membranes, its bony case, its supply of blood within and without, the sources of blood supply internal and external; and comprehend the dilatation and contraction of the vessels under vasomotor influence, the reflex irritation upon vessels, the difference of cause in coma of compression and cause of irritation which may be reflex or direct, the relation of blood supply to connective tissue, before we are in any sense, in a condition to comprehend the many varieties of symptoms which present themselves, as in disease or injury, which progresses to very serious results. The result of experimentation upon the brains of mammalia with organizations much inferior to man, leave many questions as yet unanswered in regard to the human brain.

The diseases of motility, speech, sensibility and special sense all require a large comprehension of a very large number of pathologic facts which have been so far utilized in connection with the more recent developments in histology, so that to some extent a clinical summary is being reached which enables us in a measure to make out a clinical or surgical diagnosis with some degree of certainty.

Again, cerebral lesions are revealed by symptoms which when classified, enable us with some certainty to reach a diagnosis, for instance, we find a large



group of symptoms which are cerebral or cephalic, which are an entire departure from normal conditions and which, though beginning as to brain, produce disturbance of function of one-half of the body. Consciousness is in entire abeyance, and we have excitement, incoherence, delirium, or we have the opposite conditions of entire absence of brain power in any manifestations of intellect, or if any brain intelligence is manifest there is a complete abolition of motor power by which the senses operate externally. Paralysis of motion and sensation, especially on one side of the body, indicate physiologically, the crossing of fibers as they pass to the cord by way of the medulla oblongata, so that we begin to locate and classify symptoms. Irritation of motor functions, shown in stiffness, spasms or rigidity, clonic or choreic convulsions, with derangement of coördination or tremors of a limb of one-half of the body. The peculiar group of cerebral paralyses are less often produced by hyperemia or anemia of certain brain regions than by localized lesions of a sudden or acute character, viz., hemorrhage, serous effusion, inflammation and results, or hemorrhagic clot and compression because of a more or less widely diffused injury. In addition to these in immediate origin are the results of primary and secondary lesions causing arrest of motor or sensory impulses, because the paths or lines of transmission are injured, compressed or destroyed. The doctrine of localization of function has done much to clear up our ideas as to the relations of certain, local and definite functions residing in a special part of the brain, and thus following out the demonstrated relations of function we are enabled to clear up the diagnosis.

It is well recognized that the hemiplegic type of paralysis upon the opposite side to cerebral lesion is due to disease of motor centers as corpus striatum and lenticular nucleus, or to localized lesions of the cerebral lobes involving the peduncles and pons-varolii. The paralysis of one-half of the body appears in the muscles of the limbs, the extensors and the contraction of the antagonists. The muscles of the paralyzed side generally undergo no noteworthy change in electric sensibility.

This and much more might be said in reference to the varying conditions which may obtain in case of an injury which may be first, concussion, followed at once by symptoms of compression, which may and often does require surgical diagnosis and operative measures to relieve the compression, as in the case I am about to present:

*Case 1.*—Mr. W., a citizen of Midland and a cattle man, had gone out to his ranch to look after his cattle. He rode a horse which was not well broken, and for some reason, not known the animal reared and threw his rider, his head coming in contact with a pile of stone, which struck him about the superior margin of the left parietal bone near the parietal protuberance, producing a contusion of the scalp and also cut down to the bone. His skull was supposed to be fractured, by the physician who was called out to see him and he adhered to this opinion. On the second day Mr. W. was brought to Odessa and from there by train to Midland, a distance of about forty miles. During the time which elapsed from his injury, he was unconscious, paralyzed on the entire right side, stertorous respiration, pulse slow and labored, with difficult respiration at times and spasmodic action of the muscles of the same side as the injury, viz. left. Pupils dilated at first were afterward contracted. Functions of bladder and bowels arrested, except a stillicidium or dribbling from the bladder.

*Diagnosis or Summary.*—Concussion with compression of brain as shown by all the leading symptoms. Shock had been marked from the first, yet a sufficient reaction was secured to

move him as before mentioned, as no operative procedure could be instituted on the ranch. On Feb. 19, 1893, I was called into consultation with Drs. E. and C., just after night as he reached Midland, at nearly dark. The decision was reached that in an operation to determine whether there was fracture, a depressed fracture, it was necessary to elevate the bone, and relieve the pressure as it was a case of compression, though no fracture could be found. It was also determined by the consultation to operate for two reasons: 1, to determine as to the existence of a depressed fracture; 2, if this did not exist to trephine for the purpose of removal of a coagulum of blood, as it was assumed this also might exist from the nature of the injury, and as well from all the symptoms.

On the following morning February 20, we saw the case and proceeded to make an exploratory operation as to fracture, dissected up the scalp for the purpose and clearly demonstrated that no fracture existed. Then we at once proceeded to trephine at the point of contusion to find the cause of compression. We removed a small circle of bone, including both tables and upon its elevation the blood began to well up into the opening, very much as water wells up into a well when you reach it. The blood had not coagulated as it was occasioned by the rupture of divisions of the middle cerebral artery or parietal ascending branch. The dura-mater was carefully protected while using the trephine, hence the blood was from the artery, the middle "ascending parietal artery." There was a large amount of blood which was taken up by small sponges as it filled the opening. When this had been removed there seemed no clot in sight or on touch. The dura mater was intact so that we proceeded to close and dress the wound antiseptically. One suture was placed by a silver wire at the apex of the flaps and the wound had an antiseptic solution of peroxid of hydrogen and bichlorid of mercury in water, 1 to 2000 with light compress and bandage. The wound healed readily without suppuration, and the symptoms of compression slowly passed away. The patient after careful nursing, has recovered so he is working and transacting business, and was able to ride and walk in a few weeks after the operation. Since his recovery he went to Buffalo, New York, to the Surgical Institute to consult (as he believed) abler counsel than he could find on the plains. He came as he went, being informed that so far as surgery was concerned all had been done that could be done. I had an opportunity to determine his condition as he rode out in a buggy as soon as able, and one man who frequently took him out said to me: "He knows a fat steer and its value, and whether he owns it as quickly as he ever did, as I tested his capacity in that direction."

Some questions now arise as to the diagnosis, and in explanation of some if not all the principal facts in this case, it should be remarked here that we have had this year three cases of injury in the head, two of them recovering without any operative procedure, being only concussion of the brain. All of these cases were produced by falls from horses, two occurring in the night and the one here recorded in the day time.

The physiologic and pathologic fact existed of hemiplegia from the injury. This fact indicates, that compression of the fibers or cells of the left parietal convolution as they pass down into the medulla are transferred to the opposite side and (*vice versa*) when the injury is upon the other side. This was the principal fact which guided in this operation and which coincided with the second fact that the ("*pt-de-appui*") or site of injury was on the left, hence other things being equal we should find the compression under the injury.

Again, when we come to make up a diagnosis as to the clonic convulsive action of the same side of the injury, "the hemiplegic type of paralysis upon the side opposite to the cerebral lesion is due to disturbance of the motor ganglia, corpus striatum and lenticular nucleus, or it may be due to localized lesions of the cerebral lobes involving the peduncles and pons varolii."

Again, when hemiplegia occurs upon the same side as the cerebral lesion, a center is found in the motor



ganglia of the opposite side with alteration in the lobes of this side, and it may be with edema or pressure from blood in the parenchyma of the structure of the opposite side. We had a partial hemiplegia on the same side of the injury, but it was not persistent or permanent. This was accounted for from the fact that the concussion by a *contra coup* may have produced small foci of blood deposit and induced the condition of the side injured, or incomplete hemiplegia with startings or twitchings and spasmodic action of the muscles of the arm and leg of the injured side.

I have said the patient was trephined at Midland, and has slowly recovered, regaining such measure of power, intellectually and physically, as to walk about town with a cane yet with irregular, somewhat spasmodic action of the muscles of the limbs below, showing that he has not yet fully recovered the motor control of certain sets of muscles. I believe he will continue to improve in this direction until a fair use of the muscles may be regained.

Later, Jan. 1, 1895, he is still improving, and now superintending and building a large four-story hotel.

Surgical appreciation of methods and operations in traumatic and intra-cranial lesions without fracture. We have already come to a conclusion as to operative methods in cases of fracture, especially with depression of tables and clots of blood which may form in such cases, as in elevation of depressed bone and removal of loose or detached fragments. That is, relieve (*brain pressure*.) This leads us to another step. What shall be done with cases of intra-cranial lesions (traumatic) in which no fracture exists, as was clearly demonstrated in this case? Evidences of compression were clear, yet no fracture existed. What could cause compression? Two conditions clearly; effused blood which may be found beneath the injury of the surface, and points of effusion, (*ecchymosis punctatæ diffusa*) and, finally, fracture by *contra coup* might arise where lesion or force is sufficient. While cerebral localization may not and most probably will not always indicate the spot at which the cranium may be trephined, nevertheless in such a case as I have here described the demand is none the less as imperative as in cases of depressed fracture, as compression by extravasation of blood exists in both cases and in the first class of cases, bone is also depressed. What are the facts in cases where post-mortem examinations have been made?

1. Death occurs in all ages and conditions from such head injuries, without fracture of the skull, and the facts thus shown prove that a large per cent. of cases dying from brain fever and meningitis, especially in children, are the result of inflammatory action about a clot, producing abscess or softening due to some degeneration of injured cerebral tissue. Hence we may deduce a rule of action, that because these cases are not found accompanied by fracture there is certainly no good reason why they should not receive surgical attention, as they are amenable to treatment, as this case shows. Reports of cases, as I have gathered them up, show that the most grave cerebral lesions, manifested by very grave and serious symptoms, are produced without the slightest solution of continuity in the cranial structure and sometimes with no laceration or contusion of the scalp. Concussion of the brain, as a whole, may eventuate in a slow process of inflammation, softening or abscess and death some time after the injury

and when to all appearance the patient had seemingly recovered. I have a case now under observation who received a severe concussion, remaining unconscious for several days, but finally slowly recovering save a little unsteadiness of gait and excitability of manner. He was at first paralyzed in some of the muscles of the right side. No mark or contusion on the head or any part of the body.

The symptoms of pressure are induced by the effusion of the blood between the dura mater and skull as in this case, and which was fluid and not a clot, and the pressure symptoms were of a most severe and profound nature, hemiplegia of one side and partial of the other side, stertor, coma, depression and partial arrest of most of the vital functions, inability to swallow and many others, making up an entire aggregate of symptoms which threatened the life of the person.

Again, a rupture of a larger or smaller trunk or branch of the middle, meningeal or cerebral arteries would produce sudden and great compression and possible death, and yet there has been no fracture or injury external, but as in this case profound disturbance of all the nervous and vascular areas. What shall be done with such cases? Formerly they were bled, purged, blistered and tortured by an experimental medication till the patient was dead, or, with a vital force which would not succumb to the injury, aided by the bombardment of remedies got well in spite of disease and the doctors. The evidence of compression of cortical centers may be determined with some degree of certainty by a comparison of symptoms contrasted as here stated. I quote from the "Encyclopedic Index of Surgery."

## CONCUSSION.

1. Insensibility more or less complete.
2. Respiration feeble.
3. Pulse weak, irregular and frequent.
4. Special senses dull.
5. Pupils variable and sensitive to light.
6. Nausea as recovery goes on.
7. Bowels relaxed, sphincters not paralyzed.
8. Bladder can expel the contents.
9. Comes on instantly, but passes off slowly.

## COMPRESSION.

1. Total insensibility.
2. Respiration stertorous, slow, puffy.
3. Pulse slow, full, labored.
5. Pupils widely dilated or one dilated and the other contracted.
6. Stomach insensitve.
7. Sphincters paralyzed and bowels torpid.
8. Bladder paralyzed.
9. Does not appear at first but grows worse.

The two conditions usually coexist, but the compression is found to exist and hence concussion may pass into compression as the latter term means pressure, and paralysis is usually taken as a distinguishing mark—a diagnostic sign of compression. The cause of compression is here in such cases with no fracture a hemorrhage, and we should know where it is most likely to occur and the fact of compression make us cast about to determine the location of hemorrhage. If it is an injury done to the medulla, cerebral artery or its branches we can determine readily enough from the nature of the injury, as blood may be deposited between the cranium and dura mater, or if the latter is broken or injured, or if not so, sooner or later we have compression of the cortex and also we have pressure upon the ventricles and cerebro-spinal fluid and thus a general disturbance by pressure which must be relieved if possible. These conditions imply extravasation of blood within the cranium, contusion or laceration and these conditions are found upon the surface of the dura mater. In the cavity of the arachnoid, on the brain surface in the substance of the brain as by foci, or in the ventricles, especially the lateral and at the lenticular

nucleus. It may occur in the corpus striatum, thalamus opticus, and if in the cortical structure near the surface may, as the blood continues, force its way through the cerebral matter, uplift the pia mater or find its way into the cavity of the arachnoid. The most common location of hemorrhage is the corpus striatum and thalamus opticus in apoplexy, or from disease of vessels, and rarely in the white structure, viz., corpus callosum. Large amounts of blood will occasion tumefaction and softening of the cerebral mass and flattening of the convolutions of the hemisphere which is the seat of lesion; before an examination may be made it is suspected. Hence a rule of action now is to trephine promptly so that these graver lesions shall not have time to occur, as well as to remove the primary cause of trouble, the blood, whether it be a clot or fluid as pressure exists, and the patient has no power of continuance unless relief can be offered by a removal.

I shall not attempt to follow the blood and tissue changes as it would not be competent, but only to indicate the procedure and the promptness with which it should be done. The surgeon who fails to offer his patient the relief which such a procedure as trephining and removal of so much of cranial bone as may give relief to the pressure, and removal of the clot and fluid *débris* to the great relief of the existing pressure upon the brain, either has not comprehended what it is to take in the situation by a summary, or is too temporizing to be a safe surgeon. Suffice it to say that this case was operated upon Feb. 21, 1893, and is now and has been for a year or more walking around our streets in the transaction of his business, and while he does not walk as steadily as I do, yet he is far better than a dead man and gives promise by improvement that he may yet recover fully, due to the prompt use of the trephine or chisel in removal of blood pressure.

*The Technique of the Operation.*—The method to be pursued in microcephalus and in any condition of the brain requiring an operation is that it shall be done as quickly as possible to give sure and prompt relief to the compressed organ. In cases of injury without fracture but with sufficient evidence to require an operation to be made, the surgeon should resort to one of several methods in exposing the bone and dealing with the scalp. It may be a long U or rather a horse-shoe flap which has been preceded by a running stitch around the region of the flap beyond it, so as to control the bleeding from the scalp. The horse-shoe flap perhaps is preferable, yet if by any preference of education or otherwise, he may resort to the crucial incision, and expose the bone. The trephine may be used in one or more places, and then by cutting forceps cut away the interfering structure so as to gain room and relieve pressure. This should be done, cutting as much or as little as the special case in hand may demand.

It may be found in compression by blood or clot that the blood is found beneath the dura mater or external to it. Then the incision of the dura mater may require to be done to reach the blood, or if there is evidence that there is blood or pus beneath the surface of the dura or pia mater or within the arachnoid spaces, the pressure should be relieved. It may be difficult to determine some cases, yet ordinarily the diagnosis can be made and the operation should follow. In fact, I hold that it is imperatively demanded of the surgeon in the face of unconsciousness

or coma, with paralysis of one or both sides of the body, a slow and labored pulse and more or less difficulty of respiration, relaxation of the sphincters of the body, etc., to operate, and expect beside to benefit and probably save his patient. The technique should be great cleanliness and antiseptic precautions with as much protection to all the delicate structures as may be possible. Antiseptic gauze, iodoform, boracic acid solution (1 to 25 to 50) bichlorid mercury solution (1 to 3000 to 5000) or more, light bandage and compress after parts are externally adjusted. The patient may not be able to take anything until consciousness returns, then light unstimulating diet, quiet and rest in a room well ventilated at temperature of 70 degrees.

*Conditions.*—As a summary of propositions in such cases:

1. Cases of coma by compression, as distinguished from coma by irritation, which may be reflex or direct. We must decide a case, as one of compression, by some intercranial cause before an operation is surgically admissible.

2. That coma from reflex conditions and affecting vessels, and producing coma by irritation, or coma by contraction of vessels, and as a result vascular anemia, must be distinguished from the former.

3. There shall be no fracture in the cases herein considered.

4. We may have concussion and final compression of brain from rupture of vessels, accumulation of blood and pressure symptoms.

5. Given such conditions, what surgical procedure is required if any (except in second proposition), but found in first, second, third and fourth propositions.

Answer to these propositions: Operation—by necessity—except in proposition 2.

## THE SURGICAL TREATMENT OF INJURIES OF THE HEAD.

BY CHARLES B. PARKER, M.D., M.R.C.S., Eng.

CLEVELAND, OHIO.

The treatment of head injuries is a subject of general interest. Such injuries occur in the practice of every medical man. With the exception of such general remedies as rest, ice, cathartics and sedatives their treatment is necessarily surgical, and when successfully carried out furnish a good test of the mastery of the technique of aseptic and antiseptic methods.

No injury of the head can be considered trivial, for the simplest one may lead to fatal consequences. The cause of this results anatomically from the well-known close structural connection between the coverings and contents of the brain, and pathologically, in the fact of direct or embolic germ infection. Anatomically we have a rather thin skin connected to the aponeurosis of the occipito-frontalis muscle by a very dense cellular structure, the fibers of which have something of a ligamentous strength and inclose a peculiarly vascular adipose tissue with which the vessel's walls are intimately connected. The bone is not solid—an outer tough and an inner brittle table, and between, the vascular diploë; beneath these the dura mater. You know how intimately the dura is attached to the inner surface of the calvarium if you have ever attempted to remove it post-mortem. The dura mater is more dense than pericranium or periosteum; it is a fibro-serous membrane. You know

how delicate such membranes are, how easily injured and how easily inflamed. By this intimate structural and continuous vascular arrangement, the force of a blow directed at or nearly at right angles to a given surface of the head may be transmitted directly to this serous membrane, producing hemorrhage, with subsequent pressure and inflammatory symptoms. There is at least one anatomic provision to offset this, provided in the mobility of the scalp upon the pericranium, by which a force impinging upon the head at a tangent becomes a glancing blow and its full force is not transmitted to the brain.

Pathologically the rich vascular and lymphatic circulation supplied through the scalp, pericranium, diploë and dura offers a direct and complete highway for the entrance of infecting germs. When no wound can be made out we must regard the appearance of suppuration following head injuries as due to embolic infection.

We are, perhaps, all ready to acknowledge (from experience) that true acute suppurative inflammation and abscess formation is always the result of the action of germs, and that such inflammation does follow external injury to the skull, and yet at the same time we may be unable to fully appreciate the minute mechanism of its production and utterly unable to demonstrate the path pursued by the morbid agents, even when the inflamed territory or collection of pus is but an inch below and directly beneath the external scar. All this serves to show that it is often difficult and even impossible to predict the extent of the damage and the subsequent danger from the local manifestations of the injury. The symptoms alone are not sufficient. The former closely drawn differential signs between concussion and compression, are found untrustworthy, and we have learned that the question of infection or non-infection is a much more important one. But as a fracture opens up a possibly direct channel of infection, and at the same time may exert a disastrous pressure on the brain, its diagnosis becomes of prime importance. In certain extensive fractures with depression the diagnosis is easy. But in other cases again most difficult:

1. In cases without external wound. It was, I believe, the shrewd Irish surgeon, Abraham Colles, who said a fracture with a depression *always carries the scalp with it*, and that this furnishes the basis for a differential diagnosis between mere contusion of the scalp and fracture of the skull. This is the way he states it: "Run your finger along the scalp towards the tumor, and before it gets to its soft yielding center, your finger will have to raise over a ridge around its margin and then it will suddenly sink, which will not occur if it is really a depression in the bone."

If the bone is really depressed, you will find that the scalp is depressed along with it and there will be no tumor at all, and on running your finger over the place where you feel the depression in the scalp your finger will sink *gradually* into the depression." This observation will serve most useful purpose especially on the frontal and parietal bones, but in depressed fractures, otherwise located, cannot always be made out. Where any doubt exists in such a case, I believe it is proper for the surgeon to make an incision, observing all aseptic precautions, and thus determine beyond the shadow of a doubt the question of fracture or no fracture. I have never in but one case made this incision under such circumstances and found no fracture, and in that case the only effect of the incision

was to hasten the recovery by evacuating the bloody serous effusion, thus relieving the tension and promoting the healing.

2. In injury of the head, with wound, we also find great difficulty occasionally in determining absolutely the presence or absence of fracture. No one now uses the probe in such cases, as it is next to useless and may be dangerous. If any exploration through the wound is desirable after its thorough disinfection, the surgically clean finger can be used. But even then the fracture may be so placed that it can not be detected, as the following case in brief illustrates:

Tommie K., aged 11, was admitted to the Lakeside Hospital, having been struck on the back of the head by a passing freight train. There was a small punctured and lacerated wound just below and in a line with theinion. This was cleansed and carefully examined by the little finger but no fracture or even bare bone could be reached. Patient conscious, pupils dilated, pulse 40, respiration 12. Evidently there was some pressure or serious disturbance at base of the brain. Patient was anesthetized and a sharply curved incision carried out on either side from point of punctured wound for one and three-quarter inches. At the very base of this flap we came upon a V-shaped depressed fracture, base looking up and point buried in the membranes of the base of the brain. The moment the point was elevated the pulse jumped to 94 and the respiration to 26. In this case no suspicion of the fracture could be gained from any examination of the wound itself.

There is another reason why enlarging the wound by incision is useful, and that is the thorough cleansing of the wound. Dirt, hair and other impurities are often carried by the force of the blow beyond the touch or view. I make it an almost universal rule to enlarge the incision, especially in the smaller and punctured wounds of the scalp, and am nearly always rewarded by finding some dirt which could not otherwise be reached, and occasionally a fracture which had not been suspected. This little procedure rarely requires an anesthetic, as the parts are already bruised and numbed.

In compound depressed fractures of the skull, proceeding as above outlined, I am in the habit of using the chisel rather than the trephine to effect the elevation of the depressed bone. With the chisel it is often only necessary to remove a narrow overhanging shelf of bone from the outer table, or to cut through the serrated edge where the depressed bone bends away from the uninjured portion of the skull. The objection that the blows of the hammer add to the already existing concussion does not hold good, for with a properly constructed chisel with a sharply concave or sharp V-shaped cutting edge and a thick handle, such as is found in a shoemaker's awl, the operation may be made entirely by the hand. The chisel saves so much bone, may be operated so much more quickly, and it is next to impossible, unless grossly careless, to injure the dura mater. I have spoken of saving the bone fragments. The following case, in brief, will illustrate my practice:

A little fellow, 5 years of age, while playing, fell from a box car and struck on the iron drawbar of a switch. When he reached the hospital considerable brain matter was found matted in his hair. The whole right side of his head was smashed and flattened, and a fracture extending into the frontal bone in front to the occipital bone behind. He was conscious and promised to be a good boy if I would let him sit up and look out on the lake. He was anesthetized, a large flap raised and the extensive depression exposed. There was a large central oval piece of bone its greatest diameter, perhaps, a little less than three inches, its lesser a little more than two inches and surrounded by a number of small, irregular depressed pieces. By means of a chisel

these smaller fragments were loosened and removed. The large central fragment immediately came into position. It was perfectly loose and bare of both pericranium and dura, and a severe hemorrhage from the middle meningeal and some of the large branches of the middle cerebral occurred. The fragment of bone was raised and a long strip of iodoform gauze packed over the bleeding surface, the end of the gauze being left out at the lower margin of incision for drainage, and the piece of bone returned to its place. Gauze drainage removed at end of thirty-six hours. Wound was re-dressed on fifth day and again on the tenth. At first dressing the fragment of bone showed very white through the bruised wound, but at second dressing it was completely covered by granulations, and recovery took place with some paralysis of motion in the left side.

This is not the only experience I have had in leaving the larger fragments of a depressed fracture in place, and thus far have had no occasion in depressed fractures to insert a sheet of sterilized gold foil or platinum plates to prevent cerebral hernia. I can readily see that it might be of advantage after trephining, especially for epilepsy, to insert some non-irritating substance in the buttonhole to prevent any union between the dura and pericranium. But in nearly every case in which some such method has been attempted, so far as I can learn, though for the time being successful, sooner or later suppuration has occurred with sinus formation which necessitated the removal of the foreign substance.

As a preventive against cerebral hernia, I believe nothing to be of such value as an aseptic wound, and when infectious suppuration has taken place nothing will certainly avert this most distressing and most fatal complication of head injuries.

We may sum up our conclusions as follows:

1. In any case of doubt as to the character of a head injury, to explore by incision if necessary.
2. In the case of wounds, especially the smaller and punctured, to enlarge them for exploration and cleansing.
3. In all cases of fracture, depressed or fissured, to operate, elevating the depression and exploring the fissure for a depression of the inner table, which so often does occur.
4. To leave principal fragments of bone after elevation, if surgically clean, even if entirely detached from the dura mater and pericranium, thus averting cerebral hernia, vertigo and other cerebral disturbances.
5. That all these operative measures should be conducted under the most rigid aseptic and antiseptic measures.

### THE SANITARY CARE OF SMALLPOX AT COOK COUNTY HOSPITAL DURING THE LATE EPIDEMIC.

Read before the Public Health Section of the Chicago Civic Federation.

BY RICHARD BARTLETT OLESON, M.D.

CHICAGO.

Theoretically, smallpox is not treated at the County Hospital. But during the epidemic which existed last winter it became necessary, as a matter of humanity, to provide for the 400 victims of the disease who sought medical aid there. From a sanitary point of view, these were easily separated into two classes; those who only required a place of shelter until they could be sent to the smallpox hospital, and those who were too sick to be moved, needing nursing and medical care.

Early in the epidemic it became very evident that the facilities at the disposal of the City Board of

Health for handling smallpox patients were, to put it mildly, extremely inadequate. As soon as we began to receive patients in any great number we saw that it would be impossible for us to depend on the chance of getting a smallpox ambulance to take them to the special hospital, and so, through the courtesy of the Warden and the Hospital Committee of the County Board, one of the County Hospital ambulances was diverted from its legitimate work and set to conveying smallpox patients from the County Hospital to the pest house. As soon as we got enough patients we made up a load and sent them on. So the ambulance trips were irregular. One patient would simply step into the wagon at once; another might be kept for forty-eight hours. Hence you will see that the hygienic care of the different patients varied greatly.

The way in which we handled an ordinary uncomplicated case that we intended to keep for some time was as follows: All persons seeking admission to the hospital must pass the doorkeepers who soon became quite expert in detaining suspicious cases. At such times the examining physician was at once called, and if he pronounced the case to be variola the man did not enter the hospital building proper, but was taken by an orderly around to the entrance of the contagious disease ward, which can only be reached from the outside. The ward itself is on the fourth floor of the new pavilion and is entirely isolated from the rest of the hospital. In this ward, which is made up of detached rooms, a large apartment with its own special closets and toilet rooms was set apart for the reception of these cases, and here a male nurse dwelt constantly.

Upon admission, patients were given an ordinary scrub bath with soap and water and put to bed, upon a new clean mattress with new bedding, unless they were merely to wait for the ambulance and it was reasonably certain that this would depart soon. In this case, nothing whatever was done to them. The clothes of the bed patients were placed in a corner of the room until they could be fumigated. If it became possible to send a patient to the pest house before fumigation began, he went in his own clothes; otherwise a new suit of hospital clothes was given him. Then he was put into the ambulance, with a certificate from the house physician to the effect that he was a proper case for the smallpox hospital. Then, if he had occupied a bed, the bedding was taken by a special porter out into the large open lot behind the contagious disease ward, and there burned; and we considered our connection with that particular case to be ended.

Owing to the fact, as at first stated, that the hospital did not intend to care for variolous patients, there was no modern fumigating furnace. We improvised a substitute by placing the clothes in a small windowless closet containing a steam coil. The end plug of that coil was taken out, and an iron kettle of one gallon capacity, placed on bricks to elevate it from the floor, was filled with brimstone and alcohol, and the alcohol fired. Then we shut the door, pasted up all the chinks and crannies, turned on the steam from outside and left it for two days. Then we turned off the steam and as soon as we thought the room was cool enough we opened it, raked out the clothes, and put them in a clean closet to await orders.

When a patient who had passed through the disease in the ward completely recovered (and we considered



this point to have been reached when none of the pustular eschars could be found on him), he was given a thorough tub bath in a small bath room just off the ward, ordinary soap and water being used. The tub was then cleaned and the patient bathed in a 1 to 1000 solution of bichlorid, after which a third bath of clear water without soap was given. Then the sites of the eruption were sponged with alcohol (care being taken to protect the eyes) and he was wrapped in a clean old sheet, in which he walked out of the ward to another room. Here the sheet was discarded, his fumigated clothes given him and he was allowed to go free. Then all his bedding, with the last clean sheet just mentioned, was burned, and his bed fitted up fresh for the next case.

Many of the seriously ill died in the ward. When this occurred their bodies were wrapped in a winding sheet soaked in 5 per cent. carbolic solution (the body having first been bathed in the same solution), and a second sheet saturated with 1 to 500 bichlorid placed outside the first. Then the body was placed in a pine coffin, this in a zinc-lined box, the top close fitting, was screwed down tight and the body sent to the cemetery. All his belongings not of value were then burned. Coins, chains, etc., were boiled.

No attending physician visited the smallpox ward. The house physician (who, by a somewhat unfortunate arrangement, had at the same time to attend the measles, diphtheria, scarlet fever and erysipelas wards) on entering the ward assumed a jacket and apron over a special suit of clothes. On leaving, he doffed the jacket and apron, removed his outer garments, and then sterilized his hands before donning the clothes he wore in the other wards.

In conclusion, the writer wishes to take this opportunity of stating that the then Warden of the County Hospital, Mr. W. T. Monroe, deserves the sincere thanks of every citizen of Cook County for the prompt and efficient aid he lent to every effort made for the stamping out of the pest. The house staff put redoubled zeal into their work with the knowledge that the Warden could be depended upon to back them in all their undertakings.

## ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Continued from page 204.)

### CHAPTER IV.

CASES OF YELLOW FEVER, OBSERVED 1873, BY DR. TAYLOR, M.D.,  
OF NEW ORLEANS.

Date.	Pulse.		Resp.		Temp. Cent.	
	M.	E.	M.	E.	M.	E.
1873						
Aug. 17	112	124	...	...	39.2°	40.2°
" 18	118	104	...	...	38.6°	39.0°
" 19	104	104	...	...	39.2°	40.2°
" 20	106	116	...	...	39.0°	39.8°
" 21	108	100	...	...	39.8°	40.2°
" 22	108	120	...	...	39.4°	40.4°
" 23	108	128	...	...	...	...
" 24	120	136	...	...	...	...
" 25	132	128	...	...	...	...
" 26	124	128	...	...	...	...
" 27	120	116	...	...	...	...
" 28	110	112	...	...	...	...
" 29	96	88	...	...	...	...
" 30	84	76	...	...	...	...
" 31	66	56	...	...	...	...
Sept. 1	48	40	...	...	...	...

### HISTORY OF CASE. REMARKS.

Jas. Crawford, aged 8 years, taken ill Aug. 16. Saw him for first time on evening of Aug. 16. Crawford children had arrived from Ireland only three months previously. In this case, as soon as remission and exacerbation began to be distinctly marked (say from about the seventh day), I began using quinia in gr. xx doses in 24 hours. The remission and exacerbation evidently were not affected by the drug for several days, and then variations continued for some time after Aug. 23, when, owing to an accident, I was compelled to suspend the use of the thermometer. I gave quinia from the morning of the twelfth day. The condition of the stomach remained good nearly all the time. I gave beef tea and milk several times each day. In this, although the symptoms and appearance of the patient pointed strongly to yellow fever, and although the urine contained albumen, still the indications afforded by the pulse and thermometer caused hesitation. Quinia, however, although freely used, did not bring about any solution to my doubts, and I finally suspended its use. The fever really seemed to decrease after the twelfth day, and the minimum of pulsations (40) was reached only at the close of the eighteenth day. For several days during the height of the disease, I was considerably annoyed by a free discharge of blood from the gums, which was at last checked by the internal use of the perchlorid of iron. Convalescence was tedious, owing to the great debility of the child, who suffered from several carbuncles attended by sloughing.

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1873						
Sept. 20	120	112	...	...	...	...
" 21	108	92	...	...	...	104.6°
" Night	...	92	...	...	...	103.6°
" 22	96	112	...	...	...	...
" Night	...	120	...	...	...	...

### REMARKS.

Father Schneider; taken ill September 20, about 2 P.M.; died on September 23, at 9 A.M. Black vomit. Had spent two years in St. Thomas; came to New Orleans March, 1870. Immediately after his death the bed and bedding and his clothes were burnt; the room and house disinfected a few hours later by the board of health.

Joseph Fitzpatrick, aged 6 years; taken sick September 21. Had spent more than one summer in the city. Recovered. September 21, pulse, morning, 156, evening, 148; Sept. 22, morning, 128, evening, 120; Sept. 23, morning, 108, evening, 104.

Date.	Pulse.		Resp.		Temp. Cent.		REMARKS.
	M.	E.	M.	E.	M.	E.	
1870							
Sept. 8	104	96	20	24	40.0°	40.8°	Luce Maxime; taken with fever September 6, 1870. Paid first visit on September 7, 1870. No trace of albumen in urine which was freely excreted during the whole attack; recovered.
" 9	88	88	20	20	40.6°	41.0°	
" 10	80	76	32	24	40.2°	40.2°	
" 11	64	60	24	20	39.4°	39.6°	
" 12	60	64	20	20	38.6°	38.8°	
" 13	60	56	20	20	38.0°	37.8°	
" 14	52	52	20	20	37.6°	37.6°	
" 15	52	48	20	20	37.6°	37.6°	
" 16	41	56	20	20	37.8°	38.0°	
" 17	66	64	20	24	38.0°	38.0°	
" 18	50	64	20	20	37.8°	37.6°	
" 19	56	48	20	24	37.8°	38.0°	
" 20	64	68	24	20	38.0°	38.2°	

Date.	Pulse.		Resp.		Temp. Cent.		REMARKS.
	M.	E.	M.	E.	M.	E.	
1870							
Sept. 28	116	116	...	...	C.	C.	M. T. Bugman; age 22 years; recently arrived from Kentucky; laborer; taken ill September 27, 1870; first visit made September 28. Jaundice and suspicious character of vomit noted on 29th; great quantity of black vomit on September 30 and October 1. Died in convulsions at 3 P.M. October 1.
" 29	96	100	...	...	40.2°	41.2°	
" 30	92	92	...	...	40.2°	41.2°	
Oct. 1	100	...	...	...	38.8°	40.0°	

Date.	Pulse.		Resp.		Temp. Cent.		REMARKS.
	M.	E.	M.	E.	M.	E.	
1870							
Sept. 29	72	72	...	...	38.6°	38.6°	No diminution in quantity of urine; no albumen perceptible; recovered
" 30	68	68	...	...	38.8°	40.0°	
" 31	68	68	...	...	38.2°	38.4°	
Oct. 1	72	68	...	...	38.4°	38.6°	
" 2	60	64	...	...	37.6°	37.8°	
" 3	54	54	...	...	37.4°	38.0°	
" 4	50	54	...	...	37.6°	37.8°	
" 5	50	54	...	...	37.0°	37.4°	
" 6	50	...	...	...	37.4°	37.4°	
" 7	60	...	...	...	...	...	

### CHAPTER V.

#### POST-MORTEM TEMPERATURE IN YELLOW FEVER.

The medical profession is indebted to Dr. Bennet Dowler, of New Orleans, for the first, and up to the present time the most extensive, observations illustrating the temperature of various portions of the body after death from yellow fever.

The results of the researches of Dr. Dowler were



originally transmitted to the *Western Journal of Medicine and Surgery*, during the winter of 1843-44, but were returned to the author unpublished. The original data were published sixteen years later by Dr. Dowler in the *New Orleans Medical and Surgical Journal*, March, 1860, Vol. xvii, No. 2, pp. 199-220, and from this paper I have consolidated the following tables, which will illustrate the state of our knowledge with reference to the post-mortem temperature in yellow fever:

Temperature of the primary period of those who died of yellow fever.

Hours Sick.	Hand.	Axilla.	Observations.
12	102°	105°	Died in seven days. Died in four days.
12	103°	107°	
12½	105°	105°	
24	104°	107°	
28	107°	107°	
15	102°	102°	
37	97°	102°	
26	104°	109°	
29	107°	108°	
31	103°	104°	
42	97°	102°	Died in two days.
24	99°	100°	
24.6	102.5	101.9	

Temperature of middle period of those who died of yellow fever.

Hours Sick.	Hand.	Axilla.	Observations.
1	99.5°	104 °	Died in three days. Died in four days. Died in three days. Died in three days.
5	101 °	104 °	
5	97 °	102 °	
3½	100 °	105 °	
3½	100 °	105 °	
2	100 °	102 °	
4	104 °	107 °	
3	100 °	104 °	
4	102 °	105 °	
5	91 °	102 °	
6	100 °	105 °	A relapse. Died in four days. Died in three days.
6	102 °	105 °	
7	98 °	100 °	
8	93 °	99 °	
5	99 °	104 °	
8	102 °	102 °	
12	106½°	105 °	
1	99 °	100 °	
6	100 °	104 °	
7	91 °	102 °	
7	101 °	104 °	Died in two days. Died in three days.
8	102 °	102 °	
12	105 °	106½°	
14	101½°	103 °	
6	99 °	103 °	
6.4	99.4	103.39	

Temperature in the primary period of yellow fever in persons who recovered.

Age.	Hours Sick.	Hand.	Axilla.	Observations.
29	31½	102°	106 °	V. s. ad del.; cured in six days.
28	20	102	105	V. s. ad del.; well in six days.
24	8	101	103	V. s. ad del.; well in seven days.
30	9	100	106½	Cured in thirty-eight days.
5	102	104		Intermittent type; well in eight days.
30	12	105	105	V. s. ad del.; cured in six days.
35	13	102	104	Cured in seven days.
24	14	102	104	Cured in ten days.
27	13½	102	104	Cured in twenty days.
21	16	107	107	Cured in seven days.
28	19	102	104	Cured in three days.
29	22	102	104	V. s. ad del.; well in four days.
25	28	102	106	Cured in nine days.
28	26½	102	104	V. s. ad del.; cured in fourteen days.
41	48	99	102	V. s. ad del.; cured in one day.
30	48	98	104	
22	48	104	106	
21	48	102		Ninth day convalescent.
28	48	97	103	Ninth day cured.
26	48	105		Cured in ten days.
29	48	97	102	Cured in six days.
23	60	103		Cured in seven days.
34	24	99	102	
31	14	95	102	Cured in twenty days.
25.5	26.8	101.2°	104.1°	

Temperature in the fatal stage of yellow fever, with some account of the respiratory action.

Hours before Death.	Hand.	Axilla.	Respiration.
10	101 °	102 °	Respiration quick and uneasy.
24	95	104	Respiration quick.
8	101	101	Coma; seven respirations per minute.
1	91	100	Respiration tired, heaving.
1½	94	100	Respiration noisy, quick, laborious.
6	89	100	Respiration noisy, slow.
2¼	70	95	
9	94	100	Respiration imperfect, quick, irregular.
21¼	95	100	Respiration noisy.
21½	104	106	Respiration irregular.
11½	81	90	
11	88	100	Respiration quick, wheezing; coma.
10	84	95	Respiration easy.
7½	86	97	Respiration laborious, irregular.
12	95	102	Stertor; coma.
11	89	95	Respiration quick and irregular.
12	99		Respiration noisy, quick and laborious.
6	83		Respiration imperfect, small, irregular, quiet.
7	81	90	Respiration extremely laborious, gasping.
26½	104	105	Coma; stertor.
24		100	Respiration hurried; coma.
21½	97	104	Coma; stertor.
23	89	98	Respiration quick.
1	84	95	Respiration slow; loud heaving.
67½	101½	103	Respiration imperfect.
5¼	100	101	Respiration quick and irregular.
12	102	102	Respiration quick.
40		97	Respiration quick.
24	89	100	Respiration loud, laborious, rattling; coma.
1		102	Respiration loud, puffing.
2		100	Respiration loud, quick; coma.
48	88½	97½	Respiration quiet, puerile.
2½	89	99	Respiration stertorous; coma.
24	93	97	Respiration hurried, unequal.
28	102	104	Respiration easy.
72	88	101	Respiration quick, very easy.
5		95	Respiration rapid, small.
9		98	Respiration hurried, suffocative.
4½	89	97	Respiration easy.
24	91	101	Respiration imperfect; nineteen per minute.
24	88½	102	Respiration wheezing, puffing; rattling cough.
2	93	97	Respiration irregular, laborious, quick.
24	66	95	Respiration quick, puerile.
12	93	101	Respiration quick, puerile, loud.
12		100	Respiration hurried.
30	104	106½	Respiration hurried.
4	102	104	
6		96	Respiration slow, imperfect.
12	100	101	Respiration fifty-seven; coma.
24	100	103	Respiration stertorous; comatose.
5	89	100	Respiration noisy, slow.
16.6	92.2	99.5	

Temperature of the middle period of yellow fever of those who recovered.

Age.	Days Sick.	Hand.	Axilla.	Observations.
30	6	106 °	108.2°	Third day convalescent.
27	2	102	105	
30	1½	99	105	
2½	102	102		
29	2	100	102	Cured in three days.
34	4	102	104	Cured in ten days.
5	102			
21	2	97	103	Cured in nine days.
26	6	97½	100	Cured in five days.
24	14	100	104	
16	106	106		
24	3	97	102	Cured in thirty days.
29	5	102	109	Cured in twelve days.
38	4	100	102	Cured in two days.
23	4	100	104	Cured in fifteen days.
19	16	104	104	Cured in five days.
38	4	104	104	Cured in nine days.
38	12	95	102	Cured in fifty days.
27	4	99	104	Cured in four days.
22	9	103	104	Cured in twenty-eight days.
34	5	99	100	Cured in six days.
20	4	97	100	Cured in six days.
32	7	100	103	Cured in ten days.
24	5	99	100	Cured in six days.
32	6	100	102	Cured in six days.
22	3	100	103	
22	4	100	104	Cured in four days.
20	4	100	107	Cured in four days.
25	6	107	107	Cured in eight days.
28	6	102	102	Cured in seven days.
30	8	101	102	Cured in five days.
18	7	102	104	
21	9	101	102	Cured in sixteen days.
23		97	101	Cured in twelve days.
27	4	104	108	Cured in seven days.
35	12	91	102	
22	7	98	100	Cured in six days.
18	11	102	102	Cured in four days.
24	9	94	97	Cured in ten days.
41	2	99	102	
26.9	5.9	100.4	103.1	



cially of the nervous system is of great practical importance. I have admitted for the sake of argument, that all syphilitics do not present early toxin neuroses. I will now proceed to contradict this assertion. Every syphilitic in my estimation, suffers from toxin neuroses, but as suggested in the early part of my paper the routine neuroses are not recognized as such.

One of the early phenomena of syphilis is the so-called syphilitic fever. This condition consists of an *ensemble* of symptoms of which a high temperature is by no means the most prominent feature. Headache, malaise, neuralgic and rheumatic symptoms occur, and in some cases prove quite troublesome. These various phenomena and indeed, the fever itself, I believe to be due to the action of the toxins upon the sympathetic system, and upon peripheral and central nerve structure. Perverted metabolism from the intoxication of the sympathetic may explain the fever quite satisfactorily. It is to be noted in this connection that not all cases develop this fever. When it does occur, I believe it to be due to nervous instability—so-called idiosyncrasy in this instance. This idiosyncrasy is similar to that which produces untoward effects of drugs, the toxins of shell fish, over-ripe tomatoes, etc. Carrying the argument a little farther, we have an explanation of the initial eruption of secondary syphilis—the roseola. Unlike all other lesions of the skin and mucous membranes, this form does not present in its macules an accumulation of syphilized germinal cells, but a simple vascular change involving vaso-dilation, stagnation and disorganization of the red corpuscles with a liberation of their pigment.

The lesion is non-destructive, and more or less transitory, leaving in its train a coppery or brownish red stain. This roseola is most logically explained by an aberration of vasomotor impulse due to the action of the syphilitic toxins upon the sympathetic. Analogical reasoning is not always satisfactory, but in this instance the analogy furnished by the untoward effects of drug and other toxin eruptions appeal to our sense of clinical discrimination most strongly. Apropos of other toxin eruptions, I desire to call attention to the form that sometimes appears in diphtheria—not the scarlatinoid, in which a mistake in diagnosis or even a mixed infection are possible, but that later type which heralds approaching dissolution. Here, we often have a very fair imitation of the syphilitic roseola.

Another lesion of early syphilis which appeals to me as a neurosis—trophic if you please—is the alopecia. I fully realize that I am treading on dangerous ground; the close association of alopecia with tangible cell deposit in other situations has led to the tacit acceptance of this lesion as an evidence of the action of the *materies morbi* of syphilis *in loco*. Some authorities believe it to be due to local empoisonment of the hair follicle with resultant nutritive perversion. Otis, following Bäumler, and Besiadecki, thinks that alopecia syphilitica is due to pressure innutrition of the hair follicles produced by an accumulation of syphilized cell material. I myself long taught this view. A moment's reflection should convince one of its fallacy. The following considerations are important in this connection:

1. Lesions of the scalp of sufficient prominence to attract attention are rather exceptional in syphilitic alopecia, a few scattered papules and accumulations of epidermal cells or sebum being found in a certain proportion of cases.

2. Scarring is rare and when it does occur, permanent baldness of the affected area results as a rule.

3. Tertiary syphilis in which cell accumulation is most marked is rarely causative of characteristic alopecia.

4. Severe alopecia, not only areate but generalized, may occur without any other lesion. This could hardly occur if the alopecia were due to cell deposit, inasmuch as in the early secondary period when alopecia is most often found the tendency to cell deposit is quite generalized.

Reasoning by analogy, we find much support for the neurotic theory of alopecia. The effects of fright, fevers and head neuralgias on the color and nutrition of the hair are well known. Leloir, Dumesnil and others have cited cases where traumatism of the sympathetic has produced alopecia. Joseph's experiments are quite significant in this connection. He divided the spinal ganglion of the second cervical nerve in cats and thereby produced baldness.

Accepting as I do, the nervous character of the syphilitic roseola and alopecia, these lesions are to me very suggestive. If they are due to disturbance of the sympathetic we have only to imagine similar vasomotor and tropho-neurotic changes in the central and peripheral nervous system, to get a tolerably clear idea of more serious neuroses in early syphilis.

To sum up the question of toxins in early syphilis, I believe that they bear a most important relation to the cephalalgias, neuralgias, bone pains, myalgias, paralyses, and rare cases of mental disturbance found in early syphilis, which affections for the most part are an evidence of the action of the toxins on the nervous system, and especially upon the sympathetic. These disturbances are often transitory, independently of treatment but they leave behind them a vulnerability of nerve tissue which may determine much more serious trouble later on. Precisely how the toxins act we do not know—we are as ignorant here as in the case of many other organic poisons. That vascular changes bordering on inflammation of nerve structure and its envelopes occur in some cases is probable enough, but is difficult of proof. The earlier the disturbance the less likely it is to be due to organic cell deposit.

In concluding what I have to say regarding the relation of the toxins to syphilitic nerve and brain disease, I desire to call attention to one point involved in the views of our distinguished Fellow, Dr. Bannister, to which I beg leave to take exception. I believe firmly that he is correct in his position regarding the syphilo-toxic origin of some cases of general paresis, but I do not believe that the toxin remains latent in the system for a prolonged period. He does not believe that the toxins prepare the way for paresis, but that they exist and are operative at the time the paresis begins. With the cessation of bacterial evolution, I believe that the toxins are eliminated—I do not believe they are stored up for future morbid action. Bacterial evolution probably ceases with the cessation of the active period long before general paresis develops. Cerebral syphilo-toxemia possibly does pave the way for paresis, but it probably does so by profoundly perverting the bio-chemistry and possibly in a minor degree, the structure of the cerebral tissues. This impression produces no very disastrous results in the early history of the case; but later on, as nutrition becomes relatively impaired by advancing age and directly impaired by intervening

pathogenetic factors, serious trouble results. It is a fact well known in pathology, that early damage to tissue may not reveal itself for many years—this aside from disease due to germ infection. This is even true of some cases of malignant disease.

In studying the nervous phenomena inferentially due to cell infiltration in early syphilis, it is to be understood that it is difficult to differentiate them from the toxin variety. The later the development of the phenomena, the greater the probability of the existence of definite organic lesions. In late secondary and tertiary lesions these may be well marked. In a general way, the toxin neuroses have their point of departure during the first three or four months of syphilis, the later varieties being of neoplastic origin. The younger and more active the germ the more virulent and abundant its toxins. In the true tertiary period the syphilitic germ and its toxins are probably no longer a factor in syphilitic neuropathology, save as respects the tissue vulnerability and morbid cell impulse already described.

The exceptions to the general rule regarding the dependence of the very early nerve disturbances upon toxins are chiefly cases in which hemiplegia or some severe form of paralysis develops; in hemiplegia especially, the inference that a localized cell accumulation exists is usually justifiable.

Organic or functional nervous disturbance is produced by syphilitic new growth in numerous ways, viz:

1. By invading the lymphatics surrounding nervous structure.
2. By involving the tissues, chiefly the lymphatic vessels, surrounding the blood vessels supplying or draining the part.
3. By invading the arterial walls.
4. By infiltration of connective and other tissues about nervous structures.
5. By involvement of the nerve or brain tissue proper.
6. By involving nerve sheaths or the cerebro-spinal meninges.

These various conditions act by producing:

1. Irritation.
2. Pressure innutrition, and occasionally degeneration.
3. Passive hyperemia and edema from venous obstruction.
4. Localized anemia (ischemia) from arterial obstruction.
5. Blocking up of the affected area by lymphatic obstruction.

It is rare that extensive destruction of tissue from breaking down of the neoplasm occurs in the earlier nervous lesions. It is to be remembered, however, that gumma at an early period may develop from the intrinsic malignancy of the disease.

The predilection of syphilitic cell growth for lymphatic glands and capillaries is well known; most of the neoplasia of syphilis are essentially processes of lymphatic infiltration and obstruction. This is not only true of the active but also of the sequelar or gummy period. In the latter, however, the process is largely one of lymphatic obstruction and congestion, while in the former, essential infiltration of lymphatic structures exists. The difference between the two may possibly be explained by the hypothesis that the gummata are chiefly due to old-time injury of lymphatic tissue by the essential infiltrations of this tissue incidental to the active period.

Vascular involvement—direct or by the pressure of syphilitic cell growth—is probably the most important factor in the etiology of organic nervous disease in early syphilis; as already remarked, however, the more remote the period after the chancre, the more likely is the process to be due to arterial disease.

The apparent predilection of the syphilitic process for arteries of medium size, and especially those of the brain is well understood, but has not been satisfactorily explained. A brief consideration of a special anatomic point—which still further emphasizes the importance of lymphatic pathology in syphilis—makes this circumstance fairly intelligible.

The peri-vascular lymph spaces are an integral element of the lymphatic system, and share in its special susceptibility to syphilitic involvement. Pressure upon and inelasticity of small or medium sized arteries, quite seriously disturb nutrition of the supplied area, with consequent aberration of function in the latter. This is a very important matter as regards the brain. The perivascular spaces of the large trunks are involved it is true, but the resultant pressure and inelasticity are a trivial matter in comparison with the resisting power of the large arterial tubes and the relative quantity of fluid forced through them.

Another vital point is this; the tunica adventitia of the vessels is probably a part of the lymphatic system; it certainly is extensively involved in early syphilis. Hutchinson seems to believe that the tunica intima is primarily involved, the adventitia sometimes and the middle coat only secondarily, but despite so weighty an opinion, the author inclines to the view that the point of departure is the adventitia. Apparent evidence to the contrary probably depends upon the fact that most of the cases studied have been late cases.

Hutchinson says that syphilitic arteritis does not produce aneurysm. This is true as regards the early stages, but the endarteritis of late syphilis is a most prolific cause of those miliary aneurysms which bear so important a relation to cerebral disease, especially of the apoplectic variety.

With reference to Mr. Hutchinson's opinions of vasculo-cerebral syphilis, it is a peculiar fact that some of the cases which he records are directly opposed to his own views regarding the point of departure of the pathologic process. He quotes a case reported by Sharkey in the transactions of the Pathological Society of London, of a man who died of vasculo-cerebral disease in the seventh month of syphilis, while still covered with a secondary eruption. The disease was symmetrical, affecting both middle cerebrals. "*The process had begun in the tunica adventitia and had spread inward.*"<sup>1</sup> Both arteries were occluded, the right completely so, and the areas supplied by them were softened. The patient had suffered from headache and was under treatment for syphilis when he had suddenly passed into a semi-comatose condition, with convulsions of the extremities; in this state he remained until his death one week later. Another case which he quotes, is from Dr. Clifford Allbutt, of Leeds. The age of this patient's syphilis is not given. In the brain were found scattered masses of syphilitic neoplasm involving the smaller arteries; these varied from the size of a pea to a walnut and were somewhat indurated. *Micro-*

<sup>1</sup> Italics mine.

*scopic examination showed that the process began with cell exudation and proliferation in the perivascular canals, finally causing great perivascular thickening."*<sup>2</sup>

The Fellows of the Academy will please note the support afforded by these cases to the views which I have expressed regarding the relation of the tunica adventitia and the perivascular lymph spaces to the initial arterial lesions of syphilis. It would appear that Hutchinson has formed his conclusions mainly from cases of late syphilis in which the point of arterial departure is often lost in the extensive gummy changes and secondary degenerations of this period. The earlier vascular changes which are really at the bottom of the difficulty have usually disappeared, the latter changes which replace them being given credit for the entire field of pathologic change. In the presence of large diffused gummata, with or without degeneration of the inner tunic of the vessels, it is by no means surprising that the earlier changes are masked, underestimated or entirely overlooked, even though they have not completely disappeared, as I believe they are most likely to do. Early perivascular exudate especially, may produce most disastrous effects on vascular wall nutrition and yet be removed in due time. Its presence in tertiary cerebral syphilis would be conclusive; its absence, however, argues little. It is probable that the arterial changes of early syphilis are chiefly operative in the production of ischemia of the brain and nerve tissue, with resultant loss of function. Vicarious hyperemia from obstruction of certain areas and compensatory pressure in others, supplied by sound vascular twigs from the same vessel, is a possible element. Passive congestion and edema from venous involvement are additional possible factors. Hutchinson has called attention to a peculiar form of phlebitis due to syphilis; this may occur in the brain.

It is not beyond the bounds of logic to assert that all of the conditions described may possibly co-exist and that intoxication by syphilitic toxins may be superadded.

Hemorrhages, distinct tumors, embolism, thrombosis, vascular ulcerations—softening of the tunica intima—are not to be expected in this early stage. Intra-cranial nodes, while possible, are certainly rare at this time. Meningeal infiltrations probably occur, but as a rule do not appear to excite symptoms. Such damage as may be done early in the disease manifests itself by symptoms at a relatively much later period.

It is obvious from what has been said, that the changes mentioned as characteristic of syphilitic cell deposit, are much more likely to be localized than those due to a universally circulating toxin. It is to be remembered, however, that the toxin may cause symptoms referable to a particular area of nervous distribution, by producing aberrations of vasomotor impulse through its action on the sympathetic. Involvement of nerve and brain tissue has been mentioned as occurring in very early syphilis, but it must be very rare. Such invasion as does occur must be slight, and acts merely by laying the foundation for later gummy disease. It will be understood in this connection, that I do not deny the possibility of precocious gummata of the brain. In such cases, however, there are abundant extra cranial evidences of malignancy. In a general way it will be found that large circumscribed gummata are characteristic of the tertiary period, while those of the earlier period are

not only small but disseminate. The disseminated lesions of early involvement of the choroid, fairly illustrate what may be expected in the brain in early syphilis.

(To be continued.)

## SOCIETY PROCEEDINGS.

### Associated Health Authorities of Pennsylvania.

*Second Annual Meeting held at Harrisburg, Jan. 30, 1895.*

MAJOR M. VEALE, First Vice-President, Health Officer of Philadelphia, presided.

Gov. D. H. HASTINGS, ex-officio President, was presented with a handsome gavel by Dr. B. Lee in behalf of the State Board of Health.

SECRETARY ATKINSON, in the absence of Dr. C. McIntire, read his paper on

#### THE SANITARY TREATMENT OF COMMUNICABLE DISEASES.

A communicable disease is one able to be communicated from one person to another, either by direct contact or through food or drink. The sanitary treatment is the means adapted to prevent this. Our methods depend upon the hypothesis we adopt. Thus cholera flourished in spite of our efforts, till we learned that it was a waterborne disease; then our efforts succeeded. Many diseases are known to be associated with a pathogenic microbe, the method of conveyance differing with different diseases. When a disease is to be combated, the Health Officer adds materially to the expense, etc. Hence in our sanitary treatment we should impose no unnecessary burden. We should live up to the knowledge we have; thus in typhoid, as we are reasonably sure that it is not carried by the air, but by the person becoming soiled by the alvine discharges from the patient, there is no need to include this disease among those where special precautions are to be taken for transportation upon railways, etc. Cerebro-spinal meningitis does not seem any more communicable than pneumonia; then why should physicians be compelled to report it? We should frankly acknowledge our limited knowledge, and where the case involves unsolved problems, our precautions should include an attempt to protect against every plausible method of communication. We should ever be on the alert to learn new facts, and modify our treatment accordingly. The Health Officer should be a physician, not a policeman. The municipality should be willing to pay as much to him as to its attorney or surveyor. Without this a self-respecting physician should decline the position. On these foundations, I will outline the treatment. Diphtheria will be a good illustration. Compulsory notification should be insisted on. If in doubt as in chickenpox, it should be reported. In diphtheria, not only pseudo-membranous croup but diphtheritic sore throat should be reported. With proper care, no harm will result, lives may be saved and a source of temptation removed from the physician who may desire to save the patient from the surveillance of the Health Officer. This person visits the house as soon as possible, and in diphtheria separates the sick and the attendants from the well, if necessary sending them to a hospital. Next he inoculates as many prepared tubes as he may require with the secretions of the throat of every one, quarantines the house till the bacteriologist reports, say twenty-four hours. If needed, suggests to the attending physician the use of antiseptic sprays to the air passages of the apparently well. It is not wise for him to suggest any treatment for the sick. He directs isolation. In diphtheria two rooms are enough; one for the patient, one in which the attendants change clothing before mingling with others. The nurse is to be instructed in disinfecting the discharges, especially from the throat and nose. Restriction depends upon the intelligence and willingness of the family. When the bacteriologist reports, raise the quarantine from those free from the microbe. If the isolation has been observed, and throats sprayed, the chance for infection has been slight. If others

<sup>2</sup> Italics mine.



show presence of the microbe, isolate at once and refer to the physician. Placard the house at first visit. The Health Officer should next visit the school or work shop of the patient, and inoculate tubes from the throats of every one in the room. Further precautions will depend upon the result from these tubes. All articles capable of disinfection should be so treated. When recovery occurs, continue isolation till the throat is free of bacilli; no other time will be safe. If death occurs no public funeral should be permitted. Dr. Geo. Duffield's "prophylaxis" is bacteriologic diagnosis; quarantine of quarters; isolation absolute with one nurse; better disinfection under the charge of the Health Officer; notifying pastors of churches and superintendents of Sunday schools of the disease and its locality; the establishment of the overflow drinking cup in all our schools.

MAJOR VEALE emphatically indorsed the points in the paper, and quoted largely from his experience with the city of Philadelphia.

MR. CROSBY GRAY, of the Department of Public Health read a paper on the

#### LEGISLATIVE RESTRICTION OF COMMUNICABLE DISEASES.

He indorsed the whole of the paper of Dr. McIntire. The foundation for this treatment is law; education will not suffice. The health authorities must be notified early. Unfortunately, some doctors say diphtheria is not infectious nor contagious. These persons must be met and if such a one purposely diagnosed wrongly, his is the responsibility. The law must name those diseases to be reported; then the health authorities must be empowered to act, to isolate, either at home or remove to a hospital. Placarding is very necessary. It protects the community and discourages indiscriminate visiting. The public must be informed how to avoid the disease. The law must not permit placards to be removed, and must require in case of death that the body be disinfected, placed in a coffin in as short a time as possible and not again exposed. The funeral must be private, and the burial speedy. Under no circumstances should children be permitted at the funeral. The services, if any, should be brief, and no transfer of the corpse allowed to another house. Heads of families and heads of churches should be held responsible for infraction of this law. The law should also authorize the thorough disinfection of the premises, the clothing, everything, and this must be done by the authorities, not trusted to the family. He had great faith in fire, hence burn up all articles that can be so treated. Vehicles in which such bodies are removed should be prescribed by law, as often disease is spread by the use of a carriage in which others ride with the corpse. Schools are hotbeds for the spread of disease, hence the law should prevent return to school till all danger is past. Certificates of the danger being past should be demanded, and these based on the bacteriologic examination. Next, certificates of vaccination required before entering school should set forth a successful result. Again, those who have suffered with variola should not be allowed to mingle with others till pronounced free from infection whether by their clothing or persons. The law should not permit the transfer, in any way, of furniture so infected, as this is a common mode of carrying disease. No buildings should be rented until fully disinfected satisfactorily to the authorities. Dr. McIntire gives excellent advice but the law must stand by and enforce these provisions.

MAJOR M. VEALE read a paper on "Compulsory Vaccination. Will Vaccination Protect?"

DR. W. M. WELCH, in charge of the Municipal Hospital for Infectious Diseases, Philadelphia, speaks from an experience of twenty-five years, and nearly 6,000 cases. Variola 2,831 cases; deaths 1,534, per cent. 54.18; varioloid 2,169 cases; deaths 28 per cent. He says: "All unvaccinated cases if recovery took place, were disfigured for life; all vaccinated after a few months showed little if any appearance to indicate that they had suffered. Whole families have been brought to the hospital, all the unvaccinated ill with smallpox, the vaccinated children not." He gives the most positive testimony to this end. During all these years he saw no nurse, laundress, cook, etc., when properly vaccinated before going on duty, take smallpox. He believes that if all persons were properly vaccinated in infancy and again at puberty, smallpox would disappear. Dr. Severidge, an eminent Scotch physician, gives similar testimony. The Board of Health of Philadelphia, from its experience demanded the right to enforce vaccination.

DR. A. H. DORR, Health Officer of New York, considers it evident that the people of this country are not protected as they should be. Many children remain unvaccinated as late

as the fifth or sixth year, and revaccination receives practically little consideration. In London, in 1790, in 100,000 persons there were 712 deaths; in 1883 the average was 3.40. Primary vaccination but not re-vaccination is compulsory in England; in Germany both are compulsory, and the deaths in 100,000 were 0.30. This proves the need of vaccination. Neither prejudice, ignorance nor any other personal consideration can intervene to prevent the law-making power which has been lodged by the people with the government of the State, to make all needful regulations touching the security of public health and human life. This power in the State is qualified only by such conditions as to the manner of its exercise as are necessary to secure the individual citizen from unjust and arbitrary interference.

DR. J. T. ROTHROCK, of the State Forestry Commission, was invited to the privileges of the Association, and spoke in reply on the great need for a number of public reservations to preserve the forests, and which he said would equal, if not surpass, the sanitary surroundings for which the Adirondacks were so famed.

A resolution was unanimously adopted urging this upon the attention of the Legislature.

At the afternoon session, it was agreed to petition the Legislature for \$1,000 to publish the proceedings of the Association.

MAJOR VEALE having presented the subject of the "Need of Hospitals for Tuberculosis," a special committee was appointed on that subject.

By request, DR. W. B. ATKINSON detailed the proper methods for prevention of diphtheria by the use of chlorin and sulphur in the infected house. The laws of the Association were amended to admit as Associate Members all who had formerly been members of local health boards, etc.

#### THURSDAY SESSION.

The officers for 1895 were elected, as follows: First Vice-President, Major M. Veale, Philadelphia; second Vice-President, Crosby Gray, Pittsburg; third Vice-President, Dr. W. E. Allen, Scranton; Treasurer, Dr. J. C. Green, West Chester; Secretary, Dr. Wm. B. Atkinson, Philadelphia.

On motion, His Excellency, ex-Governor Robert E. Pattison, was made an Honorary Member. The Legislature was petitioned to pass acts for the creation of township boards of health, as well as a number of other acts tending to aid in the proper sanitation of the State.

DR. HUGH HAMILTON, Harrisburg, exhibited and explained charts showing the relation of topography and sewerage in the town.

M. G. LIPPERT, C. E., read a paper on the "Best Means of Educating the General Public in Matters of Practical Hygiene." Under hygiene we understand that branch of science which treats of the preservation and promotion of health. Sir John Simon says: "Ignorant men may sneer at the pretensions of sanitary science. Weak and timorous men hesitate to commit themselves to its principles, so large is their application. Selfish men may shrink from the labor of change. Wicked men may turn indifferently from considering that which concerns the health and happiness of millions of their fellow creatures, but in the great objects which it proposes to itself it transcends in importance all other sciences, and in its beneficent operation it seems to embody the spirit and fulfill the intentions of practical Christianity. Yet there is less attention paid to its study than any other branch of science. It is uphill work to interest the public; we have to look to the schools to lay the foundation. Physiology and hygiene as taught in the schools is nothing but a series of temperance lectures and an effort should be made to interest our legislators to amend the laws and allow of a more rational instruction in hygiene. Once properly taught, time is only needed to have it exert a beneficial influence on domestic and public life. We must not wait, but educate our cotemporaries by disseminating information through the press, pamphlets, circulars, etc. Our own State Board is doing good work and local boards can aid in epidemics by publishing these matters in their local papers. The people are led to study them and thus we educate them. Unfortunately, epidemics are needed to waken them to this study. Health journals play an important part; monthlies are now publishing articles on the subject in an attractive form; sanitary associations are also aiding, but best of all are local sanitary associations. Voluntary sanitary committees have been formed in a number of localities in the State. These should be instituted everywhere, and the women should be enlisted and then trust to their good sense, tact, influence and enthusiastic coöperation. We find by their Health Protective Associations in Philadelphia, Pitts-

burg, etc., that they are fully alive, and smaller places may pattern after these. Physicians, civil engineers, lawyers, editors, etc., should be called on by the ladies to aid by their intimacy with many points. Let us all make the effort and organize our own communities. It may take time, patience and perseverance, yet it is worth the effort.

After some discussion Dr. Groff offered the following:

WHEREAS, It has been affirmed that the instruction in hygiene and sanitary science in the public schools of the State is from books, unreliable and without scientific standing; and,

WHEREAS, These allegations are denied; therefore be it

Resolved, That the President appoint a committee of three to examine the books in use and the methods employed in teaching hygiene and sanitary science in this State, said committee to report at the next annual meeting of this Association.

The committee was increased to five and the resolution adopted.

Dr. J. S. CARPENTER, of Pottsville, read a paper on "Typhoid Fever," giving details of the epidemic at Mt. Carbon, with charts showing the gradual progress of the disease from the initial case.

Dr. E. G. MATSON, of Pittsburg, read a similar paper, showing how the disease progressed in cities.

Dr. J. C. HUTTON, Health Commissioner of Harrisburg, exhibited and described diagrams of hospitals for contagious diseases in cities and towns of modern size. He showed how readily and cheaply such hospitals could be prepared and fully relieve the locality of the dread pestilence in their midst. This attracted much attention, and regret was expressed that the time did not permit of a visit to such a building some miles out of the city.

Dr. E. LEE spoke on the proper use of disinfectants, detailing the best for each special occasion and the need of their use, with proper intelligence, the frequent waste and improper use giving rise to false security and the continuance of disease.

A special committee was appointed to prepare a code of health laws for the State, that all Boards may work under uniform conditions.

Prof. T. M. DROWN, Chemist of the Massachusetts State Board of Health, addressed the Association and a few members of the Legislature in the evening, showing how the work was being done in his State, and the good flowing from it in the way of water supply examinations, etc.

## SELECTIONS.

**Symptomatology and Diagnosis in Spinal Traumatism which Involve the Osseous Framework.**—Abstract of an essay read before the Section on Surgery at the International Medical Congress at Rome, April 3, 1894, by Dr. T. H. Manley, of New York. Dr. Manley said: "The symptomatology of osseous disorganization in traumatism of the spine is anything but definite; the bony segments of the vertebral column are so deeply lodged, so powerfully braced, and so shaped and heaped on each other by such an imbricated arrangement that nothing less than great and concentrated violence can cause a fracture of them, and when it does occur in the large majority of cases there is no visible or palpable displacement. In the greater number the cord entirely escapes, or only suffers such trivial contusion that nothing more than a temporary numbness at the periphery, supplied by the nerve roots beyond the site of injury, follows. In the greater number of cases the apophyses alone suffer fracture when the transverse spinous process or posterior neck is involved; but it is only when the displacement of the fragments is inward and the cord is crushed through that symptoms of paralysis or paraplegia follow. There is every reason to believe that the spinal cord can bear moderate compression and laceration, combined with considerable longitudinal tension, without sustaining any serious damage. Experimentation has clearly proved that the spine may sustain fracture involving the apophyses and extend completely through the bodies without a single neural symptom following. In several animals on which I have instituted experiments to determine this question, I was able to produce the most extensive description of fracture, in several of which the spinous body was completely fractured horizontally across and through, thereby producing a distinct communication between the posterior mediastinum or pleural cavity and the spinal canal; and yet no paralysis of any kind succeeded the physical violence employed. Spinal

fracture possesses no definite symptomatology; therefore, it may be said, its diagnosis in many cases is quite impossible.

"Fortunately for the patient, the failure to accurately locate and appreciate the precise extent and character of the fracture in no important manner influences treatment. Of late, since the advent of the antiseptic method of wound treatment, some have advocated the making of a free incision over the plane of suspected fracture, when we would be enabled to freely explore the suspected area and, if need be, at the same time deal with the displaced fragments. At first sight this might seem a rational and prudent line of action, though if we investigate but superficially into the anatomic, structural composition of the spine, and consider what occurs in a fracture in this region, we shall the better appreciate its fallacious foundation. The spine is not, as has been alleged, in any manner analogous in structure or arrangement with the head; and therefore, because we may generally, readily, and safely expose the brain the same can not be done with the spinal cord. The spinal cord, being very deeply lodged, is always very difficult of access and requires an extensive sacrifice of bone in order to make an opening of ample size to explore and manipulate through. And now, after our incision, which in this region is always attended with a great loss of blood where the bones are exposed: *a*, there may be no fracture; *b*, one or more fractures may escape detection; and *c*, if the fracture involves one or more of the bodies our posterior incision will avail us nothing, as the cord fixed in position by its nerve roots, obscures our view of their posterior surfaces. If, however, there has been a positive depression of the bony fragments on the cord and it is completely crushed through, of what avail will be an exploratory incision or a laminectomy in the way of repairing or restoring an organ totally destroyed beyond the point of compression? Not only is the diagnosis of spinal fracture often attended with quite insurmountable difficulties on the living, but even on the cadaver it may very often escape detection or be but imperfectly recognized by the *en courant* method of making necropsies on those who are presumed to have succumbed to spinal injuries, or they are associated with other internal complications. A post-mortem examination of the spine for a traumatic lesion of it, in order to be thorough, exact, and of any scientific value, always requires that the entire spinal column should be completely detached from the occiput, ribs and sacrum. Then it should be brought into good light, and segment after segment, when the soft parts have been removed, be carefully manipulated and scrutinized. When the examination has been completed it may be returned and fixed in the breach from which it was removed and be covered in."—From the *London Lancet*.

## NECROLOGY.

R. C. CHENAULT, M.D., February 8, at his home in Glenview, near Louisville, of pneumonia. Dr. Chenault was born near Richmond, Madison County, Ky., and was a brother of Col. Waller Chenault, of Morgan's command, who was killed in the battle of Green River Bridge, and a cousin of Prof. J. W. Chenault, the well known educator of this city. He was graduated from the Jefferson Medical College, Philadelphia, and on his return formed a partnership with Dr. Alexander R. McKee, a noted physician of Central Kentucky. Later, he was appointed by Governor Leslie as Superintendent of the Eastern Insane Asylum at Lexington, Ky., which he managed with ability. After retiring from that place he established the High Oaks Sanitarium at Lexington. Three years ago he removed to Louisville, and retired from active practice. He was 60 years of age and a life-long member of the Baptist Church. His remains will be buried in his old home at Richmond, Ky.

D. H. OLIVER, M.D., of Indianapolis, February 3.—Jessie D. Wood, M.D., of Topeka, Kan., February 2.—Nimrod Thompson, M.D., of Smyrna, Tenn., February 1, aged 83.—F. R. Graham, M.D., of Chester, Pa., January 27, aged 69. Cyrus Falconer, M.D., of Hamilton, Ohio, January 28, aged 85.—John K. Stark, M.D., of St. Louis, January 26, aged 66.—J. O. Whitney, M.D., of Pawtucket, R. I., January 23, aged 72.—C. A. Morse, M.D., of Cambridge, Mass., January 31, aged 83.—G. A. Rex, M.D., of Philadelphia, February 4, aged 50.

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

## SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,  
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.  
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, FEBRUARY 16, 1895.

## HYPNOTISM AND CRIME.

Our readers will recall that a few years since there was much written on this subject in French journals relative to the celebrated case of GABRIEL BOMPARD, who committed a capital crime while, as she claimed, under hypnotic suggestion. Of late there has been a revival of the discussion in this country, and one man has been acquitted of murder and his alleged hypnotizer convicted. In another place a reign of terror has been established not unlike that which prevailed in Salem during the celebrated witchcraft epidemic.

While the general phenomena of hypnotism have been fairly well understood by the profession, a very exaggerated opinion of the power of this condition has obtained among the laity. Sensational novels of the Trilby order have done much to spread, not a knowledge of hypnotism, but a more or less distorted caricature illuminated by the fervid necessities of the story writer.

Sensational views like the above will be scouted by the scientific, yet there is a sufficient substratum of truth in the phenomena of hypnotism to make its medico-legal relations of great importance. It is a singular fact that even recent works on medical jurisprudence, notably the "System of Legal Medicine" (R. B. TREAT, 1894) practically ignores the forensic aspects of the subject.

One great difficulty in defining the forensic relation of hypnotism was to get some fixed point. It all seemed so vague and intangible that the application of legal rules appeared to be hopeless. This difficulty has been overcome by an article from the pen of THOMPSON JAY HUDSON (*New York Medical Journal*, Jan. 26, 1895). The writer rejects the theo-

ries of CHARCOT and RICHER, that hypnotism is but a phase of hysteria and accepts the definition of BERNHEIM, that it is "the induction of a peculiar psychical condition which increases the susceptibility to suggestion." It is the view that hypnotic influence is an essence or current, that proceeds from the operator, and not a subjective state only in the person hypnotized, is what gives this subject such terror for the ignorant.

MR. HUDSON shows how the prevalent view that a person may be induced to commit a crime while under its influence, is brought about by the fact that a person in such a state usually accepts the will of the operator as his own. If the operator suggests that he is an angel or a demon, he will act the part to the life within the limits of his mental and physical capacities. He points out how these facts with the various laboratory experiments have been made to do duty in formulating a very incorrect idea of the power of suggestion while in the hypnotic state.

The laboratory experiment in which a hypnotized person is given a dagger and informed that it is a real dagger, and told to strike at another person, is supposed to represent what might actually occur in real life were the hypnotizer an evil disposed person who wished a certain crime committed and had the subject well under control. MR. HUDSON points out how very erroneous such a deduction would be, for he says the conditions are very different in real life. In a laboratory experiment, the one who is hypnotized knows he is surrounded by friends, that no possible harm will come to him or to others, and that in yielding to the will of the operator no chances are taken. These unconscious or what HUDSON terms, auto-suggestions are the real ones which influence the hypnotized person, that is, if one suggestion counteracts another, no action will take place. If one is stronger than another, action will take place along the line of least resistance. He therefore divides auto-suggestions into four classes: 1, volitional; 2, moral and educational; 3, instinctive; and 4, environment. Therefore the argument becomes simply this, that in a given case, if a person in a hypnotic state has a criminal act suggested to him, if he yields to that impulse, he is essentially a criminal in his nature. If, on the contrary, instinctive, moral or educational suggestions are encountered, the act will not be done. That this is a fact, and that very little importance can be attached to the laboratory experiment, is well shown by the example cited by DR. JAMES R. COCKE, of Boston. Standing in front of a deeply hypnotized subject, he placed a card in her hands, telling her that it was a dagger, and commanded her to stab him. This command was immediately obeyed with the greatest alacrity. He then handed her an open pocket knife and again commanded her to stab him. She raised her hand as if to execute the command,

but hesitated and immediately had an hysterical attack, which put an end to the experiment.

The explanation of the foregoing is to be found in the instinctive and moral auto-suggestions previously existing in the mind of the patient. If they are of sufficient strength to overcome the oral suggestions of the operator the act is not committed; if, on the contrary, the auto-suggestions are imperfect they will not neutralize the oral promptings and the latter suggestions will prevail.

It will be seen, therefore, that no new psychical elements are introduced into the problem, but the old ones of criminal surroundings and environment which furnish the motive for the commission of all crimes. The logical deduction from these premises is that hypnotism as a defence for crime can have no standing in a court of law; that the commission of crime is as much determined by the moral character of the individual in a hypnotic state as it is in his waking moments.

#### THE PATHOLOGY OF NEURITIS.

The importance of the pathologic condition of neuritis or inflammation of the nerves has been fully recognized only in a comparatively recent period. In the older books it is often only mentioned as a rare or exceptional condition, and as late as twenty years ago text-books on nervous disorders scarcely noticed it, or did so only as a possible complication of other diseases and of traumatisms. Still its importance and prevalence were emphasized by a few leading authorities, notably, REMAK, ERB, WEIR MITCHELL and others, and it can not, therefore be regarded as a new discovery in pathology; it was rather only an overlooked fact by the many, and was acknowledged but by the few. The recognition of the frequency of neuritis in later years may perhaps be said to date from the elaborate discussion of the subject by FRIEDREICH in his monograph on progressive muscular atrophy and by ERB in ZIEMSEN'S "Handbook of Special Pathology and Therapeutics," and the writings of WEIR MITCHELL in this country, who demonstrated its importance at a comparatively early period. At the present time it plays an increasingly important rôle in nervous pathology and is found connected with a very large proportion of all the general systemic infections. It formed the subject of an interesting discussion at the Congress of French Alienists and Neurologists last year, where the prevalent view seemed to be that, except in special traumatic cases and those due to cold, etc., it is largely the result of some morbid agent acting on the nervous system. Whether this acted primarily in the nervous centers as held by ERB and others, or whether the action is peripheral throughout was not unanimously agreed; in a few conditions, such as lepra, it seems probable that we shall have to admit

a purely peripheral infection and the later involvement of the centers as due to an ascending neuritis.

Two forms of neuritis, it was held, should therefore be recognized, the descending and the ascending, the former probably secondary to alterations in the brain or cord, and the latter a peripherally originating affection in which the higher centers are only secondarily affected. It was shown that the apparent intact condition of the central nervous system in many cases of polyneuritis did not necessarily imply that they had no part in the pathology of the affection, but only indicated that the changes recognizable by our methods were located in the peripheral nerves. Inflammation of the nerves is readily transmissible as irritation, only appearing in its fully developed form at points of special weakness, the "neuritis migrans" of KLEHM and others, and the periphery of the nervous system is in many ways one of its most vulnerable parts.

A very important communication on this subject is that of EDINGER, in which he offers what is to a considerable extent, a new explanation of the pathology of neuritis. Basing himself on the facts that active function of an organ involves its structural change, a tissue waste which under normal conditions is restored, but in conditions of weakness or innutrition leads to retrogressive alterations, and that a weakened and ill nourished tissue gives way and is encroached upon by the more active and healthy structures, he accounts for neuritic disorders by supposing a disproportion of function and restitution in the nerve, and proliferation of the interstitial tissue, the neuroglia, at the expense of the nervous elements and hence general nerve degeneration or neuritis. It is this encroaching of healthy upon diseased tissue that according to WEIGERT constitutes interstitial inflammation and sclerosis, and it has the effect of still further mechanically embarrassing and ultimately destroying function.

This theory does not do away with that of the generally infectious or toxic origin of neuritis, but it is perhaps the best that has been offered to explain its mode of operation. It is easy to see how under the influence of some abnormal agency the exhausted nerve elements may fail to undergo proper repair and neuritis ensue, and the theory has also an important and obvious bearing on the therapeutics. It also helps to explain many peculiarities, such as the proclivity of certain nerves to the neuritic process, the mild neuritis of old age studied recently by OPPENHEIM, etc. In many ways it clears up the hitherto somewhat dubious pathology of the disorder.

#### MEDICAL JOURNALS.

An old member of the ASSOCIATION, and one whose business qualifications have commanded scarcely less respect than his known professional skill, has sent

the editor a copy of a letter he addressed to a friend who consulted him about starting a new medical journal.

The reply ran something like this:

*My Dear Doctor:*—Your courteous letter asking my advice about starting a new journal is at hand, and in answer I have to say frankly that in my opinion we have too many medical journals now. Let us do our best to improve those we have, by contributions and pecuniary support and thus advance American medical literature.

Yours very truly,

No one can look over the list of medical journals without realizing that our fellow member told the truth. The essence of success lies in concentration. The scattering of energy and force is sheer waste. There are many medical journals worthy of life and continued existence. They have a field. Let them be supported. But when the day shall come that every two medical men own a medical journal, and every six medical men manage an alleged medical college, it is time to speak frankly on the subject. A half supported medical journal is a half starved one, and a half starved medical journal bears on its face a mute but appealing cry for sympathy and support which is quite as plain, as if the words were distinctly expressed.

Nor is medical science or the profession generally benefited by increase in the number of the journals. On the contrary, many a valuable article is lost or worse than lost by the obscurity in which it slumbers, an obscurity which grows deeper and deeper with the mutations of time.

#### A MATTER OF NOMENCLATURE.

The term, antitoxin, now so extensively employed to designate the sterilized blood serum of an animal rendered immune to a specific disease, is in some respects an unfortunate one. About four years ago it was applied to one of the coal tar derivatives and a company was formed in England for the purpose of exploiting the drug as a proprietary preparation.

It may be doubted whether the term is sufficiently specific to be applied to a single preparation, but is rather to be used in a general sense the same as antipyretic, antacid and antiscorbutic have been so long employed.

The term serum therapy, is an excellent one and ought to be retained, but "*heil serum*," that has been employed to designate the remedy for diphtheria is certainly very unfortunate as applied to a single product.

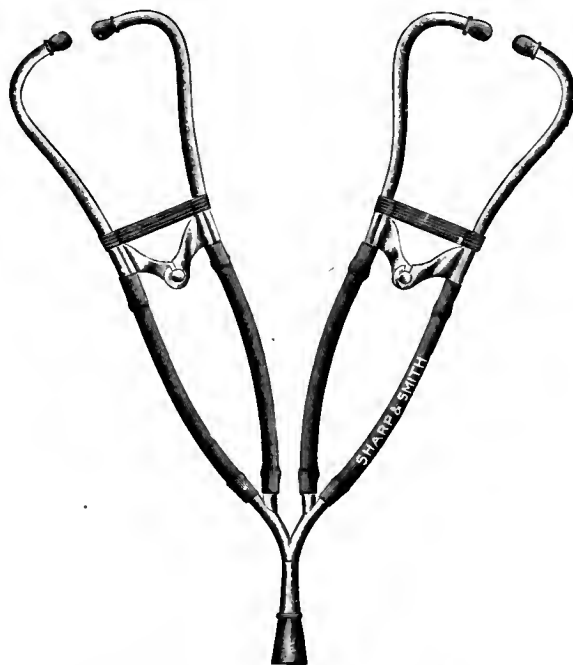
Why not drop the prefix anti, and simply compound the name of the disease with serum, thus "diphtheria serum, fifteen hundred antitoxin units?" Subsequently we may have varicella serum or scarlatina serum. The method is simple, expressive and avoids some of the confusion into which we have fallen.

## CORRESPONDENCE.

### Corwin's Double Binaural Stethoscope.

CHICAGO, Feb. 12, 1895.

*To the Editor:*—The accompanying cut represents the instrument which I have used in class demonstration of physical diagnosis in Rush Medical College for the past two years, with very great satisfaction both to myself and the students. By it both teacher and taught are enabled to hear sounds under like circumstances of time and place, and the instructor is therefore sure that what he hears and describes is heard by the student. Demonstration of sounds by the use of separate stethoscopes is sometimes tedious and uncertain, owing to the varying manner of applying the instrument, and the variable occurrence of adventitious sounds both in time, place and character, owing to the difference in the depth of respiration, occurrence of cough, and the various changes, functional and pathologic, which take place within the body.



The first instrument made, was a combination of two of Knight's stethoscopes, united by a common chest piece. While this proved the practicability of the idea, I have as regards durability, pliability and compactness, obtained a very serviceable instrument by uniting two of my own stethoscopes as represented. The same scheme has been carried further by a combination of four instruments with a common chest piece. But this has no further advantage other than that of a possible time-saver.

I recommend the double stethoscope to the profession as being of use possibly in some cases of consultation, but especially to those who are engaged in teaching this branch of medicine.

A. M. CORWIN, M.D.

### An Old Instrument for Intestinal Anastomosis.

THE PRECURSOR OF THE BUTTON.

CHICAGO, Feb. 12, 1895.

*To the Editor:*—About seventy years ago a surgeon named Denans, in France, reported to the Royal Medical Society of Marseilles his experiments with an instrument acting on the principle of the intestinal button. The report was published by the Society in 1826. (*Recueil de la Societe Royale de Medicine de Marseille*, 1 an., No. 1, 1826.) Chelius, of Heidel-



berg, quotes it in the sixth edition of his "System of Surgery," translated by South in 1847, (vol. III, p. 509) in the following words:

"In complete division of the intestine, Denans introduces into the upper and lower end of the gut a silver or zinc ring, thrusting it inward about two lines from each end; he then brings the two ends together over a third ring, of which the two springs retain the external rings. The included ends of the intestine mortify, and the rings thereby becoming unfastened are discharged by stool, after they have united the serous surfaces in contact. This experiment in the dog has most successful results."

It is not clear that Denans tried his instrument on human beings.

EDMUND ANDREWS, M.D.

#### American Medical Publishers' Association.

ST. JOSEPH, Mo., Feb. 6, 1895.

To the Editor:—Please be kind enough to announce in your next issue, the meeting of the American Medical Publishers' Association, which will occur on May 6, 1895, at the Eutaw House, Baltimore, Md. A program of interesting papers is being prepared, and a full attendance of the medical publishers of the United States is desired.

Yours very truly,

CHARLES WOOD FASSETT, Secretary.

LONDON B. EDWARDS, M.D., President.

### BOOK NOTICES.

**Relations of Diseases of the Eye to General Diseases.** By MAX KNIES, Professor Extraordinary at the University of Freiburg. Forming a Supplementary Volume to every Manual and Text-book of Practical Medicine and Ophthalmology. Edited by HENRY D. NOYES, A.M., M.D., Professor of Ophthalmology and Otology in Bellevue Hospital Medical College, etc. Octavo, 470 pages, illustrated, extra muslin. Price \$4.25.

The doctrine of mutual interdependence taught by the fable of the belly and the members, was taught by what was apparently thought at the time a self-evident physiologic fact. Yet there is little doubt but the practitioner who palpates the abdomen, and searches the test meal carefully, usually forgets that the patient has any eyes, and the ophthalmologist as blindly ignores the fact that his patient has any stomach or any nervous system beyond the optic nerve. To be the mutual friend and Mentor, and perhaps referee between various specialists and the general physician and general surgeon is the object of this book, and it would seem on examination as if every possible connection between abnormality of the eyes, and injuries and diseases of the remainder of the body, was enumerated in its proper order. The book is not one to sit down and read from "title page to colophon" as one would a novel or a new book on serum-therapy but rather one for reference, in particular cases, as one looks at a dictionary for a particular word. But for all that, few books have been written more philosophically or from a broader physiologic basis. There is no redundancy or padding; the author holds closely to his text and the translator and editor have apparently made little variation from the original. We quote from the opening chapter:

#### THE NERVOUS SYSTEM.

"The relations between the eye and the nervous system are mutual. It is rare to find eye diseases the starting point for diseases of the nervous system. Much more frequently diseases of the nervous system, especially of the central organs, cause disorders of the eye. These may be of a functional character, or may be objectively visible, such as stasis, inflammation of the optic nerve, exophthalmus, spasm and paralysis of the ocular muscles, etc. The functional disturbances of the eye often constitute important local symptoms and are indispensable in the local diagnosis of

brain diseases. On the other hand, the changes visible with the ophthalmoscope in the optic nerve, retina, vitreous body, etc., are of a more general character, and usually enlighten us rather as to the character, than the location of the disease of the brain."

Again, page 265:

#### DISEASES OF THE DIGESTIVE ORGANS.

"While there are manifold relations between diseases of the skin and the eye, this is true only to a slight extent of diseases of the digestive organs apart from a few very general occurrences."

And then follow reports of poisoning from the instillations of various medicaments into the eyelids, and the escape of the same through the nasal duct into the pharynx, ocular affections from diseased teeth, visual weakness from hemorrhages, yellow vision in jaundice and the like.

Taken all in all, this book occupies a unique place in medical literature and will be a valuable addition to any library not already possessing it in the original. The American editor has made some valuable additions, and has done his part well.

### PUBLIC HEALTH.

**Smallpox in Chicago.**—There is a gratifying reduction in the number of new cases of smallpox in Chicago during the present month. Between January 1 and February 12 inclusive there was a total of 240 new cases, but of this number 201 occurred in January—a daily average of 6.5—and only 39 in February—a daily average of less than 3.3. The death rate is correspondingly reduced; for January the mortality was 17.2 per cent.; for the first twelve days of February it is 9.6 per cent. The total number of cases under treatment since January 1, has been 324, including 84 remaining over Dec. 31, 1894; remaining in hospital, midnight of February 12, 91.

**Antitoxin as a Prophylactic.**—During the epidemic of diphtheria last December, noted in the JOURNAL at the time, the Children's Hospital at Boston, Mass., was so seriously overcrowded that applications for admission were refused. It is reported that the disease recently appeared again in the institution and the diphtheria antitoxin was freely used as a prophylactic. All the patients were given an injection of the serum and admissions were allowed only on condition that each child should be so treated on entrance. It is asserted that all cases of diphtheria entered for treatment were cured, and that there was no extension of the disease among the new admissions, the immunization being complete.

**An Absurd "Pure Food" Law.**—The absurdity of the legislation against oleomargarine in the interest of "pure dairy butter" was laughably demonstrated last week at the annual meeting of the Pennsylvania State Dairymen at Meadville, Pa., when prizes were offered for the best butter exhibited. Mr. A. J. Palm, editor of the Meadville Messenger, who has strenuously opposed the present State law against "imitation butter," sent to Chicago for three packages, which he exhibited as butter and gave the names of three of his dairymen friends as exhibitors. The one pound package of imitation received second premium and a third premium was awarded on the five pound package. The five pound package of imitation butter scored one point higher than the best dairy butter in the one pound package.

**Stamping out Tuberculosis.**—It is estimated that it will require \$500,000 to stamp out tuberculosis among the cattle in the State of Massachusetts. The following are the figures submitted at a meeting of the Committee on Public Health and Agriculture of the Massachusetts Legislature recently:

Whole number of cows in the State, 186,806; neat cattle other than cows, 47,528; number under one year old, 15,000; total number, 249,334. Ten per cent. of these being the number estimated to be infected, 24,933. Average value of these at \$20 apiece, \$498,660. Cost of making the test and sundry expenses, \$101,340, making a total of \$600,000, to which should be added \$50,000, for salaries for the commissioners for five years, making a grand total of \$650,000.

A bill before the Michigan Legislature provides that all persons before they can teach public or private schools in Michigan shall be examined and obtain a certificate from a physician that he or she is not afflicted with any communicable form of consumption. In support of the bill it is asserted that teachers having the disease have communicated it to their pupils simply by coughing and expectorating on the floor. Another bill before the same body calls for an appropriation to buy ground in the vicinity of the city of Ann Arbor whereon to build and equip a consumption hospital.

**Hygiene of Paris in 1894.**—The movement of the population of a city of 2,500,000 inhabitants constitutes a source fecund with practical teachings of hygiene, says *L'Union Medicale*. Pathogenic influences are felt there so keenly and translated in such exact proportions that they are amplified, so to speak, as by a projecting instrument. When the temperature is lowered suddenly the number of pneumonias is correspondingly elevated; when from any cause it is necessary to turn the Seine water into the city pipes, the typhoid curve is elevated and remains so during the time of this exceptional distribution; when a small epidemic of variola develops, the number of vaccinations is multiplied, and soon the disease falls below the normal. Differences of detail, errors in diagnosis,—all causes of error fade away before the authoritative evidence of large numbers. The year just ended is particularly interesting and the weekly bulletins of the municipality furnish the necessary figures. The first thing that strikes one is the notable diminution in the general mortality. It is more than a tenth lower than the mean of the three preceding years. And what is still more remarkable this diminution is not found in the communicable diseases. Typhoid fever, variola and phthisis, on the contrary, present a rather marked elevation. The first two, in fact, assumed somewhat the nature of an epidemic at the beginning of the year. Diphtheria alone fell below the mean. The following table shows these differences more clearly:

Year.	Typhoid Fever.	Variola.	Diphtheria.	Tuberculosis.	Total Mortality.
1891 . .	476	39	1,361	11,895	52,558
1892 . .	799	42	1,557	12,153	57,137
1893 . .	649	302	1,465	12,267	52,955
1894 . .	758	183	1,149	12,288	49,079

The constant augmentation of the number of deaths due to disease is also worthy of note. It is in accord with the progressive increase of the population. The Minotaur exacts each year its proportional tribute of young lives without being influenced by anything.

**Etiology of Cholera in Buda-Pesth in 1892-93.**—Detvös, in a communication to the Royal Medical Society of Buda-Pesth, seeks to determine the hygiene of habitations and industrial occupations in the epidemic of cholera in 1892-93, (*Le Bulletin Medical*). He has been able to gather 19,000 observations. It is shown that cholera raged most fiercely in the quarters of the city where non-filtered water was drunk. The new Francis Josef barracks, on the contrary, escaped the epidemic entirely. In a tile factory, where a large number of workmen were attacked it was found that they drank from a clay hole in which fecal discharges had been thrown. In another tile factory, where the disease was also prevalent, choleraic vibrios were found in the drinking water. The disease

disappeared quickly when the use of canal water, artificially filtered, was prevented. Ten and six-tenths per cent. of the patients lived in unhygienic and over-crowded dwellings; 41.5 per cent. were day laborers; most of the others being coachmen or domestics out of employment; 8 per cent. belonged to the upper classes; 22.4 per cent. were alcoholics; 19.6 per cent. had been sick previously and 49.7 per cent. habitually used cold and dry food. M. Detvös was not able to trace any relation between the epidemic and the ground water, the temperature or the humidity of the soil, but abundant rains increased the morbidity. The water from canals artificially filtered was shown to be more infectious and richer in microbes than non-filtered water which was simply left to settle. Persons who drank directly from the Danube furnished a large number of cases.

## MISCELLANY.

**The College of Physicians and Surgeons of New York** was damaged by fire January 27. Estimated loss is \$10,000.

**STUDENT.**—Why does the Belladonna mean "beautiful lady?"

**PROFESSOR.**—Because it is paralyzant to the heart and a sympathetic stimulant, two characteristics of the "beautiful lady."—*The Corpuscule*.

**Giantism a Disease.**—Dr. Charles A. Dana, in the current number of *Scribner's*, discusses the function of the pituitary gland, and—following Marié's discovery, that hypertrophy of this body is frequently followed by abnormal growths—surmises that giantism is simply the result of such hypertrophy, is, in fact, a form of acromegaly. It is thence suggested that it would be interesting to learn the condition of this gland in the pygmies.

**May Testify as to Neuritis Following an Injury.**—In an action for personal injuries where it was alleged that the plaintiff's body was injured by dislocation, straining and laceration, and injuries of muscles, nerves and otherwise, and there was evidence which tended to show that the knee and hip were injured, and that the sciatic nerve became inflamed in consequence, the Supreme Court of Michigan held (*Williams v. Cleveland, C., C. & St. L. Ry. Co.*, decided Dec. 7, 1894) that a physician might give evidence tending to show that, as a result of the injury, neuritis followed.

**Should Go to the Jury.**—When a competent physician acquainted with the facts, and judging from objective symptoms which are consistent with the opinion expressed, expresses an opinion that in his judgment an injury will be permanent, Judge Rumsey, of the Supreme Court of New York, holds, in the case of *Brooks v. Rochester Ry. Co.*, decided October, 1894, the jury may, upon such testimony, find that the opinion is well founded. Certainly, he says, when such an opinion is expressed in that way, the question is for the jury, and not for the court.

**Dangers of Chloroform Narcosis in Diabetic Patients.**—Baixer calls attention (*Centralb. f. Chirurg.*) to the dangers of chloroform in diabetic patients, basing his remarks on three cases of his own and other cases in the literature. On recovering from the narcosis the patients may feel all right but in twenty-four to forty-eight hours they experience a sense of inquietude, then of hebetude, which passes into coma, in which state they very often succumb. Nothing characteristic is discovered at the necropsy. The author has been able to find acetone and acetic acid in the intestines, even in non-diabetic patients. As chloroform in diabetic patients—perhaps by some yet unknown change in metabolism—may give rise to dangerous secondary symptoms ending in coma and death, the author thinks the existence of diabetes is an absolute contra-indication to chloroform narcosis.

**Salicylic Acid Externally in Articular Rheumatism.**—Suspecting that the therapeutic action of salicylic acid in acute articular rheumatism was due to the anti-neuralgic action of the medicament on the rheumatic arthritis, and not to any specific action of its own, M. Maragliano requested MM. Jemma and Marengo to institute experiments on the curative influence of the drug applied locally in the form of an ointment. This mode of administering the acid was found to be preferable to giving it by the mouth; the derangements of digestion—even gastritis sometimes—so frequently observed when used internally do not follow its external application. From the author's researches (*Gaz. d. Osp.*) it is seen that salicylic acid has a decided and constant analgesic property; it acts on the diseased joints like a mild revulsant, not giving rise to any subjective symptoms. Its antipyretic action is very slight, but this is also true of it when given by the mouth.

**Amputation of the Penis.**—Pousson describes (*Ann. de Mal. Org. Gen. Ur.*), a method of amputating the penis which he asserts assures hemostasis during the operation, closes the corpora cavernosa hermetically and produces a sort of artificial hypospadias with a meatus of maximum size and constant permeability. It is a development of the methods of Esmarch, Phelip, Assaky and Guyon. Antiseptic methods having been employed a rubber bougie (No. 18 or 20) is introduced into the urethra which, serving as a support for the penis, facilitates the operation. This consists of three stages: 1, incision of the skin and ligation of the dorsal arteries—the skin is incised at the point where the corpora cavernosa are to be divided; the incision is raquette shaped, with the tail below; the dorsal arteries are then ligated; 2, the division of the corpora and of the corpus spongiosum and suture of the fibrous envelope—the corpora cavernosa are divided a little obliquely, following the skin incision; the corpus spongiosum is dissected up for a centimeter and a half above this and then cut; the fibrous envelope of the corpora is then closed with catgut; 3, establishment of hypospadias and suture of the urethral mucous membrane to the skin—a No. 18 or 20 sound is placed in the urethra and allowed to remain until about the fifth day when it is taken out and by about the tenth day reunion is complete. The author reports three cases, in all of which this method was successful.

**Municipal Power where Smallpox is Epidemic.**—To prevent injury to the health of the public generally, and to its individual inhabitants is, the Supreme Court of Appeals of West Virginia holds, in the case of *Thomas v. Town of Mason*, decided Nov. 24, 1894, one of the most important functions of a municipal corporation, and, when not expressly given, is conferred by implication upon all governing municipal boards, as a part of the police power of the State, delegated to them by the Legislature, so that reasonable by-laws in relation thereto have always been sustained as within the individual authority of such corporations to ordain. And the establishment of a State and local boards of health is not to be regarded as detracting from the general powers of municipal government unless such legislative intent clearly appears. The power to relieve the indigent sick in times of epidemic disease is inherent in every municipal corporation, upon the ground of self-protection; if upon no higher ground. Consequently when there is an epidemic of smallpox or other dangerous contagious disease within the corporate limits, the council of such city, town or village has power to provide for the medical treatment and care of poor persons residing therein. Moreover, this power, it is held, is expressly conferred in West Virginia by a statute which confers upon the town council, and imposes on it, the duty to take care to prevent injury or annoyance to the public or individuals from anything dangerous, offensive, or unwhole-

some, and stating that it shall have power to make and pass all needful orders, by-laws, ordinances, resolutions, rules, and regulations not contrary to the constitution and laws of the State. (Sections 28 and 43 of Chapter 47 of the Code.) It may, therefore, for example, employ a practicing physician of skill and experience to treat certain poor persons for smallpox, who are proper residents of the town. And having power to create a debt, it can, in a proper case, be compelled by mandamus to provide funds for its payment.

**Discovery of the "Missing Link."**—Dr. Eugene Dubois, Dutch army surgeon at Batavia, announces the discovery of what he calls the *Pithecanthropus Erectus*—a supposed intermediate type between the apes and man. This discovery, according to *Le Progres Medical*, has aroused intense enthusiasm in the scientific circles of Europe and, if confirmed, will demolish the anti-Darwinists. M. Dubois found the remains in the lower quaternary of Sumatra. They consist of a well-preserved skull, a femur and a tooth; the two latter were found a few feet away from the skull. The cranium is intermediate between those of the anthropoid apes and of the native Australians. It has the characteristics of the celebrated Neanderthal skull exaggerated, with its enormous supra-orbital ridges. The cranium is 185 ctm. long, 130 broad, and has a capacity of about 900 to 1000 cubic centimeters—a capacity much larger than that of the gorilla, but inferior to that of primitive man. This capacity is found only among imbeciles in man. The tooth, which was the third upper molar on the right, was enormous and resembled one from an ape more than a human tooth. The position of the foramen magnum and the posterior aspect of the skull show it was more nearly perpendicular than in any anthropoid. The gibbon, of all the apes, walks the most easily, yet it is much more differentiated from man than is this skull. We may conclude then that this man-monkey was adapted for walking and a study of the femur confirms this. Dr. D. G. Brinton, in a letter to *Science* says: "One of the bearings of this discovery is upon the original birthplace of the human race. The author believes that the steps in the immediate genealogy of our species were these: *Prothyllobates*, *Anthropopithecus Sivalensis*, *Pithecanthropus erectus* and *homo sapiens*. This series takes us to the Indian faunal province and to the other aspects of the great Himalayan chain, as the region somewhere in which our specific division of the great organic chain first came into being."

**Advance in Medical Education.**—Certificates of having worthily completed the preparatory medical course of the Nebraska State University will hereafter admit students—without entrance examination—to the first year classes in the Department of Medicine and Surgery of the Michigan State University and to the St. Louis Medical College; to the second year in the Northwestern University Medical School, to the University of Pennsylvania Medical Department, to the Omaha Medical College and to the John A. Creighton Medical College; and to the third year of the Cincinnati College of Medicine and Surgery. The preparatory medical course of the University covers a term of three years and is open to students of either sex who have a fair mastery of English grammar, arithmetic, descriptive and physical geography and elementary history of the United States; students possessing higher qualifications are given credit therefore on entering and can thus shorten their term. The first year's work includes a thorough course in English, a course in Latin, algebra to quadratics, the first two books of geometry, logic and elementary courses in botany, chemistry and physics; in the second year structural and physiologic botany, the chemistry of the metallic elements and their compounds with five hours' laboratory work each week, rhetoric and theme-writing, lectures and laboratory work in physics, sound and heat, general osteology, hygiene and sanitation and physical training in the gymnasium; the third year covers pharmaceutical botany, a con-

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, FEBRUARY 23, 1895.

No. 8.

## ORIGINAL ARTICLES.

### A COMMON INJURY OF THE NERVOUS SYSTEM OF THE MODERN CHILD.

Read before the Southern California Medical Society, Dec. 5, 1894.

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Man's place in the universe is determined by the character and development of his nervous system. His brain and spinal cord preëminently determine his character and force. Defects of other organs, as heart, lungs, kidneys and spleen may destroy his life. But defect or weakness of brain and cord, while perhaps permitting him to live long, will handicap him perpetually.

The conservation of the nervous system must be, from birth to death, of paramount importance. Next to the forces that make the general bodily strength and vigor, those that influence the development and automatism of the nervous system are most of all potent in determining the career of the individual; it is true of no other set of organs, as of the nervous system, that impressions and influences of very early life determine the final result.

A child has the natural right to the most successful and complete career of adult life that is possible to it. Any rational sacrifice or discipline in early years is both justifiable and desirable, if it will perfect and round out the life and character as a whole, and give the individual the best chance in the race for success and the greatest aggregate of happiness. Parents have always tried to train their children by their best light, and so as to make the probability of this success the greatest. There can be no discounting the good intentions for their children of the great world of parents. But they have to-day numerous standards and systems of bringing up and educating children for their best good, and many of the systems are in their tendency and results diametrically opposed to others, and the history of the race has witnessed numerous successive changes among the same people. Old systems and ways have been discarded for new ones, always on the theory that the new are better. Changes have sometimes been made in accordance with changed notions of what the highest purpose of a child's life is, but probably not generally nor often.

Nearly all seem to agree that most children may have to earn their bread directly or indirectly, to live in civilized if not enlightened society, and that they ought to have comfortable if not happy lives of peace and amity. The inexorable struggle for existence is never lost sight of by any one undertaking in a large way and seriously the development and care of children. A conspicuous few, however, and those most able to do the very best for their children, do seem to

think a child should become solely an ornamental part of society. The multifarious and manifold changes in methods of education and care of the young in the past, show the difficulties of the subject, and suggest that the last word has by no means yet been said.

Insanity and various nervous disorders that more or less disable their victims are alarmingly prevalent, and probably on the increase among our people. Why this tendency? That the cause spends its force on the nervous system can not be doubted. If a nervous degeneracy of the race is threatened or imminent, the basis of it must be found in some habit of life or development of the individual, and carried on probably through successive generations of individuals.

Nature is a good bookkeeper. It is true of nerve cells, as it is in the philosophy of life, that you can not both have your cake and eat it. Brain cells and all cells are in their capacity for function limited by their inherent and congenital potentiality, differing in different individuals, and always dependent for their best on good pabulum, freedom from effete matter, and time for recuperation after function. Long periods of nervous and mental strain can be compensated for only by longer rest; this is unavoidable if a genuine restoration of power is to be accomplished. Excessive strain of nervous system as a result of passion or indulgence of any sort ends in reduced power that can only be partially restored by prolonged abstinence and rest. Infantile insomnia for a year or two is sometimes followed by some years of excessive sleeping, after which the normal conditions and habits are restored. Look at the army of broken-down men of business and women of society who must absent themselves from friends and business for months together for rest and recuperation by changed conditions!

It is doubtful whether excessive strain of any organ of the body, any set or system of cells, is ever entirely recovered from; for cells produce their successors, and the progeny of severely debilitated cells—potentially debilitated—can hardly be expected to be of the highest or the original standard. Manifestly, sections of the human race are becoming congenitally weaker in integrity of nerve cells, or the tension of modern life is becoming more severe—the power is lessening or the load is becoming heavier.

Among the prevailing nervous affections, short of insanity are: 1, nervous and mental weakness shown on slight exertion, so-called nervous prostration; great nervousness on exertion, and easy demoralization; 2, a tendency to pain, especially in the head, pain on the slightest overwork or severe mental or ocular attention, pain especially in the back (so-called spinal irritation); and 3, hysteria in some of its forms; spasms, hysterical neuralgias, amyosthenia and aberrations of sight. These forms are often in-



terdependent, frequently co-exist, and are interchangeable. Is there any nexus between this class of symptoms and any of the prevalent habits of the people? I think there is.

First of all, the nervous strain involved in life in society in America is greater than formerly, and so brain cells and their power are worn out faster; the load is heavier. Then the unwholesomeness of the lives of many infants and children, on their nervous side, reduces the capacity of their brains to bear worry in their maturity, and so the power is reduced. Nothing illustrates this better than the growth of the hysterical habit, as nothing shows better than that how easy it is for injury to be done to the mental and emotional nature. The hysterical tendency grows by what it feeds upon. Emotional excitement, the shortest step beyond the wholesome limit, is always liable if not certain, to beget emotional lack of stability; then excessive mobility of nervous force in the emotional direction may occur, and frequent and ready explosions. Personal attention received, compliments, praise, produce it to a moderate degree; but personal attention expected, looked for or demanded, cause it to a much greater degree and more than anything else in the world. Indeed, expectation of the attentions of others, their consideration, compliments and applause, the fear these may not be received; grief, chagrin and jealousy at their not coming, or because they are not of the right kind or degree, or just to the liking of the recipient, more than anything else tend to develop the hysterical constitution, and to worry and wear out the nervous and mental resources. That mental worry and not work wears us out is an old true doctrine. But worry is an emotion entirely, and certainly for many people the secret of happiness is to minify or destroy this emotion.

The history of medicine is full of examples of disease produced by the carking emotions of an over-desire for attention, and of jealousy. Wier Mitchell has described them and their treatment. With these people, to a singularly morbid condition of mind is added the most amazing system of tricks and deceptions to induce sympathy. A patient refuses to eat, and is the wonder of the neighborhood—she eats surreptitiously. One is completely bed-ridden and can not eat without vomiting—she does sometimes actually vomit—but her nurse is pledged to keep as a secret the fact that she walks about at night and eats freely and retains her food. One woman, a supposed wreck of nerves, keeps up her high fever for weeks by sending the nurse out of the room for some trifle whenever her temperature is being taken, and then shaking the mercury upward in the thermometer. There is no manner of deception short of crime, if crime even has been the limit, that such patients have not perpetrated at the behest of their insatiable craving.

These morbid states grow out of perfectly normal love of the companionship and fellowship of mankind; it is only normal emotion run mad. Imagination, love of companionship belong to every child; we can not stop nor curb them much, nor should we care to; it is the morbidity that kills, and the habit of exaggeration and emotional, even hysterical, exaltation is a thing that comes to children, in a smaller way, as truly as to men. No observing physician who has treated many nervous children has failed to note how quickly some of these develop symptoms that are inquired about in their hearing; how they often

complain of pains and other morbid phenomena, wholly as a result of suggestion or mimetism.

The treatment is to take away all the incentives to the deception by stopping absolutely all gratification of the morbid emotions. Nobody is allowed to speak to the patient for days who could possibly express sympathy, or pity, or wonder, and the treatment is usually successful. The fuel is cut off, and the flame dies.

For the neuralgias, nervous prostration and the inability for connected thought, no treatment is so successful as perfect rest, and freedom from care and worry. It consists, in other words, in freeing the mind from every influence that has caused the trouble, and putting it and the body in a wholesome state of good hygiene. If the recuperation can be complete, and the causative influences can be avoided, the brain does not fall again into the same condition. The remedy for the trouble is to avoid the cause.

One of the first experiences in the life of a child after birth is of caressings and other proofs of affection. These are precious to the groping susceptibilities of the new being, as they are precious through life. But perhaps before the end of the first week the child has, if it be born to parents of nervous temperament, learned to demand these attentions. It must be walked with, trotted or sung to, to court sleep, and soon will not fall asleep otherwise. It could not go to sleep disappointed, and till it gets the sweet pabulum of lulling affection it is disappointed. It finds in its mother's heart the same desire to give as it has to have, and so the habit grows and the child is carried on into years, led, followed, obeyed, played with, entertained, and not a minute to *itself* for its poor brain cells to run in spontaneous action. So he becomes an autocrat in the home; he demands everything, and if he does not get everything he wants, he gets some supposedly good thing in its place, and he certainly receives constant attention and makes incalculable work for every one about him. He must be perpetually amused; if he cries he must be fed, often not good food but goodies; he must be talked to, carried about, drums and music are invoked—anything to satisfy him or stop his crying. He can not sleep unless he is carried in the arms, perhaps for hours, or rocked or sung to; then if the lulling stops he is awake again to demand the same process repeated. And he is withal a very poor sleeper.

We have changed in recent years our methods of dealing with children. Formerly they were taught not only obedience but to be seen and not heard, and seen without ostentation; now we rush the most promising of them forward, and lead them to feel, what is largely true, that the world is theirs, and it is a question whether we have gained by the change.

Many men and women look back with regret on the severe lines of their own childhood, and thank Heaven that *their* children's lot is cast in gentler ones—but the children are less vigorous than their parents, have more pain and discomfort, hysteria and neurasthenia, and can accomplish less in the arithmetic of the world; moreover, they have proportionately fewer children than their parents had, and the latter had fewer than the grandparents. Thus the so-called higher civilization and development, and more indulgence of children in what on the moment they wish for, is constantly deteriorating the race, or a distinct and supposedly favored part of it, while they accentuate its refinements of taste



and increase its avidity for pleasure. They cause such effect of exhaustion of the nervous system of the individual, whether man or child, that a single generation is sufficient to show the reduced resistance to the effects of the environment on brain and nerves.

A great lesson that philosophers of all times have taught is the folly of mortgaging the future for the present, of yielding to the desire for a momentary, intense, present pleasure at the expense of the comfort of the long future. It has been through the ages notorious that adults are in danger of doing this, and Goethe told only the story that was as old as the thought of the race; Faust was merely the example of a class of intense men and women of all times, ready to promise their future to the devil, or anybody or anything, if their present pleasures can be secured. The nineteenth century has witnessed the extension to a large number of children of this sort of sin against mankind, and with both the connivance and assistance of their parents.

Instead of allowing the child what it desires, if it is good and not bad for its development, it is often allowed everything it likes unless it can be seen to be harmful for the moment. With greater companionship and comradeship with their children, parents easily conclude that they should have the same indulgence of pleasures as the grown people. Is it any wonder the children should, many of them, with such latitude, increase their intellectual and nervous speed, and wear out their cerebral dynamos? The wonder is, rather, that we who pretend to think should wonder at it.

What is the remedy?

1. Give the child, if possible, good general physical health. To this end he must have much outdoor life, good ventilation of his rooms, wholesome food in abundance, which he must eat as deliberately as possible. Relieve him of every local irritation or chronic inflammation of any part of his body; for such, especially if of the genito-urinary organs, are sure, in a reflex way, to harm the nervous system, to his life-long and unspeakable injury.

2. This good bodily and brain health can be attained only by long hours of sleep. A child should always go to bed early, *volens volens*, and it should then have its sound sleep out without being awakened. Other things equal, probably not another rule of childhood is so useful as to insist on the largest measure of sleep possible.

3. For his brain's future, be absolutely honest with him. Give him every good and pleasure that will aid his development and strength for the race of life; these will give him a childhood happy enough, and always blessed to look back upon. Withhold the bad things. Be as candid and honest with a child as you are with your insane patients. From such you often withhold what they ask, and insist on what they dislike, and candidly tell them it is all for their good. Why can we not be as fair with the young?

4. If this basis is to be followed, certain definite things in the lives of many children must be omitted. We must, as far as possible, compel a tranquil nervous and intellectual life. Every indulgence that will minister solely or greatly to nervous excitement and emotional exaltation must be refused. Stop walking with the baby and rocking him to sleep. Attend to his normal wants, especially as to food and temperature, then put him in his bed and

let him alone. The instant he finds this rule inexorable he will acquiesce, to his benefit and delight; will have more and better sleep, and gain in nervous strength.

Never "show off" a child. The trotting of him out in public to speak or play or do "smart things" usually panders to his vanity, if not that of his parents, and develops the hysterical disposition. There is no good in it for any child.

Never boast of the exploits of a child in his presence, for it encourages his pride, and pride is a vicious emotion in children as it is in adults—and it is not the quality of self-respect, which is always good.

Avoid any influence that exaggerates or accentuates the sense of personal embarrassment of a child and teach him, if possible, that bashfulness is not a sin, nor a thing to be made fun of.

Don't repeatedly nag the child to preserve the clothes he wears, or about his general neatness or even as to many good manners that he will take on instinctively at his adolescence. We don't try to make infants behave like ladies and gentlemen; then why should we little children, or even big children, at the expense of their regard for us, and the good influence we have over them? Above all things, don't humiliate a sensitive child in public.

For a nervous child, reduce the emotional excitement to a minimum; and for the excitement of play and bustle with other children, which prevents eating or sleeping well, *compel* certain hours each day to be spent alone or with an unemotional person who will refrain from entertaining him. He must amuse himself and rest. A child reduced in weight by lack of food, with poor digestion from bolting the little he does eat, but who plays furiously and to exhaustion throughout his school noontime, and who sleeps poorly and with dreams and nightmare, may often be brought to himself and made a new person by being compelled to stay in the house at least one hour in the middle of the day, and to go to bed early. Left to the resources of his own ingenuity for a time each day, he finds he has an appetite, and he soon has better digestion and sleeps sweetly, and grows in weight and strength. Probably there is no method of correction of a disobedient child so useful in all ways as to make him stop and go to bed in a room alone. He dislikes it, but the punishment is devoid of brutality, and the child rests and thinks by himself.

Stop the course of things in which the child is constantly pandered to, amused and kept occupied. Let him learn to be something of and to himself, work out to some slight extent his own mental salvation, and learn that it is possible for him to stop and think and do nothing for a perceptible time. He may envy other children whom he sees having more done for them, but he will some day look back on the time of youth with a stronger brain than the favored children whom he envied can, and his totality of enjoyment throughout his existence will be greater than theirs.

The brain of every child that is worth much is active in its own way, and quite sufficiently imaginative. We may well direct its activity into wholesome channels of education and equipment for its future, but we are not called upon to increase the normal activity of its brain cells and wear out the powers it ought to have for the more useful years of adult life, or to make for it a new world of fancy and imagination.

tion. All the joys and sweet memories of fairy tales are but a beggarly compensation to a large class of sensitive children who, with the fairy tales unavoidably acquire a belief in the reality of ghosts and hobgoblins, and are for years nightly terrified by thoughts of them. It is no reply to this contention that it is unfair to deprive the child of imagination; nobody ever succeeded in doing this and probably nobody ever will, nor is it desirable to. But let him build up his own imaginative world out of the actualities of his environment and of himself, and he will come to mature years with a maturer and more wholesome and promising mind. Many a boy left to himself in these matters has evolved so much of the philosophy of life that, when, later, he reads Plato and Socrates and Emerson, he seems to be repeatedly confronting the children of his own brain.

Nor does this plea deserve the censure that it would deprive child life of its pleasures. It looks far away from such a calamity. But there are pleasures and pleasures, and the circus and spectacular performance do not furnish the kind of enjoyment that is most lasting or permanently satisfying to a normal child. They wear him out and give him troubled dreams and make him sick. No parent would think of daily sending a child into such excitement. The fatuous sin of modern, evolved and cultivated society is that it is doing its utmost to give its children the same character of excitement, only under different color and in a lesser degree, and not far from six days every week, and then wondering that we have among us a growing army of worn-out children, neurasthenics and emotional invalids.

Los Angeles.

### INEBRIETY AND IMBECILITY—A MEDICO-LEGAL STUDY.

Read before the Association for the Study and Cure of Inebriety, at the Annual Meeting in New York City, Jan. 4, 1895.

BY T. D. CROTHERS, M.D.

SUPERINTENDENT WALNUT LODGE HOSPITAL, ETC., ETC., HARTFORD, CONN.

The following records of two cases bring into prominence again the old conception of inebriety, and the recent modern view accepted by the more intelligent courts and jurors.

In March, 1894, John Cronin was tried and convicted for the murder of Albert Skinner.

"The facts relating to his crime are these: He was a farm laborer 37 years old, living about Hartford. He has been a periodic drinker since early life, and when sober is a quiet peaceable man; when drinking is excitable, irritable, abusive and often quarrelsome. He has been arrested and confined in jail twice for intoxication. His drink periods have been growing longer and the sober intervals shorter for the past few years. He has been growing more irritable and stupid when drunk lately.

"For at least two weeks before the murder he was idle and drank continuously. He was intoxicated on the night before the murder. A few weeks before this time he had a drunken altercation with the man he shot and at that time made a threat to shoot him. Amicable relations were re-established and he seemed to be on good terms with the man, with whom he had formerly boarded and been very intimate.

"On the morning of Oct. 6, 1893, he went to the house of this man, Albert Skinner, and without a word of provocation shot him at the breakfast table. He was pushed and thrown out of the house twice in

a few minutes and stood round on the street near the house with a revolver in his pocket, making no attempt to shoot again and coolly boasting of what he had done. He submitted to restraint and expressed a wish to shoot others also, justifying himself and affirming that he was ready to accept the consequences, and be hung, and if he was permitted would kill others. These expressions of regret that he had not shot more persons were repeated several times.

"He was recognized as having been drinking by his breath and strange actions, but several witnesses thought he was fully conscious of his acts and their consequences.

"For the next two days all the witnesses seem to agree that he was in a semi-dazed condition of mind, indifferent to all surroundings and would not talk. After this his manner changed and he responded to inquiries and conversed, claiming not to recollect any of the past occurrences, and the crime. He said that Skinner, the murdered man, was the best friend he ever had."

This crime was characterized by two very unusual lines of conduct:

1. Shooting the man in open day in his own home, without a word of provocation, boldly and under the possible observation of many persons. Firing only one shot and standing round to see the result, being pushed out of the door by the wife of the murdered man, and going back into the house again, was thrown out by the son; also making no attempt to shoot other persons or run away.

2. Offering no resistance when the pistol was taken from him, submitting to arrest, acknowledging the crime and in violent language expressing a desire to repeat the act on the murdered man and others, and take the consequences. His cool indifference, and violent expressions unaccompanied by acts, or delirious excitement seemed to those about him not to indicate drunkenness, although his breath was strong with the odor of spirits and his manner was strange and unusual.

Thirteen months after the commission of the crime I examined him in the State Prison. During all these months he has been free from spirits, and it would be natural to expect that his condition of body and mind would be very near normal.

His appearance was that of a short, stout-built man, with a small irregular shaped head, retreating forehead, sunken tremulous eyes, large stigmatic ears and high palate arch. He walked with a shuffling unsteady gait, and when seated, supported his head on his hands, and seldom looked up. He answered questions slowly and with hesitation and seemed in doubt unless the questions were direct and repeated. The answers began in a natural tone of voice and dropped down to a whisper at the close of the sentence. This hesitation and doubt differed widely from the cunning reserve of one who would conceal his mental operations, in the apparent feebleness and effort to give some answer and overcome an aversion and incapacity for sustained reason or explanation of any event. The impression given was that of a naturally defective brain, already approaching and evidently in the penumbra region of imbecility.

He appeared in fair health and without delusions, and profoundly indifferent to any past, present or future conditions. As a result of persistent questioning the following facts were brought out, most of which have been confirmed from other sources, hence they are

generally correct: He was intoxicated at about 15 years of age, and has used spirits continuously and at times to great excess up to the present. He both drinks alone and in company, and when intoxicated has little or no recollection of what he does or says. His memory has never been good. At times he can recall events when drinking, at others they are a blank. Concerning the homicide he has no recollection of it; the blank of memory extends from the night before the crime, to some time after being placed in jail.

He can not understand why he should have shot Skinner as he was his best friend. He gave the history of a fall on his head with a period of unconsciousness and a scar showing a scalp wound was exhibited as evidence of it.

Three years ago he was made unconscious by a fall from a railroad train and laid up with injuries of the back and knee for two months. He has been struck on the head several times when drinking and made unconscious. For the past few years when drinking he has been more irritable and quarrelsome and been told that he was crazy at those times. He makes no complaint against any one, and expresses no sorrow or indignation at anything concerning the crime or trial. He is strangely indifferent concerning his life, and would not escape if he could but is ready to die at any time. It makes no difference to him what the result may be.

Concerning the future he has been told that by repentance one can go to heaven; if this is a mistake he will accept the situation. His wishes are of no account as 'the Lord and the law will have their own way.' No questions of his moral responsibility and guilt in this crime, excite any emotion or nervousness, or apparent realization of his condition. He expresses himself coolly and with utter unconcern. At times a half imbecile smile would appear, when he could not answer the question, and did not know what to say. There was no irritation or excitement or depression or annoyance from questions which were pressed, and if different answers were suggested he would select the briefest one.

When the same question was put in a different form, he seemed not to realize it but answered in monosyllables, irrespective of any previous answer. In all this there was no criminal cunning or attempt to conceal or to appear crazy, but clearly the natural working of a feeble and imbecile mind. He seemed to have a remarkably abnormal brain, in which all the higher functions were paralyzed, and the normal consciousness of duty and responsibility were absent.

A study of the heredity of this case was startling.

The near relatives on both his father's and mother's side were hard drinkers, and on his mother's side insanity and epilepsy appear frequently. None of his relatives exhibited anything more than a very low order of intelligence.

His maternal grandparents were William and Mary Callahan, of Country Antrim, Ireland. William died in middle life and Mary lived to be 60 years old, and was insane for some years before her death. Catherine, the eldest daughter, the aunt of John Cronin, became insane from the death of her child and the desertion of her husband, recovering in part and coming to this country, where she died in middle life. Michael, the second child, was early addicted to drinking intoxicants, and his mother tried to kill the appetite by mixing snuff with his drinks. He en-

listed in the English army, was discharged insane and wandered about in the woods and finally died of exposure. Thomas Callahan, the second son, lives in Hartford and is a respectable man. He drank until he was 50 years of age, since which time he abandoned the habit. He testified as to the facts of his nephew's ancestry before the Board of Pardons, and appeared to be a quiet man, "thick" in his memory, and in the appreciation of what the counsel was trying to bring out.

Margaret Callahan, the youngest child of William and Mary, and the mother of John Cronin, was a nervous excitable girl, who went to Wales with her older sister, Catherine. There she married Peter Cronin, a Welsh miner, of a boisterous nature and a man who drank to excess. His wife drank with him daily and they lived in a state of perpetual trouble. At last Peter was murdered in a drunken row and Margaret became insane for a time. Her sister Catherine took her home and adopted John Cronin, who was 1 year old at the time. He lived with his aunt until he was 8 years old, when he was put out to work.

His mother, Margaret, came to this country and married a man named Moran, who is now dead. There were three children by this marriage, one dying in early life and two daughters surviving. One of these, Mrs. George Somers, is subject to epileptic fits, is a hard drinker, and has attempted suicide. She has been in the county jail in this city for drunkenness.

Margaret Moran, the mother of John Cronin, is well known to the authorities of Hartford. She has been a drinking, troublesome woman during her long residence in and about Hartford and was surrendered to the authorities by her brother, Thomas Callahan, after he had endured her boisterous and wild ways, while under the influence of drink, as long as he could. She is now an inmate of the almshouse in this town, where she has been for nearly five years.

This brief sketch of Cronin's ancestry shows that his father and mother were both inebriates, an uncle and aunt were insane, and a half sister is a drinking, epileptic degenerate. Of the direct stock of his father, John Cronin, was the last, and of his mother the worst descendant.

In these facts a very clear history can be traced of what is well known as alcoholic insanity of the imbecile and epileptic class, the prominent symptoms of which are a marked degenerating heredity, usually from an alcoholic, insane or idiotic ancestry, or practically from a dying family, where the race stock is exhausted, enfeebled and approaching extinction. Alcoholism in such a family is a symptom of progressive degeneration. The drinking is always followed by insane, epileptic and impulsive conduct. When not drinking, apparent sanity and normal conduct may be the rule, but the strain of alcohol on a defective brain will bring on homicide, suicide or epileptic explosions. The use of alcohol is always followed by delirious conditions, delusions and strange unusual acts.

Failures of memory are common symptoms, and may be total or partial. After a time a progressive palsy of the higher brain functions appears. In most of these hereditary defects this moral palsy and loss of consciousness of right and wrong, of duty and obligation, is an inheritance which the use of alcohol develops. All such cases show this strange indifference and unconsciousness of their acts and the consequences. The man's talk and conduct in a

criminal act is only a link in the chain; by itself it may display a cunning, deliberation, mature judgment and recognition of all the consequences, and yet when the other links in the history are known, it will be found to be the act of a clearly insane man.

The act of shooting Skinner with foolish boasts and general conduct, noted by great coolness and indifference, is a good illustration. What he did and said at this time and the impression he created on the minds of persons about him, is a small part of his history, and when judged alone may be very misleading, but taken in connection with all the facts of his life, points out the real condition of health or disease. It is evident that Cronin's mental condition at the time of this homicide must be judged from the facts of his inheritance, from the facts of his surroundings and manner of life, also from his conduct and acts when sober and drinking, and from all the circumstances and conditions which have been influential in his history.

The State assumed that Cronin had a low criminal brain, capable of deliberation and premeditation, and with power of control. That he could reason clearly concerning his acts and their consequences. That in the crime he displayed malice and revenge and full consciousness of the nature of this act, and the legal penalties.

That he was not only conscious of his conduct, but had the power of control and concealment, to take advantage of favoring conditions. That he has been and is of sufficient mental capacity to distinguish between right and wrong in the abstract, and and at the time of crime was of sound mind. That his claims of no memory of the act, and cool indifference, are mere subterfuges for concealment.

The fact of his periodical intoxication and drinking the day before the crime, were assumed to be aggravations and additional evidence of his responsibility.

I urged that Cronin could not have a sound brain, that his twenty years of drinking had so fixed and intensified the inherited defects that he could not reason or discriminate soundly. That in some respects his conduct would be automatic, where the motives and conditions of living were the same, but change these and his disease would be seen. Also, he had "a defective brain showing great disturbance from the use of alcohol, would always be swayed by morbid impulses of any form, and crime, suicide and other abnormal acts would be the rule and not the exception."

Many authorities have pointed out the evident unsoundness of degenerative neurotics, who were alcoholics of long standing. The acts of such persons are always open to suspicion and where crime is committed there is always a doubt. Unusual strange conduct can only be explained on the theory of brain degeneration and disease. While it may lack many of the symptoms of so-called insanity, it will nevertheless show degrees of palsy and brain disorder which can not be mistaken.

This case was argued in all the courts and decided against the prisoner, and finally the Board of Pardons declared him sane, and Cronin was hung Dec. 19, 1894. He maintained the same stolid indifference to the last, sleeping soundly up to a short time before the execution.

The second case was tried at Norwich, Conn., in May, 1894, and was that of Michal Donovan, who

shot and killed John Bell some months before. Donovan was a laborer in charge of a stationary engine, 45 years of age, and a man of quiet peaceable character. He was married and had a grown up family, and was a retiring, hard working man. For five years he had used spirits to excess at irregular times and intervals and was always silent and stupid when drinking, never quarrelsome or violent. During the year 1893 Donovan had drank more than usual, and been stupid nearly every night. In December of that year Bell, a colored man, had called him insulting names and was very abusive for some supposed slight. At this time Donovan paid no attention to this, saying he was not worth noticing and appeared to be in no way disturbed by Bell's insults. Two days after he took an old revolver to a shop to be repaired and loaded, telling many persons he was going to shoot Bell. He drank several times and showed the revolver and affirmed that he was going to find Bell and kill him. This he did in a short time and without any words or apparent excitement, finally, he shot at Bell and finding that he staggered and fell, fired his pistol in the water, and replaced it in his pocket. Quietly walking back, stopping to drink at two saloons, telling the barkeepers that he had shot Bell, he went home, changed his clothes, and walked over to the station house giving himself up. That night and the next day he suffered from delirium and delusions and was treated as suffering from a mild attack of delirium tremens. He soon after recovered and denied all recollection of the crime. From this point on to the time of the trial he was quiet, indifferent and seemed not to be interested in anything and only manifested emotion when visited by his family. When examined in jail he seemed to be dull and although in fair physical health, was strangely indifferent to the results of the trial. Expressed sorrow for having killed Bell, but did not remember the facts of the crime, and seemed to be unconcerned. He could not give a connected account of the difficulties which led up to the crime, and the suspected motive for shooting Bell, who had threatened to have him turned away from his place of work. His mind seemed confused as to events and his own conduct for some time past. In the history of his family an uncle on his mother's side became insane in middle life and was confined in an asylum until death. Donovan had been a moderate drinker up to about 40 years of age, when he began to have distinct drink paroxysms. These increased in frequency and duration until finally he drank steadily every day. The past six months he drank almost every hour, and was many times unfit for work. He complained of his head feeling bad and said he was "not right" dating from the time of an injury from a fall from a wagon. In a conversation with the medical experts for the State, two days later, he described the act of killing, denying that he had said he was going to kill Bell, and in a disjointed way explaining why he had shot Bell. His statements were opposed to the testimony of other witnesses, and seemed to be based on the history of the crime as repeated by others to him. Two medical experts swore that he was sane at the time of the crime and was conscious of his acts and their consequences. The two experts for the defense affirmed that it was a clear case of alcoholic imbecility and unconsciousness of acts, and nature of the crime, and that at present he was of a low order of intelligence, with un-



sound degenerative brain. They further urged that the cool preparation for the crime and telling what he was going to do, committing the act in broad daylight where he was seen by others, was clearly insanity. Such conduct following excesses in the use of drink, could not come from a mind sane and conscious of the acts committed. The counsel for the defense, Messrs. Hull, of New London, and Thayre, of Norwich, urged that there was more than reasonable doubt of the soundness of the prisoner's mind at the time of the commission of the crime. Also that his excessive drinking before the crime would of necessity so impair his reason and judgment that any unusual acts would be more or less insane and be committed without conscious reason. They urged that this crime in its boldness and strange premeditation and execution, and his delirious condition after, was strong proof of insanity. The experts for the defense affirmed that the man at the time the crime was committed was suffering from alcoholic dementia, and when confined had an attack of delirium tremens, from which he recovered with an enfeebled demented brain, and at present is in a low parietic condition.

The verdict was manslaughter and imprisonment for life. This was a rational modern disposition of the case.

Both of these cases were alike in the well marked evidence of imbecility due directly to alcohol. In the Cronin case, the heredity intensified and made the degree of degeneration very clear, and placed the assumption of insanity and unconsciousness without power of control, beyond all possible doubt. In the latter case, Donovan's conduct before and during the commission of the crime and after, clearly indicated the impossibility of mental soundness. Neither of these cases were able to reason rationally, or to form motives and to act upon them with reasonable consciousness of their import and consequences.

The hanging of Cronin ignored all modern facts concerning the brain and its disorders, and was a reversion to the theories that prevailed two centuries ago. Donovan's sentence recognized the dawn of a new era in jurisprudence, and progress along the lines of development, with clearer conceptions of the relations and limits of responsibility.

### BLISTERING BY SUGGESTION.

Read before the Chicago Academy of Medicine, Jan. 11, 1895.

BY H. C. B. ALEXANDER, M.D.

CHICAGO.

As early as 1840 Dr. Lewis Prejalmini with "magnetized" paper produced the effect of cantharides. As Bjornstrom remarks, suggestion not "magnetized" paper caused the blistering. Bjornstrom demonstrates that, by suggestion, congestion may be produced, carried to raised swelling of the skin, to a blister like that of cantharides, to bloody transudation and even to complete formation of a wound. Charcot and his pupils thus produced all the phenomena of burns. Beaunis hypnotized a susceptible subject, told her that upon awakening she would have a red spot under her forearm which he tapped slightly but so as to avoid redness from pressure. Ten minutes after awakening there was evident redness at the place touched which increased in size, was visible about twenty minutes and then gradually disappeared. By suggestion Beaunis could cause the

mark to remain forty-eight hours. Facachon informed a hypnotized susceptible subject that a topoalgic spot would be blistered by cantharides. The next morning pain had vanished and blebs full of serum were present. He cured a right clavicular topoalgia in the same subject by suggestion, during hypnotization, of an actual cautery with the seeming result of a burn. The experiments of Charcot and his pupils in the same direction have had almost identical results. Beaunis made several experiments on Facachon's subject. May 12, 1885, she was hypnotized at 11 A.M.; on her back at a point unreachable by her hands, a strip of eight gummed stamps was fastened. A similar strip had been eighteen hours on another arm without effect. Over these a compress was placed and the subject thrice told that cantharides had been used. She was closely watched during the day and hypnotized at night with instructions to awake at 7 P.M. At 8 A.M., Facachon removed the compress in presence of Bernheim, Leibault, Leigeois, Beaunis and others. When the stamps were removed the underlying skin over about five centimeters was thicker, yellowish, white and inflamed but without blistering. Half a centimeter of surrounding skin was intensely red and swollen. The spot was covered with a dry compress; three hours later the spot had the same appearance and was photographed one hour thereafter. The photograph showed about five blisters. They increased, secreted serum and later suppurated. Later, the arm of the same subject was blistered in like manner.

Another subject suffered greatly from topoalgia. Facachon blistered her by suggestion, below the left ear and on the left temple. Facachon made cantharides inactive in the first subject by suggestion. Having by experiments on a second person, determined that his cantharides blister was active, he used two of the three parts of the same blister on his subject. The third part had been applied with due effect upon a patient needing counter-irritation. The subject was hypnotized; one piece of the same plaster placed on the left arm and the other on the right. The subject was told that the left arm would not blister, while the right would. Nine hours later when the bandages were removed the left arm was normal, the right blistered. My own case occurred in an hysteric in whom the neuropathic element was partly the result of environment. One evening a cutting from a roll of belladonna plaster was placed over a topoalgic spot on the neck. The same roll of plaster had been used on other patients without dermic effect. A decided blister, however, appeared under the plaster. At the outset while the possibility of untoward effects was taken into consideration, it was thought more probable that the blister was due to auto-suggestion, as the patient believed that the object of the plaster was to blister. The blister healed rapidly under lanolin dressing and suggestion. A control experiment was made. Cantharides was applied about 9 P.M., on a new topoalgic spot of which the patient complained without effect; the patient having been assured that it was simply a pain curing plaster. The spot remained free from redness until about 9 A.M. the next morning, when an incautious remark of the nurse led the patient to surmise that a real blister had been applied, and in an hour, wheals followed by vesicles appeared and disappeared. The patient had been meanwhile informed that the nurse



had unadvisedly used the term, blister. The cantharides plaster was carefully tested before being used. The chief value of the present case lies in its control experiments. The patient, while obviously in a condition extremely susceptible to suggestion, at no time was in the true hypnotic state.

These cases and those in which bleeding occurs at written points in dermatographic subjects, explain the cases of stigmatization which from time to time appear in religious communities and of which the latest case was reported by Dr. M. F. Cooney as having occurred in Kentucky. In many of these cases the influence of suggestion is evident, from the fact that the side wound of Christ occurred on the right side in lieu of the left, because of the ignorance of the stigmatized subject.

### THE NON-TOXICITY OF UREA.

BY R. HARVEY COOK, A.M., M.D.

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Urea being the final product of tissue metamorphosis and apparently playing no rôle whatever in our economy, it was natural to consider it a waste material, of which our system should rid itself. Finding this material diminished in various affections it was *a priori* considered that the system must be overloaded with this effete material, urea.

That urea is even yet considered a toxic body by many, is apparent from the numerous articles attributing toxic effects to this substance. The recent article by Dr. J. Nelson Teeter, on "The Relation of Urea to Epilepsy," which appeared in the January number of the *American Journal of Insanity*, has caused me to write my observations and experiments in regard to the toxicity of urea.

Perhaps no one has done more toward fathoming the mysterious depths of auto-intoxication than has Bouchard; to him my experiments are due, nor do my experiments differ from his, but prove to my satisfaction that his conclusions are justifiable, *i. e.*, that urea is not a toxic substance—or rather is not toxic in the quantity found in any known pathologic state.

My first experiment was to inject into the vein of a rabbit weighing 1.247 kilograms, 2 grams urea in fifty c.c. water. The animal showed neither stupor, somnolence nor convulsions. Since the solution was injected directly into the vein, it was not possible for the urea to have been eliminated as rapidly as it was absorbed. Supposing 1 kilogram of animal to form .4 grams urea—which is the amount normally ascribed—this animal would normally have formed in twenty-four hours only .498 grams, but we injected 2 grams which is four times the amount formed in twenty-four hours; this animal could have retained the entire amount of urea formed in four days and suffered no ill effects. Accordingly, man could retain with impunity four times the amount of urea formed in twenty-four hours. Since he forms say 32 grams per diem, we would have  $32 \times 4.128$  grams, which is over four ounces. The conclusion must then be that the various phenomena attributed to the poisonous effects of urea are not due to the same, but probably some other body.

I have repeated the experiment, with some increase in the amount of urea, and find in order to kill 1 kilogram of animal it is necessary to use 6 grams of urea. A man of medium weight, say 60 kilograms, will then

require 360 grams to produce death. A man of this weight should form 24 grams urea in twenty-four hours; but we have shown it would take 360 grams to poison him, which is fifteen times more than he forms in twenty-four hours; therefore that his death should be due to retention of urea, he would have to retain the entire amount of urea fifteen days. These experiments show conclusively that urea, contrary to what is generally believed, is but feebly toxic.

In double calculous obstruction, uremic (so-called) accidents occur on the second or third day, but according to the above observation, the person has formed at this time only one-eighth of the amount of urea necessary to cause death.

According to Bouchard, urea is a diuretic. While, then, this product of disassimilation causes the kidney to secrete, it not only makes its own escape, but likewise removes other waste material from the system. In cases of hepatic uremia, where there is not sufficient urea, or in cases of some pathologic state of the kidney, upon which urea can no longer act, we find as a result a diminished amount of urea, and as a result of this deficiency of nature's diuretic, an overloading of the system with various other substances; and to these we must look as the cause of intoxication.

Although urea in itself is not a toxic body, the value of a quantitative estimation of urea is not to be lost sight of; for since this is the substance which forces the renal barrier, it necessarily follows that if the urea be diminished we must find other waste material diminished in proportion, thus making the quantity of urea a criterion, to a certain extent, of the toxic matter retained within the system. I have under observation cases of insanity undoubtedly caused by an auto-intoxication, in which the urea is at times reduced to 9 grams per diem, this showing to my mind that the toxic materials are retained in the system in some proportion at least to the urea.

### A NEW OPERATION FOR THE RADICAL CURE OF HEMORRHOIDS.

BY N. H. HENDERSON, M.D.

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CHICAGO.

A few years ago the surgeon who had before him a case of hemorrhoids found himself between the devil of ligation and the deep sea of the actual cautery. But in the great "onward march" of surgery this particular field has not been overlooked, and to the specialist there are few cases not amenable to some form of treatment.

When Dr. Whitehead gave to the profession the "Whitehead operation for the radical cure of piles," much was said for and against it. Then Dr. Pratt introduced the famous "American operation." Both are too familiar to require description, and both have much to recommend them, as well as much that invokes criticism. It would seem that in the simple operation of destroying a few hemorrhoids, there would be little room for difference of technique, yet how often a slight change in the *modus operandi* will simplify and render easy a once difficult problem, at the same time giving better results.

It is my purpose to describe an operation, which, by virtue of its simplicity, is preferable to either the Whitehead or the American, in cases where either of the latter are indicated.

The patient is prepared as for any operation on the rectum, by giving liberal cathartics twenty-four hours previous, followed in twelve hours by a copious enema, light or perfectly liquid diet for twenty-four or thirty-six hours before the operation. When on the table, wash out the rectum and dilate thoroughly with a large speculum. Now seize the hemorrhoidal tissue at different points of its upper boundary with "T" or the ordinary hemostatic forceps, as in the American, by slight traction, everting the entire circumference. Next, divide the tissue at the junction of the mucous membrane with the true skin, encroaching as little as possible upon the integument. Dissect the hemorrhoidal tissue from the sphincter, being careful not to injure the muscle at any point. Having carried your dissection up as far as the hemorrhoids extend, remove the loosened tissue completely, catch up the bleeding points and, if necessary, tie them. If we were to stop at this point, we would have so much contraction of the parts when they had healed that the patient would be in a worse condition than before the operation, just the condition that is many times presented after the Whitehead or the American operations. To obviate this difficulty we will go a step farther. Again put the sphincter on the stretch and before removing the speculum, make a free incision in the posterior median line to the extent of dividing all of the muscular fibers, and with the scissors trim away each edge of the wound, so that they will not roll together and immediately unite. We now present a complete section of one-half, three-fourths, or possibly an inch of the lower part of the rectum with the sphincter and laid bare and a deep wound in the posterior median line. We will now place within the rectum a moderately large cotton tampon with a strong double silk thread attached, loosen the integument a little to permit the skin to pass a little way into the anal orifice rather than drag the gut out. Now by making traction on the threads attached to the tampon we cause the bowel to descend, and by packing with gauze the posterior incision, we prevent its healing except by granulation. Now place outside a small roll of cotton covered with gauze to which the tampon threads are to be firmly tied. Thus we get an equal pressure from within and without, in most cases completely approximating the edges of the bowel and the skin. In twenty-four hours there will be sufficient union to retain the parts in their proper relations, at which time the tampon is to be gently removed, the packing taken out of the wound in the sphincter and the entire wound irrigated. Then repack the wound in the muscle and apply any dry dressing preferred. If dressed daily in this manner, being careful to keep the incision packed until it has filled in by granulation, and the space between the membrane and the integument healed, as it will, either by first intention or by granulation, you have as a result a normal rectum, capable of performing all its functions in a normal manner. In thirty-six hours after the operation give a laxative, followed in twelve hours by an enema, and see that the bowels move daily afterward. The advantages this operation offers over the Whitehead and the American are the same, inasmuch as the two are identical, with the exception that in the American the dissection is from above downward and in the Whitehead the procedure is reversed, the object in both cases being to remove the pile-bearing portion and unite the mucous membrane and the integument.

If you will take the trouble to examine a few cases that have been operated upon by either of the above methods you will find that, even as long as one to two years afterward, there is a band of cicatricial tissue entirely encircling the anus, where the stitches have been, feeling very much like a wire, and which stiffens the muscles so that absolute control is impossible, a state of affairs which must be experienced to be fully appreciated. While this is not the inevitable consequence of these operations it is true of a vast majority of cases. We also know that it is necessary to continue to dilate the sphincter for weeks or even months after these operations, in order to prevent such a degree of contraction as will leave the patient a prey to insomnia, constipation, dyspepsia, nervous debility, etc.

Then again the stitches almost invariably slough out, leaving a gaping and suppurative surface instead of a clean healthy one, as in the case where no stitches are used. I assert that in stitching the gut to the skin the parts are thrown so far out of their normal relations that they will never have their normal action, but approximate them by a moderate pressure, as I have suggested, and nature will make allowance for the tissue that has been destroyed. The feature of this operation is the posterior incision, which, filling in by granulation, allows for the contraction which follows. My personal experience leads me to give this method the preference over the clamp and cautery. With the latter, it is impossible to make a complete section of the hemorrhoidal region, and those of us who have had experience and an opportunity to watch results, find that no cases are so prone to recurrence of the trouble as those having been treated with clamp and cautery.

As for the practice of tying off large masses of tissue, and leaving the stumps to slough away, thereby exposing the patient to danger of sepsis from absorption, we can only marvel that anything so unsurgical and so cruel has ever been countenanced by the profession. But the ligature has had its day and may well be relegated to the curio shops, where it will rank with the rack and thumb-screw of Inquisition days. We hope that none of our readers are so antiquated in their ideas that the remarks on ligation can be accepted as personal.

#### ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.  
NEW ORLEANS, LA.

(Continued from page 245.)

#### CHAPTER V.

It will be observed that Dr. Dowler records three cases in which in the primary stage of yellow fever, the temperature of the axilla reached 106 degrees; one 106.5 degrees, and one 107 degrees; in the middle period, one case 106 degrees, two cases 107 degrees, one case 108 degrees, one case 108.5 degrees, and one case 109 degrees; and notwithstanding the high temperatures the patients recovered. The patient whose temperature reached 108 was cured in seven days; the one with a temperature of 108.5, was convalescent on the third day; and the third with the axillary temperature at 109 degrees, was

cured in twelve days. The highest temperature observed by Dr. Dowler in fatal cases of yellow fever was 110.5 degrees axilla. On the other hand, by boldly exploring the regions of the body, a few moments after death, Dr. Dowler has shown that the temperature of the deep-seated muscles of the thigh may attain a temperature of 113 degrees F., the epigastrium and rectum 111, and the liver 112 degrees.

There is no proof furnished by the observations of Dr. Dowler that there was an actual increase of heat in the internal organs after death above that which it may have attained during the active stage. All the facts recorded in his tables appear to sustain the view that the high temperatures existed at the same time during life in the internal organs. Thus in those cases in which the temperature of the surface of the body in the region of the axilla reached 110.5 during life, it is probable that the temperature of the internal organs was at least from 2 to 4 degrees higher; and it is worthy of note that in not one of his observations on the post-mortem heat of regions, did the temperature of the axilla exceed 110.5, the highest point reached during life. It is still further worthy of note, that the case in which the thigh gave 113 degrees, the liver 112 degrees, epigastrium 111 degrees, and the heart 109 degrees, the temperature of the axilla was 109 degrees.

My own investigations upon the post-mortem heat in yellow fever sustain the view that there is no actual increment of heat above the highest maximum of the internal organs during life. With the sudden cessation of respiration and of the consequent transpiration from the surface of the lungs, and the sudden suppression of the perspiration of the skin and the consequent diminution of evaporation from the surface, there must necessarily be a change in the distribution of the heat, and as it is diffused by conduction from the center to the circumference, an increment of heat on the dead surface. If, however, this view be incorrect and if there is in certain cases an actual increment of the total amount of heat in the body, after death by yellow fever, such increment is probably due to the following causes: 1, cessation of respiration and evaporation from the surface of the lungs; 2, cessation of perspiration and diminution of evaporation from the surface; 3, the continuance of chemic changes chiefly in the blood and internal organs, and the consumption of the oxygen of the blood for short periods after death, the transformation of certain modes of force, as the nervous and muscular into heat.

To demonstrate conclusively whether there is an actual increment of heat in the body after death from yellow fever, comparative experiments should be instituted by immersing those suffering with yellow fever in definite amounts of cold water, (the quantity being regulated in accordance with the weight of the patient), and noting carefully the temperature assumed by the surrounding water at definite periods. Similar experiments, corresponded exactly in the quantity and temperature of the water employed and in the periods of time. The main element of disturbance to be calculated and as far as possible, eliminated from the first series of experiments would be the effect of pulmonary acts or respiration. In the absence of such exact experiments, the subject of post-mortem heat in yellow fever and other diseases must necessarily be involved in obscurity.

Dr. Dowler, however, inferred from his experiments

that there was an actual increment of heat in the body after death from yellow fever, and the views of this distinguished observer and physiologist are worthy of the most careful consideration. Thus in commenting on the results of his investigations he says:

"The average of five *maxima* of the epigastrium are nearly the same; but if we select ten *maxima* from each of these regions, the thigh will be found the hotter of the two by 0.3 degrees. This is the more remarkable, as the observations were made, owing to the emergencies incidental to an epidemic, at irregular, sometimes at lengthened periods after death, when the thigh more especially, from its comparative smallness, and greater exposure, had parted with more or less of its morbid caloric, by contact and radiation.

"In one series of cases of yellow fever, taken without selection, the following results were obtained: Fifteen patients who recovered, when temperatures were taken at a period which averaged fifteen and one-third hours, after the invasion, and afforded a mean temperature of the hand of 101.8, and for the arm-pits 104.84 degrees; nine persons who died, gave at an average of twenty-two and one-third hours after the invasion—for the hand 103.62 degrees; for the arm-pits 105.44 degrees.

"The maxima of these classes coincided, but not the minima. In those who died the average was higher; in the hand, the maximum reached by both was 107 degrees; the minimum in the hand among those who recovered, was 95 degrees, and of those who died 99 degrees; the maximum of the former in the axilla, 107 degrees; of the latter 109 degrees; the minimum of the former in the same region, 102 degrees, and of the latter 100 degrees, the latter being *in articulo mortis*.

"The extraordinary fact that in some bodies recently dead, the temperature, at various periods thereafter, rises higher than it had risen during any stages of the maladies which preceded—much higher than in the latter stages—has been fully confirmed, as well as another, still more extraordinary; namely, that at uncertain periods, usually, perhaps less than an hour, though occasionally later, the center and periphery will attain to, and remain at a stationary, perhaps a high temperature, which, for a considerable time will neither rise nor fall. But, still further than this, either the center or circumference, or both together, having reached a certain temperature, will sometimes fall and rise several degrees, repeating these movements several times. These internal and external fluctuations may or may not coincide in time, degree, and duration. Assuming that these thermal currents originate in different regions, independently of each other, and pursue different, perhaps curved routes, occasionally uniting at certain points or foci, it might be expected that at these points of contact or convergence the maximum heat would be found. These foci are not found in a marked degree, even in the center of the brain, far less in the inferior extremity below the knee, when the calorific power is most feeble or null in cadavers.

"How hot soever the patient may have been during the progress of fever, the heat generally recedes before and at death; and this recession will, upon averaging a great number of cases approximate natural standards, at least in the arm-pits and some other accessible regions.

"The development of post-mortem calorification

does not appear to be materially accelerated or retarded by the atmospheric temperature, humidity, or dryness. This heat is not the effect nor the accompaniment of, but antagonistic to putrefaction. When calorification ceases, physical refrigeration begins; and when the latter is reached, putrefaction is rapidly developed, if the weather be sufficiently warm.

The laws of post-mortem calorification are numerous and complex. Its increment, decrement, degree, duration, and repeated ebbings and flowings, differ in different bodies, so much that neither physics nor physiology has as yet furnished any satisfactory standard explanation but a parallelism. Periodic diseases, in which paroxysms of cold and heat alternate, seem to indicate analogy, if not identity, as do the great but little known fluctuations of the normal temperature during morning, noon, evening and night, among persons in health." (*New Orleans Medical and Surgical Journal*, March, 1860, Vol. XVII, pp. 210-212.)

In the May number of the same journal, in which Dr. Dowler continues the subject, he remarks:

"Both physiology and pathology furnish abundant evidence that animal heat is due neither to pulmonary combustion, nor in any way attributable to the energy of respiration. For example: In solar asphyxia (sunstroke of the first degree), which is almost always quickly fatal, respiration is very imperfect, being restricted chiefly to the bronchii and trachea, and is attended with loud mucous rattlings (râles); yet this is the hottest of all diseases. As the suffocation, I might say strangulation, increases, so does the heat, which in a few minutes reaches in some cases, 112 degrees F. in the axillæ and other regions. The post-mortem heat is equally remarkable, and may be of very long duration. The lesion usually found being either extravasation into the pulmonary tissues or congestion, which illustrates the previous history of pulmonary embarrassment.

"In sudden apoplexy (*apoplexie foudroyante*), as well as in most cases of apoplexy, coma occurs, and as the coma increases, the heat increases and is very persistent after death. Generally, in cases of the comatose form of death from acute diseases, particularly fevers, the close of life is attended with comparatively high temperature, notwithstanding the embarrassment and infrequency of the respiratory act."

"Whether the pulmonary congestion be the primary or secondary condition of insolation, I will not say; but I must remark, that of all morbid appearances of a congestive character, this is the least equivocal, so far as I have examined."

Although physiology teaches us that man is endowed with the power of maintaining the same heat of his body in all climates and all situations, with few exceptions, still it is possible, under peculiar circumstances, that the body may become actually heated beyond the normal standard. A chemico-vital refrigeration by means of perspiration or evaporation, is constantly going on. 'The fire kings,' themselves, when in a heat of 500 or 600 degrees, would roast and turn to cinders were it not for this refrigerating process, in conjunction with a vital energy which for a time neutralizes the accumulating power of caloric. The solar heat in sunstroke probably accumulates upon the surface (and in the lungs), of the body faster than nature can refrigerate through the lungs and the skin by evaporation; the vital energy being exhausted by the contest as well as by the excessive

labor (in most cases), is unable longer to neutralize the excess of temperature; vital chemistry is unequal to the task of preventing the conduction of heat into the body, and death is the consequence."

"If we suppose the central, the great vital organs to be as hot during life as they are found to be after death, the only wonder is that vitality should maintain its seat for a week or more, under the positive changes that ought, by every law of calorics, to take place in the molecular arrangement of the tissues. Let us suppose the brain in life to become as hot as the thigh is found to be after death, that is 14 or 15 degrees F. in health; the cerebral mass would expand faster than its cranial walls; the fluids would dilate and perhaps transude; compression would be the consequence, attended with convulsions, coma, and other effects incompatible with life. Suppose any other organ should become such a focus of morbid caloric only for a moment, would not each vessel from dilatation lose its healthy elasticity and cohesion and thus pave the way to sanguineous congestion? In some diseases, the lesions will afford an average alteration as great as fatal gunshot wounds; as, for example, dysentery, consumption, cancer. But in a fever how much is unexplained! Is not morbid caloric the agent that eludes the knife of the anatomist? To say nothing of its directly poisonous, let us consider its mechanical effects as above mentioned upon the brain. After dilating its delicate vessels, and establishing a sanguineous congestion death follows. The brain, as we have shown, falls sooner than other central parts under the law of refrigeration; the cranium contracts; this tremendous force drives the blood down from the brain towards the warmer and more yielding centers of the trunk; perhaps a real apoplexy, without rupture has disappeared."

So far as morbid heat can be identified as a cause of disease, we deal with a positive, not an imaginary agent, where the ground is not eternally slipping from beneath our feet. Albumen, which abounds in the brain and fluids, coagulates at 160 degrees; hematoxin, the coloring matter of the blood at 149 degrees; and moderate increase of heat vastly augments the solvent powers of the serum over gelatin, so abundant in the body. The phosphorus of the body were it uncombined, would burn in a heat less than 113 degrees.

"Admitting that the whole body be permeated with 10 or 15 degrees of heat, and that it can not render this heat latent, I ask again, is it wonderful that death should ensue? Which atom has not undergone a deleterious modification, or a new arrangement in its chemic, mechanic and vital relations? Delaroche and Berger prove that animals in chambers heated to 120 or 130 degrees F., have their temperature raised 11 or 16 degrees, and die speedily. If, as some maintain, all lesions may be reduced to those of nutrition, caloric is an agent well adapted to play an important and fundamental part, not only diminishing the elementary cohesion of the tissues, but in debilitating all the organs, thereby favoring intertextural depositions, hypertrophies, softenings, hemorrhagic serous effusions, morbid secretions, engorgements, and other alterations, solid, liquid and gaseous." (*New Orleans Medical and Surgical Journal*, May, 1860, Vol. XVII, No. 3, pp. 368-372; *Western Journal of Medicine and Surgery*, April, 1843; *New York Medical Gazette*, Vol. I, p. 209; *New York Journal of Medicine*, 1846.)

The researches of Dr. Bennet Dowler established



the important fact that post-mortem heat was not confined to yellow fever, as will be seen from the following cases recorded in his articles on "Animal Heat." (*New Orleans Medical and Surgical Journal*, Vol. XII, 1856, pp. 205, 289, 433, 470, 603, 759):

"Case 1.—Apoplexy, post-mortem heat; E. F. D., aged 46; born in France; for many years residing in New Orleans; stout and fleshy; long a sufferer from strictures and retention of urine; would allow neither the catheter nor the sound to be applied. About a month after my attendance upon him for an attack of acute pneumonia, he was seized in the night with a chill and fever; after rising from his bed in the morning, he fell and instantly expired; in thirty minutes after which, the axilla gave 102 degrees; in ten minutes 105 degrees, continuing stationary twenty-five minutes; in five minutes 104.5 degrees; in five minutes 104 degrees, remaining stationary ten minutes, that is as long as observed. A partial post-mortem examination brought to light a stone in the bladder of enormous size."

In this case it is evident that Dr. Dowler made no observation of the temperature at the moment of death. The rise in the temperature of the axilla may have been due to the equalization of temperature after the arrest of cutaneous and pulmonary transpiration and evaporation. In this case the unknown element upon which the entire theory of the post-mortem increment of heat rests is the temperature of the internal organs and especially of the blood in the large vessels just before death. No such objections can be urged against the observations in the following case which appears to sustain the conclusion that there was a marked increment of heat immediately after death:

Case 1.—Chronic enteritis, with pulmonitis; post-mortem heat. Aug. 18, 1843; room about 80 degrees. M. H., a woman aged 30, sick about sixty days; dead two hours; greatly emaciated; an incision three inches long in the umbilical region, admitting the air freely; temperature in ten minutes, 102 degrees; in fifteen minutes, 104 degrees; in twenty minutes, 106.5 degrees; in thirty minutes, 104 degrees; heart in 20 minutes, 104 degrees; in twenty-five minutes, 104 degrees; in thirty minutes 104 degrees, and slightly declining; right lung infiltrated with pus, gave in ten minutes 102 degrees; thigh 100 degrees.

Case 2.—Typhus; post-mortem heat. Feb. 28, 1848; air of room about 65 degrees. Mrs. —, aged 26, born in Ireland, last from New York; resident two months; sixteen days sick; dead twenty minutes. Axilla 100 degrees; in five minutes, 101.5 degrees; in ten minutes, 101.5 degrees; vagina in five minutes, 107 degrees; in ten minutes, 107.5 degrees; one hour after death, 107½ degrees; fifteen minutes later at dark, when the experiment ended, 107¼ degrees.

Case 3.—Typhus; post-mortem heat. July 22, 1845; air at 5 A.M., 76 degrees; at 5 P.M. 94 degrees. A. F., a Swiss, aged 30, last from Havre, ship *Swanton* fifty-one days at sea; died the second day after landing; experiment begun twenty-five minutes after death, and lasted without interruption two and one-half hours, having been stopped by the funeral. At intervals the axilla gave 109 degrees, 110, 110.5, 110¾ degrees; rectum 111.5 degrees; epigastrium 109; left hypogastrium 110; right hypogastrium 110.5; iliac and umbilical 110 degrees.

Case 4.—Typhoid pneumonia with pericarditis-hepatization. May 2, 1844, thirty minutes past noon; air about 80 degrees. P. M., aged 35; sick eight days; hand 90 degrees; bend of the arm 99; axilla 104; popliteal region 99; died five hours after; remained in bed fifteen minutes, and then as long in the dead house, covered with a linen sheet only; thirty-five minutes after death the axilla 104 degrees, and the popliteal 100; in five minutes axilla 105; popliteal 101; in five minutes axilla 105.2; popliteal 101; in five minutes axilla 106, popliteal 101.5; bend of arm 101; rectum in five minutes 100; bend of arm 101; in five minutes groin 102; bend of arm 100; in 10 minutes groin 100; hand in ten minutes 100; rectum in five minutes 106; axilla in five minutes 108 degrees nearly.

The following observations were made in the order in which they stand, at intervals of one, two, three or more minutes: Rectum, 108.5; axilla, 101; rectum,

109.5; axilla, 101.5; rectum, 110.5; axilla, 102; rectum, 110.5; axilla, 102. The observations lasted about an hour and a half, and were stopped by the lateness of the evening, at about two hours after death, the air being then about 79 degrees. Brain seventeen hours after death, 83; center of the thigh, 89; air, 83. Putrefaction odor absent at twenty-two hours after death. Here the axilla attained a maximum of 108 degrees, nearly one hour and a half after death, exceeding that of the living state 4 degrees, as taken four and one-half hours before death, exceeding that of the dead subject thirty-five minutes after death by the same number of degrees. A still greater contrast is found in the palm. The rectum rose from 100 degrees in an hour to 110.5 degrees after death, to the maximum of 110.5 degrees at twenty-five minutes later, and was stationary afterward, having gained and retained 10.5 degrees; while the axilla gained 4 degrees, lost 7 degrees and regained 1 degree, when night approached preventing further observations.

Case 5.—Congestive fever; post-mortem heat. Aug. 28, 1848; room 88 degrees. A. F., born in Maine; resident six months; aged 35; sick seven days; dead forty-five minutes; axilla in five minutes, 108 degrees; in five minutes 108.5; in five minutes 109, when the experiment ended.

In the majority of cases of cholera observed by Dr. Dowler, there was after death a progressive refrigeration from the surface toward the center. He records, however, the following case in which there appears to have been a marked increase of heat after death.

Case 6.—Cholera; post-mortem heat. In Aug. 24, 1848; air of the house 78 degrees. H. P., Swiss; dead about thirty minutes; each experiment being consecutive, lasting about five minutes in the following order: Axilla 104.5 degrees; 105.75; tongue 98; rectum 108; 106.5; 106.33¼; 108; 108.5; 109; epigastrium 108; 110; 110.5; brain through the nostril 103; concave surface of the loin 108; heart 109.5 brain 102.5; abdominal cavity 108; concave surface of loin 109; rectum 103.5. The experiments ended about two hours after death.

Case 7.—Solar asphyxia, coup de soleil, insolation, ictus solis, sunstroke. July 24, 1845; a day of extraordinary heat; air at 6 A.M. 80 degrees; noon 93 degrees. Deaths from sunstroke officially reported ten; unwritten and misnamed by estimation five; total fifteen. G. F., born in Boston; aged 28; some minutes before 6 P.M., fell while at work at the corner of Camp and Julia Streets; thirty minutes after, the experiments began; for twenty minutes, during the agony, the armpits gave 111 degrees; eight minutes after death 112; in fifteen minutes 112, in twenty minutes 112.5; at about 7 P.M. 113. The body was then stripped, laid in a cooling house, exposed to a free circulation of air, and was dressed in a muslin shroud. The axilla had been in the meantime freely exposed, but gave at seven hours and twenty-five minutes 112 degrees; seven hours and thirty-five minutes, 112; at seven hours and forty minutes, 112; at seven hours and fifty-five minutes, 111.5; at eight hours and thirty minutes, 111; at eight hours and forty-five minutes, 110.25; at nine hours, 109.25; at nine hours and fifteen minutes, 109, when the observations ceased.

Dr. Dowler gives the following as his observations of the temperature of this unexampled day: At 6:30 A.M., 84 degrees; at 8, 75; at 7:30, 87; at 8, 88; at 9, 90; at 10 A.M. in the sun near a wooden wall, 115 degrees; touching the same, 130; at 11 A.M. sand in the street, 143 degrees; at 2 P.M., sand in the street, 152 degrees; roof of a house, touching, 150 degrees; at 8:30 P.M., 89 degrees. River at 8 A.M., 83.75 degrees; at 3 P.M., 84.5 degrees; in the shade near the sun at 3 P.M., 102 degrees; in the house 97 degrees; at 4 P.M., 96 degrees.

Case 8.—Solar asphyxia in sunstroke, complicated with serous-meningeal apoplexy. Aug. 30, 1848: 11:45 A.M.; dead house 97 degrees. W. C., Irishman, aged 35; resident one



year; ate his breakfast as usual, worked till 9:30 A.M., soon after fell insensible; died 11:20 A.M. Dead twenty-five minutes. The thermometer remained in the axilla fifty-five minutes, without having been changed, as follows: Five minutes, 105 degrees; five minutes, 106.5; five minutes, 108; ten minutes, 108; ten minutes, 108; ten minutes, 108; ten minutes, 108.5; knees, 106; thigh 108; scroto perineal, 108; rectum, seven minutes, 110; fifteen minutes, 110; epigastrium, 109.25; middle of the thigh, 108.75; chest, 107. The small intestines contained from one to two pounds of chyle; thin in and near the duodenum; thick and pasty in the middle and lower third of the jejunum; semi-coagulated but little adhesion; soft clots or flakes of a milky opaline color prevailed in the ileum; in the lower third of the latter, especially near the valve, a point scarcely perceptible here was noticed.

While the above experiments on W. C. were progressing, the veins became greatly distended; a ligature was placed on the arm, a vein was opened, about two ounces of blood filtered out, after which a trickling took place for a considerable time, amounting by estimation to twelve ounces. The circulation was found to be very rapid about the head; the skin of the face and neck were injected, dark, lurid and somewhat mottled; there was no cardiac hyperemia or injection of the dependent parts; the external jugular veins were distended as if ready to burst. The left jugular was opened, as for ordinary blood letting, but no drainage or pressure was used, the head being raised, so that the orifice was nearly on a level with the breast bone. The blood jetted completely without wetting the skin, forming an arch, the diameter of which continued to extend for five minutes; at the end of eight minutes the arch had contracted owing apparently to small clots in the margin of the orifice. Dr. Dowler estimates the amount of blood which flowed out of the jugular vein at five pounds eight ounces. As the blood letting progressed the congestion and discoloration of the skin of the face diminished. Dr. Dowler concludes from this experiment that the circulation in the veins was more active than in health.

*Case 9.*—Yellow fever, intermittent type at its inception, with prolonged coma at its conclusion. Post-mortem heat August 29 1843, air about 83 degrees. S. F., born in Cincinnati; aged 24; sick eight days, (incipient coma); hand 104 degrees; axilla 105. The coma continued until death, three days after. The experiments with one instrument began thirty minutes after death, and continued about two hours. In the order of time as follows, having been recorded at intervals of two, three, five and sometimes more minutes: Axilla, 104 degrees, 105, 106, 106; thigh, 106, 107, 108, 107; axilla 107; left hypochondriac, 109, 109; right 109; hypogastrium 106; thigh 106.5, 106.5; lungs 102; heart 103; thigh an hour after the removal of all the abdominal viscera 106.5, and falling. Weather rainy; room 84. Body exposed to a free ventilation.

*Case 10.*—Yellow fever, post-mortem heat. Sept. 15, 1843; noon, air 89.5 degrees. A. G. G., born in New York; sick four days; hand 91 degrees; axilla 100; I bled to syncope, and cupped twice yesterday. Died at 1 P.M. In five minutes after death the experiments began, and were noted consecutively every five minutes, more or less: Axilla 102 degrees, 104, 106.5, 107, 106; thigh 106.5, 107, 106.5; axilla 105.5; thigh 106; left lung 106; upper lobe 103.5; heart 104.5; hypogastrium 106.5, 106.5; left hypochondriac 105.5; right thigh 106; left 106; axilla 104; left hypochondriac 104; hypogastrium 106.5; right hypochondriac 106.5; thigh 106.5; hypogastrium 106.5; left hypochondriac 104; right 104; rectum 105; hypogastrium 105. September 16, dead twenty-two hours; room 90 (noon); thigh 89; left lung 92; epigastrium 92. Incipient putrefaction.

*Case 11.*—Yellow fever, post-mortem heat. August 22, 1843, room 86. J. H., born in Virginia, aged 30; sick twelve hours, bled twenty ounces; the blood falling on the thermometer placed in a basin, gave in ten minutes 100 degrees; thirty minutes later, hand 103; both axillæ 107; (blood letting repeated) to syncope; cupping same day. August 23, cupped twenty ounces. Died at 10:25 A.M. Experiments

began in ten minutes, ending at one hour and a quarter after death, in the following order: Axilla 100 degrees, 103; perineum 101; axilla 101.5, 101; rectum 103, 103; axilla 103; when the experiments ceased.

*Case 12.*—Yellow fever, post-mortem heat. August 15, 1843. Room 86. P. L., aged 20; sick three days; hand 99 degrees; axilla 104. August 16, hand 98; axilla 103. August 18, axilla 99. August 19, room 90; hand 98; axilla 101. August 20, died.

The observations beginning twenty-five minutes after death, were recorded about every five minutes continuously for three hours and forty-five minutes, with one thermometer, in the order following: Room 86 degrees. Axilla 100, 105, 106.5, 106.5, 106.5, 106, 106, 106.5; groin 104, 103.5; right hypochondriac 109; left 108.5; right iliac 108; left 108; right hypochondriac 108; thigh 109, 109; cardia of the stomach 109, 109, 109; circumference of the left lung 107; mediasternum 107, thigh 107, 107; right hypochondriac 107; left 107; heart 107; hypogastrium 107; thigh 107; heart 107; thigh 108, when the experiment ceased.

*Case 13.*—Yellow fever. Extraordinary heat during life, post-mortem heat. August 23, 1847. J. F., Irishman; aged 28; resident nine months; dying; experiments before death for forty-five minutes; hand 107 degrees; axilla at intervals during thirty minutes 110, 110.5, 110, 110. Died. Axilla at intervals during thirty minutes after death, 110.5; bend of the arm at ten minutes 107. Carried to the dead house, stripped and laid out. Axilla about one hour after death 108; at two hours 107 $\frac{3}{4}$ . Darkness put an end to further experiments.

*Case 14.*—Yellow fever, post-mortem heat. August 28, 1848. Air about 89 degrees. N. L., born in France, aged 23; resident eighteen months. Dying; the hand and the ball of the thumb 94 degrees; bend of the arm 102, and falling; axilla 106. Dead house 89. The experiments began soon after death and continued with intervals for two and one-half hours, in the order following: Bend of arm 104 and falling; calves of the legs brought in contact 100; axilla 107; bend of the arm fifteen minutes 105.5. Stationary; axilla 107, soon 108, continuing for forty-five minutes, then declined to 107 $\frac{3}{4}$ , and in one hour after to 103 $\frac{3}{4}$ .

*Case 15.*—Yellow fever, post-mortem heat. August 12, 1847. H. M., a German, aged 45; hand 89 degrees; bend of the arm 93. Died one hour after. At one hour after death, the experiments were made for a few minutes, having been interrupted by night: Axilla 106, 106 $\frac{1}{4}$ , and rising, being thirteen and one-sixth beyond the living state one hour before death.

*Case 16.*—Yellow fever, post-mortem heat. August 13, 1843. Air 91 degrees. R. C., born in Kentucky; aged 25; sick nine days; hand 98 degrees; axilla 102. Died next day. Room 93. The experiments began thirty minutes after death, and were noted every ten to twenty minutes ending with the seventh hour in the following order: Axilla 106.5; fold of the groin, 109; rectum 111, 111; axilla 104, 104, 104, 104; thighs (in contact) 102; rectum 109, 109, 109; axilla after two hours exposure 100; rectum seven hours after death 102.

*Case 17.*—Yellow fever, post-mortem heat. Sept. 7, 1843. Air 80 to 83 degrees. J. G., aged 32; born in Ireland; sick five days; hand 98 degrees; axilla 102. September 11, hand 99; axilla 104. Died twenty-four hours after. The experiments began ten minutes after death; the body exposed to free ventilation; the room 90 degrees; the axilla ten minutes 109; left thigh five minutes 113; epigastrium five minutes 112; thigh old incision 109; epigastrium 112; right thigh new incision 111. After an interval of one hour the heart gave in eight minutes 109; the thigh in five minutes 109. After the removal of all the abdominal viscera the thigh still gave 109 degrees at about three hours after death. About one hour after death, both the arms including the scapulae and shoulder-joints were amputated for the purpose of experimenting on the contractility of the separated limbs. The limbs and body together discharged from three to four pounds of blood, which did not seem to diminish the heat of the trunk, nor that of the separated limbs, so long as the experiments lasted.

*Case 18.*—Yellow fever, post-mortem heat. August, 1893; air of the room 84 degrees. L. L., aged 25; sick five days (cold for two days before death as in congestion), dead twenty minutes; weather very breezy; body resting on stone floor, freely ventilated; experiments with Reaumur's thermometer (now expressed by Fah.): lasted three hours and forty minutes, that is four hours after death, having been noted every five or ten minutes in the order of time as follows: Axilla 108 degrees; mouth 103; epigast. 108; perineum, without incision, 104; center of the thigh, 108 $\frac{1}{2}$ ; mouth, 99 $\frac{3}{4}$ ; epi-

gast. 108; thigh 106; axilla 104; epigast. 107 and 106½, 106½, 106½. Experiments now ceased for one hour and thirty-five minutes, during which time the mercury had fallen 5¾ degrees. It rained also. Epigast. air 104; circumference of the lungs (pluræ) 103; concave surface of the liver and base of the right lung 104; hypogastrium 103; concave surface of the liver and base of right lung 104, when the experiments ceased.

*Case 19.*—Yellow fever, post-mortem heat. Sept. 13, 1894; air of the room 86 degrees. N. L., a Frenchman, aged 58; sick eleven days; dead five minutes; experiments noted consecutively about once in five minutes; axilla 102; knees brought into contact 102; rectum 104; axilla after free exposure 104; thigh 105, 107, 108; epigastrium 107; thigh 108, 108, 104, 104; left lung 104; right 103.5; thigh 104, 104, 104; right lung (base) 103, left 102; thigh 103; epigastrium 103. September 14, seventeen hours after death, room 86; epigastrium 88.5; thigh 88.5; left chest, 88; calf of the leg 86; middle of the arm 88.5; epigastrium 88.5; thigh in one hour 86.

*Case 20.*—Yellow fever, post-mortem heat. Sept. 18, 1893; S. E., born in Germany; last from Texas; resident, one month; aged 23; sick five days; occasionally delirious; became comatose last night; now dying. Axilla 104 degrees; bend of the arm 102.5; palms 98.5. Died at sixteen minutes before 11 A.M. six minutes after death; axilla 106, eight minutes 107, in two minutes later, 107; one minute 107¼; bend of the arm three minutes later (11 A.M.,) 104, one minute 104; palm two minutes 98.5. A few minutes past noon, resumed the experiments in the deadhouse, the temperature of which was about 88 degrees. The experiments were made successively in the following order, until 1 P.M.: Axilla 107 degrees, and stationary; epigastrium 107, 107.5; right and left hypochondriac 107.5, 107.5; center of upper third of thigh 107.5, 108; axilla 105; brain in the center 105; heart 107; brain 104¾, when owing to urgent circumstances the experiments ceased.

In this case during the agony, and even after respiration ceased, an universal tremor, with strong tension of the muscular system took place, while the fingers and forearms were found flexed, having been for a time very rigid. The treatment consisted of two doses of castor oil; a mixture of magnesia and charcoal in peppermint water, and at the close brandy.

An attentive study of the entire series of cases and observations recorded by Dr. Bennet Dowler establishes the following conclusions:

1. A temperature of 109 degrees, in the axilla in yellow fever is not necessarily fatal. It is probable that in such cases the temperature of the internal organs reaches 113 to 115 degrees.
2. Many cases of yellow fever, in the high temperature, and rapid progress and sudden termination resemble sunstroke (solar asphyxia, *coup de soleil insolatio*, heat stroke). When death takes place in the active stages of both diseases, the post-mortem heat may rise as high as 113 degrees, and remain at this point for varying periods of time.
3. In many cases of yellow fever, the rise of post-mortem temperature can not be referred solely to the arrest of respiration and of cutaneous and pulmonary transpiration and evaporation.
4. Post-mortem heat is not peculiar to yellow fever, but may occur after death from various causes, as lesions of the nervous system, traumatic tetanus, cholera, typhus and typhoid fevers, pneumonia and phthisis. The phenomena therefore can not be wholly referred to the action of the specific poison of yellow fever.
5. In many cases of yellow fever, as well as of other diseases, there is no post-mortem development of heat above that which existed at the moment of death; but on the contrary the bodies obey the ordinary physical laws of the gradual conduction, radiation and loss of heat from the circumference to the center.
6. Post-mortem heat may be due to several causes, among which may be enumerated the following: *a*,

chemic changes in the blood and organs, which continue for a certain period after death; and as the evaporation from the surface of the lungs and skin, as well as the refrigeration of the process of respiration have ceased the full effects of these chemic changes are manifested in the increased development of heat; *b*, the transmutation of the electrical forces and the modifications of physical force known as the muscular and nervous forces into heat.

(To be continued.)

## NERVOUS DISEASE IN EARLY SYPHILIS.

Read before the Chicago Academy of Medicine, October, 1894.

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(Continued from page 248.)

### ANALYSIS OF CASES.

The cases of early nerve syphilis which have been related can hardly be classified arbitrarily, but may with fairness be divided into: 1, cases in which toxin poisoning was the chief factor; 2, cases in which organic cell deposit existed and was the main element; 3, mixed cases in which both factors were probably well marked. That these conditions are often absolutely independent of each other during the active period is hardly credible. I wish in this connection to again direct attention to the fact that the probability of the presence of organic cell deposit is in direct proportion to the duration of the case. Some of the very early nerve phenomena are distinctly toxic; a little later we have a mixture of both, although either may greatly predominate; later still, the toxic factor is of secondary importance. Nerve phenomena associated with a simple typical roseola may be accepted as probably toxic. The existence of eruptions consisting of cell deposit, enhances the probability of cell infiltration of nervous tissue or the vessels supplying it.

Cases 1 and 2 are fair examples of the effects of the syphilitic toxins upon the brain. Not only were the meninges directly intoxicated by the products of syphilitic germ evolution, but there was in all probability a vasomotor neurosis which constituted a still more powerful source of cerebro-meningeal hyperemia. The line between such conditions and actual inflammation is difficult to draw, but judging by the effects of known syphilitic pachy-meningitis later on, it is questionable whether actual inflammation is present in these early types of head disturbance. Its occurrence would not be surprising judging by the effects of other poisons—that of rheumatism for example—upon the meninges and brain. Periosteal involvement may, I think, be laid aside in these cases.

When we consider the excessive engorgement of the pharynx in secondary syphilis, we ought not to be surprised at the occasional occurrence of severe symptoms referable to meningeal engorgement. The faucial hyperemia is, it is true, referred to actual cell deposit—indeed I formerly so regarded it—but I have lately become convinced that vasomotor disturbance has much to do with it.

It would appear that mental disquiet had much to do with the determination of the head symptoms in Case 1. This is an important practical point as

tending to show that syphilis alone may be quite a different matter from syphilis plus anxiety, brain fag or any condition which tends to disturb cerebral circulation and nutrition.

In Case 2 we have in all probability an illustration of what may occur when diathetic conditions and blood impoverishment are superadded to syphilitic infection. It has seemed to me that rheumatism, gout, tobacco and alcohol are somewhat alike in increasing vulnerability of nerve and brain tissue both to syphilitic intoxication and cell growth. Alcohol is especially open to impeachment by virtue of its pernicious effect not only upon the brain cells, but also upon the cerebral circulation. A point regarding the effect of the salicylate of iron which may be pertinent in connection with its results in Case 2, is the fact that I have reason to believe that this preparation is of special value in various toxemias. It has apparently been of great service in the treatment of erysipelas, diphtheria and puerperal septicemia. This may have a direct bearing upon its action in syphilo-toxemia.

Case 3 is by far the most interesting case of my series and is the one which I believe to be most open to controversy. It is possible that the Fellows of the Academy may fear that I am carrying the neuropathic theory of syphilitic phenomena to extremes in classifying this case among them, but there appears to me to be no other logical explanation of its peculiarities. I certainly do not believe that I succeeded in aborting a double pneumonia by the means adopted in this case.

Visceral engorgements and infiltrations are by no means uncommon in syphilis, diffuse infiltration characterizing the early, and distinct gummy deposit the later period. Tenderness over the liver, spleen and kidneys are occasionally observed. Transient albuminuria is not uncommon. I have long entertained the view that more or less transitory circulatory disturbance of the viscera is quite a constant feature of early syphilis. That this is due in any great degree to cell deposit, I do not believe; there is too little disturbance of function as a rule. It would appear logical to infer that certain visceral areas participate in the changes characterizing the roseola, at which time no cell deposit may be manifest in any location. If my position be correct regarding the presence of a sympathetic neurosis produced by syphilitic toxins at this period, the viscera, which bear so important a relation to the sympathetic, could hardly be expected to escape. I have said that there is usually no marked disturbance of function, but I have met with some striking exceptions to this rule. For example, I have seen severe jaundice apparently due to hepatic involvement at a very early period of syphilis.

Hutchinson, I believe, admits that the early lung involvement of syphilis consists of temporary congestions; actual inflammations and infiltrations being reserved for a later stage. Aside from the possible existence of pulmonary vasomotor disturbance as the explanation of the phenomena observed in the case under consideration, it is not beyond the bounds of probability that the syphilitic toxins acted in some peculiar manner in this instance, upon the pneumogastric.

Irritation and hyperemia of posterior nerve roots readily explain the severe intercostal pain.

Case 4 in all probability illustrates the fact that

syphilis is likely to seize upon the slightest point of vantage. The old back strain and a rheumatic diathesis constituted a point of departure for local disturbance. Whether the irritation and hyperemia of posterior nerve roots was in a certain sense a reflex of the muscular disturbance is open to question. I am inclined to the belief that the old injury was the source of local vulnerability, the neuralgic element in the case being, however, the direct effect of the syphilitic toxins upon sensory nerve roots.

The necessity for ordinary measures of local derivation and counter-irritation in this case, are worthy of comment.

Case 5 shows very conclusively that syphilitic brain disease may remain latent for some time, only to develop upon the supervention of some exciting cause. Whether this is true only of the early disturbances of syphilis is open to question. It is a fact, however, that in early cerebral disturbance which is due either to toxins or gradual diminution of vascular caliber, or both, the onset is apt to be insidious, with premonitory symptoms of vertigo, slight aphasia, impairment of memory, cephalalgia, sense of head fullness, melancholy, irritability, or perhaps muscular spasm. The final stroke may be sudden, but some of the foregoing symptoms are likely to have preceded it. The exceptionally sudden development in several of my early cases is a feature of some interest. Later cases, which may be due to thrombosis, embolism, or hemorrhage are, on the other hand, often very sudden. In the case of hemi-anesthesia at present under consideration, the character of the lesion is an open question. Cerebral hemorrhage should be rare in such early cases, the thickening of the vessel walls and perivascular tissue protecting the arteries from rupture rather than otherwise. Collateral vascular strain and hyperemia might possibly explain it. Venous obstruction of limited extent, in the presence of active hyperemia induced by venery and alcohol might have been the essential factor. It will be understood that I do not deny the probability of a small extravasation in this case. I simply wish to assert its rarity in so early a period of syphilis. Its occurrence, however, might show that the localization of vasculo-cerebral syphilis, depended upon some antecedent non-syphilitic disease. This is not likely in so young a subject.

The occurrence of acute ischemia of the affected area is not improbable. The affected area probably accommodated itself to the gradual diminution of the blood supply, incidental to the encroachment of the syphilomatous process. When, however, from any cause the vessels are suddenly occluded the result is well known. The mechanism of this occlusion in early syphilis is not so easily explained. Embolism is not impossible, but is not to be expected in early syphilis. Localized vasomotor disturbance is possible. The toxin element does not enter here, save as a complicating factor; that it is the essential feature of the case is not likely. After a careful survey of the pathologic possibilities in the case under consideration, I am inclined to the ischemic view of the cerebral disturbance. The location of the lesion in the internal capsule or its immediate vicinity may I think be accepted.

The subsequent recovery and prolonged good health of this patient typify the favorable ultimate prognosis of many cases of nervous syphilis. Case 4

quite forcibly illustrates three important features of syphilitic neuro-pathology, viz.:

1. The acutely pernicious action of syphilitic toxins upon the nervous system.

2. The vulnerability of nerve tissue produced by this early intoxication.

3. The importance of such conditions as la grippe and possibly the influence of sexual excess in determining neuropathic phenomena. The early nerve disturbance in this case, I believe to have been due to the following factors: *a*, direct irritation of nerve tissue and spinal meninges, by the syphilitic toxins; *b*, circulatory disturbance—probably hyperemia—of the same tissues and especially of the posterior roots of the spinal nerves, produced by syphilitic intoxication of the sympathetic. The paraplegia which occurred later on, was in all probability due to actual cell infiltration of the motor tracts determined by the perversion of nutrition left by the toxins. For that matter the paraplegia did not occur late enough to exclude toxin action at the time it developed. Even if the toxins were the point of departure, however, cell infiltration was probably the essential factor at this time. I have already spoken of the importance of la grippe in the etiology of this case. The sexual excesses of the patient perhaps had much to do with the spinal determination of the syphilitic poison. The question has occasionally arisen in my mind, whether the causative influence of syphilis in tabes may not be operative chiefly through the secondary factor of sexual excess. Hutchinson reports a case in which acute myelitis was precipitated by sexual indulgence, the patient being well along in late syphilis. I recognize the fact that the true importance of syphilis in the etiology of tabes has not been definitely settled. Alcohol bears a somewhat similar relation to tabetic etiology; it is probably the determining factor that develops morbid changes in the spinal cord in syphilitics, which abstainers would probably escape.

In Case 7 we have an illustration of a condition of syphilitic nerve disease which, while it can hardly be said to be very rare, is yet sufficiently infrequent to be of great interest. In this case the fifth nerve was obviously involved. It would appear that syphilis has something of a monopoly in the production of paralysis of the fifth. Hutchinson states that he has never seen this form of paralysis except from syphilis. I am not in a position either to verify or contradict this assertion. Neurologists of large experience are much more competent to judge. It is to be remembered, however, that Mr. Hutchinson's clinical experience has been enormous. The only cases which I have seen have been due to syphilis, but strange to say, neither of them bore out Mr. Hutchinson's favorable prognostic opinion of such cases. He says: "I do not recollect a single case of syphilitic paralysis of the fifth nerve which was permanent." The apparent contradiction in my cases was probably due to the late period at which proper treatment was begun. In neither of my cases was the cornea involved, the superior division of the nerve probably escaping involvement. Hutchinson has several times removed the eyeball in cases of total involvement of the nerve, the anesthesia from the nerve lesion being so complete that anesthetics were unnecessary. As a rule, only one nerve is involved, cases in which bi-lateral paralysis of the fifth or coincidental involvement of other cranial nerves being exceptional.

Hutchinson believes that the want of symmetry and strict localization of the lesion shows that the trunk or ganglion rather than the origin of the nerve are affected.

The most interesting feature of the case under consideration is the unilateral deafness. So rare is this condition that Hutchinson states he has never seen an example of it. Partial deafness in one or both ears, generally temporary, is by no means unusual in early syphilis. Tinnitus aurium is another aural phenomenon which is not infrequent and is likely to be very stubborn, but may be unaccompanied by the slightest inhibition of audition. In the cases in which absolute deafness occurs the process is not only bi-lateral but may be very fulminant. Unless mercury be vigorously used, incurable deafness is very likely to develop in an incredibly short time. We are almost in the dark regarding the pathology of these cases. Possibly there may be some new pathologic features which the otologists of the Academy can impart to us in the discussion.

Deafness develops during the first year of syphilis, as a rule, is rarely if ever tertiary, and seems to be almost identical in acquired and hereditary syphilis, in which latter condition it is very frequent. The severity and rapidity of the process in connection with the total abolition of hearing which usually results, warrants its classification among the nerve phenomena of syphilis. A disturbance of the relations of the arteries to their bony investments by virtue of a loss of elasticity, thickening and narrowing of the vessel walls, probably explains some of the slighter cases of deafness and tinnitus. Some transitory cases are doubtless due to a syphilo-toxic vasomotor neurosis.

Where cell infiltration in or about the auditory nerve occurs, the pressure and counter pressure on the delicate nerve fiber must be very great because of the unyielding nature of its osseous investments. The syphilitic neoplasm may as usual be quite speedily removed, but pressure and toxic innutrition have done their work and permanent and functionally fatal injury has been produced. I see no other logical explanation of these cases. There is certainly no explanation which could more powerfully emphasize the necessity for early and radical treatment.

A final point of interest is the fact that facial hemiatrophy is exceptionally preceded by neuralgia of the fifth as occurred in my case.

In Case 8 we have an example of cerebral disease in early syphilis which is quite rare, the recorded cases being few in number. The onset of the hemiplegia in this case was apparently very sudden, as the patient afterward told me that he had felt perfectly well before the attack, with the exception of some slight manifestations of syphilitic fever. The lesion in this case was in all probability one of marked vascular infiltration. The presence of papular syphilides showed that the characteristic dissemination of cell deposit had begun. It is probable that moderate ischemia of the affected area preceded the stroke, the final result being due to a sudden diminution or cessation of the already limited blood supply. Theoretical reasoning is our only recourse in such cases and it might be quite as logical to attribute the condition to localized venous obstruction and sudden edema, or possibly hemorrhage, were



it not for the fact that the disease has a greater predilection for the arteries than the veins, and hemorrhage is quite unlikely at so early a period of syphilis. Possibly, however, the effect of alcohol in precipitating the attack of hemiplegia might be best explained upon the theory of hemorrhage, the arteries rather than the veins being the point of departure. Our distinguished Fellow, Dr. H. M. Bannister, relates a very interesting case with features somewhat similar to mine<sup>3</sup>: "I was called into a large store to see a man who had been seized with an apoplectic attack. I found a gentleman between 30 and 40 years of age, completely hemiplegic on the left side. He had not lost consciousness and while mentally somewhat disturbed, was capable of giving a clear account of himself, which was verified by his friends. He had been well, prior to the attack, with the exception of a chancre contracted four months previously. I had him taken in a carriage to his boarding place as he requested, prescribed and promised to call next day. The next morning to my surprise I found him up and dressed; all motor paralysis had disappeared but he was completely aphasic and could only partially express himself by signs. I learned that his hemiplegia had left him during the night, to be followed by his present condition. This also passed off within twenty-four hours, but his mind was left markedly affected, a condition of mild depression and partial hebetude remained which continued until he left the city and passed out of my knowledge."

Dr. Bannister considers this case to have been one of incipient parietic dementia due to toxic cerebral disturbance, and in this opinion I am inclined to agree, but with some qualifications. It is unfortunate that the age of the patient, his previous habits of life, his hereditary and subsequent history were not definitely known. These points would possibly afford additional support to Dr. Bannister's theory of the case, by removing certain features of doubt. As to the cerebral intoxication, it was doubtless a very important factor in the case, but there were certain other elements requiring due consideration. In the first place, cell deposit was to have been expected at the time the hemiplegia developed; vasculo-cerebral changes were probably present with resulting relative ischemia and defective nutrition of the brain. The toxins undoubtedly did their full share in perverting nutrition and inhibiting cerebral function, but the sudden paralysis was probably explicable by their vasomotor rather than by their direct effect. The speedy recovery of the hemiplegia and the apparent alteration of the morbid process from right to left as suggested by the aphasia which replaced the left hemiplegia tend to show this. Temporary vaso-contraction of arteries the lumen of which was already diminished by syphilitic infiltration, would serve as a logical explanation. The resulting mild dementia was probably due to the combined effects of the temporary anemia and the syphilitic toxins.

In Case 9 we have another typical example of early syphilitic hemiplegia with ample evidence of the favorable character of the prognosis under careful and systematic treatment. A very important point in this connection is the fact that such cases should rarely occur. We can not avoid in some cases—possibly in the majority—the early toxin phenomena, for the

reason that treatment may not have time to thoroughly impress the patient before the symptoms of toxin nerve disease develop. When, however, we have several months leeway, we should almost always be able to prevent symptoms due inferentially to arterial disease, providing the patient be intelligent and conscientious.

Case 10 illustrates the fact that recovery does not ensue even in early syphilitic brain disease, unless the syphilitic neoplasm be removed before permanent changes in the affected tissues have occurred. We may sweep away the syphilitic factor in such cases, but we must be very prompt and radical in our therapeutics else nerve ruin be left behind. The pathologic process in the case just related, may have been precocious and verging upon gummy change. It certainly might be expected to be distinct and circumscribed, as suggested by the marked osteo-periosteal changes.

The author has no desire to be arbitrary in his own conclusions regarding any of the series of cases at present under analysis, least of all does he desire to insist on the accuracy of the diagnosis in Case 11. Facial paralysis from other causes is very frequent, while involvement of the seventh nerve in syphilis is very rare; the possibility of coincidence is therefore to be taken into serious consideration. Hutchinson, with his vast experience, recalls only two or three examples of facial paralysis from syphilis and in these cases other cranial nerves were also involved. He quotes Buzzard and Hughlings Jackson as having recorded examples of it. In my own case there was no change for the better until full mercurial treatment was instituted.

Another gentleman—also a physician, by the way—had been under my care for syphilis of a duration of something less than a year. He developed a facial paralysis which our confrère Dr. Church, pronounced syphilitic. As this man has gone through a serious surgical operation and was just convalescent, and moreover, from the fact that he had been over treated if anything, from time to time, I doubt the accuracy of the diagnosis. Recovery was soon complete in this case, and in a recent letter the doctor gives a very cheerful and reassuring account of his condition.

Case 12 is certainly of great interest. It would be difficult to prove the connection of the early tabetic symptoms of undoubted specific origin, with the later manifestations of the typical tabes. The inference of a causal relation of the early symptoms to the later incurable cord disease is, however, apparently fair. At this junction it might be well to again suggest that in many cases of tabes with a syphilitic history, cord intoxication without symptoms may have laid the foundation for later changes.

My friend and colleague, Dr. H. N. Moyer, has observed a case which is also pertinent as bearing upon early spinal cord involvement in syphilis. His account of the case is as follows:

*My Dear Dr. Lydston:*—The circumstances attending the case of which I spoke to you I can only recall from memory, but they are substantially as follows: Some six or seven years ago I was called to see a woman about 30 years of age who was said to be suffering from an obscure nervous trouble. The disease had begun some weeks before I saw her, with quite severe pain in the back and shooting pains in the legs. These symptoms had gradually increased until within a few days of the time when she came under observation, at which time she was compelled to take to her bed. At the time I saw her, she was apparently very sick and suffering excruciating pains particularly in the legs and a

<sup>3</sup> American Journal of Insanity, 1894.

dull heavy aching in the back. She was very restless and sleepless. The pains were described as shooting or darting up and down the limb; the feet were especially painful and there was a feeling as though hot sand were applied to the soles. On examination, there was no special atrophy though there was perhaps some loss of power in the legs. She was able to stand with the eyes open but with them closed she would immediately pitch forward. The knee reflexes were completely abolished. There was impaired tactile and temperature sense in the lower extremities. At this examination I detected a diffuse macular and papular eruption pretty generally distributed over the entire body and which up to that time had not attracted the attention of the attending physician. The eruption also was present upon the palms of the hands. Suspecting the specific nature of the eruption I immediately questioned the husband who admitted that about ten months before he had been infected, but after six months treatment his physician had advised him to marry and he had done so.

"To my mind, there was no question that the specific infection was directly responsible for the acute ataxia in which I found the patient. An examination of the genital organs did not reveal any primary sore. I saw the patient on one or two occasions after this visit and learned subsequently from her physician that under free use of the iodids with mercurial inunction, the pains rapidly disappeared and the patient made a quick recovery. Within three or four weeks she was going about attending to her ordinary household duties. It would be interesting if at this time I could see and examine the patient, but unfortunately I do not know where she is. It is the earliest case that has ever come under my observation."

I greatly regret the lack of accurate data in Dr. Moyer's exceedingly interesting case. The absence of subsequent history is especially to be regretted. Such incompleteness of detail is so frequently unavoidable that many of our most valuable clinical experiences are sadly marred. Despite the lack of certain details, however, there is no doubt as to the accuracy of the diagnosis of Dr. Moyer's case.

It has not been my fortune to observe cases of early brain syphilis with mental symptoms as the predominant element. A number of such cases are on record. Most of these cases have been collected by an eminent Fellow of this Academy, Dr. J. G. Kiernan's paper being a brief yet comprehensive survey of the literature of the subject of early syphilitic psychoses. I take the liberty of quoting his references and cases in full.<sup>4</sup>

(To be continued.)

## NEW INSTRUMENTS.

### AN IMPROVED INSTRUMENT FOR DRAINING THE ABDOMINAL CAVITY AFTER LAVAGE IN ABDOMINAL SECTION.

BY J. H. KELLOGG, M.D.  
BATTLE CREEK, MICH.

Every ovariectomist who has had any considerable degree of experience has some time felt the need of an efficient means by which the abdominal cavity could be conveniently and completely drained of fluid after washing out, so as to avoid the necessity of inserting a drainage tube for this purpose in completing an operation. "Always drain when you wash out," has long been an accepted maxim with many ovariectomists, and the fact that those conditions which require washing out are very generally such as render the drainage tube an absolute necessity, or at any rate a wise precaution against the extension of septic processes or a comforting assurance in relation to

internal hemorrhage, will enable the drainage tube to hold its place in abdominal surgery, notwithstanding the cry raised against it by those who happen to have the good fortune to score a long succession of recoveries without its use. Now and then, however, a case is encountered in which one hesitates to incur the risks of the drainage tube, balancing on the one hand the danger which may be incurred if the drainage tube is omitted and, on the other hand, the possible danger of hernia from difficulty to secure immediate union when a drainage tube has been *in situ* for twenty-four or forty-eight hours; of wound infection through the difficulty of maintaining absolute asepsis in the care of the drainage tube; of possible intestinal fistula from pressure of the inner end of the tube against some portion of the intestinal canal, the nutritive supply of which has been weakened by the breaking up of long existing adhesions. The fact that in cases in which washing out is required, more or less unusual risk is necessarily involved by reason of the grave character of the case, renders important the employment of every possible means of lessening the risk of any unfortunate complications which can possibly arise subsequent to the operation. There are, certainly, several classes of cases in which if the surgeon could feel absolutely sure that every drop of fluid had been removed from the abdominal cavity, he would feel much happier to leave the case with the abdomen completely closed than with the most approved form of aseptic drainage tube in position. There are three classes of these cases:

1. Those in which the abdominal cavity has been washed out in consequence of a sudden rupture during the operation, of a thin-walled cyst, allowing the escape of colloid matter, which in itself is not toxic but is capable of furnishing a favorable nidus for the development of air germs, more or less of which must always find entrance to the abdominal cavity during the operation in spite of the most careful aseptic precautions, and which are sure to develop and form their characteristic toxins if fluid remains behind in the abdominal cavity. It is true that often in such cases nature ultimately triumphs by absorbing the fluid, ptomaines and all, thus starving out the mischievous microbes, but the lowered vital resistance of the patient who has undergone a complicated and prolonged surgical operation sometimes prevents this happy conclusion of the matter.

2. Cases of ascites due to fibroids of the uterus, papillomata of the uterus or appendages, or peritoneum, tuberculosis of the peritoneum or fibroid of the ovary. This ascitic fluid, while innocuous so far as toxemia is concerned, before the opening of the abdominal cavity, after air germs have been admitted, so encourages the growth of microbes that local or general peritonitis may easily result, so that washing out is frequently justifiable, especially where there has been any escape of blood into the peritoneal cavity, resulting in general soiling of the intestines.

3. In cases in which through the rupture of a pus sac, or some similar source of infection, deep portions of the peritoneal cavity have been soiled, notwithstanding the walling off of the intestines and greater portion of the intestinal cavity by sponges or napkins. Every operator knows how readily such soiling may occur through the rupture of a firmly adherent pus tube, or a suppurating ovary, notwithstanding the most careful and dextrous manipulation in freeing the diseased parts from the surrounding tissues.

<sup>4</sup> Medical Standard.

There are, perhaps, still other cases in which if the operator could feel that the peritoneal cavity had been thoroughly cleansed and was entirely free from fluid, he would leave his operating room or surgical ward in a much more contented state of mind than after introducing a drainage tube, with the knowledge which the experienced surgeon appreciates much better than the tyro, that eternal vigilance in watching the drainage tube is the price of even a moderate safety from the dangers which its use involves.

After this perhaps somewhat lengthy introduction, I desire to present a new device, by which, in cer-



tain cases at least, it is believed that the necessity for the use of the drainage tube may be obviated. The device illustrated in the accompanying engraving consists of a metal tube about one centimeter in diameter, the lower end of which is inclosed in a cage, which not only guards the tube laterally, but by extending a little beyond the lower end of the tube also protects its lower extremity. The advantage of this construction will be readily appreciated. The diameter of the cage is about one inch. It thus creates a sort of well about the tube, in which the fluid may collect. The circumference of the well is seven centimeters, as compared with three and one-half centimeters for the tube. The length of the tube is eight centimeters. We thus have a drainage area of fifty-six centimeters, whereas in the use of an ordinary wash-out tube there is often no drainage area at all created in consequence of the intestine, omentum, or other loose tissue being drawn up against the end of the tube by the suction of the siphon or the evacuating syringe. At best, the whole drainage surface of the tube without the cage can scarcely be reckoned as more than three-fourths of a square centimeter. The protection of the lower end of the tube by the cage prevents obstruction, so that the fluid accumulates about the end of the tube, from the surrounding tissues. By introducing the instrument to the various parts of the abdominal cavity, and especially to the most dependent places, the whole peritoneal cavity may be quickly and perfectly drained.

I have tested this instrument in a number of cases and find it admirably suited for the purpose for which it was designed. In a recent case it proved very useful, indeed, serving a new purpose by which it became more useful than I had anticipated. The case was one in which I had removed a very large malignant kidney by the lumbar method. I found it necessary to extend the opening anteriorly to enable me to get the mass out. The tissues were so friable that just at the last moment, notwithstanding careful manipulation, a portion of the malignant growth gave way under pressure of the fingers, and a sudden gush of blood occurred which left present a great number of clots packed away in each of the little pockets which had been formed by the numerous nodules of the tumor. The weakness of the patient rendered necessary the completion of the case at the earliest possible moment. Recalling my caged

tube, I thrust it into the cavity at once, and while the stream of water was flowing, carried it around to every part of the wound, and was surprised at the facility with which I was able to do this which was due, I am sure, to the large surface presented by the cage, which prevents its entanglement with surrounding tissue. I was also able to pass it freely everywhere without fear that the end would be thrust through the thin septum which intervened between the cavity from which the kidney was removed and the peritoneal and pleural cavities. After the wound had been sufficiently washed, I simply separated the tube from the fountain and dropped the end into a vessel upon the floor when the powerful suction of the siphon thus produced quickly emptied the whole cavity, drawing out through the tube such small clots as had not been previously lifted out by the force of the inflowing stream, and when I removed the tube I was pleased to find that the enormous cavity, which was nearly large enough to receive a man's head, had been completely obliterated, its walls being drawn up around the cage, in following the water as it receded. Examination showed that the cavity was entirely free from clots, and it was only necessary to tuck in a strip of iodoform gauze, close the wound, and rapidly introduce a few sutures to complete the operation.

In conclusion, it is but just that I should state that the idea of this instrument was suggested to me by Dr. Eastman's well, which accomplishes much the same thing, although somewhat less convenient in use. I must also thank Wm. H. Armstrong & Co., of Indianapolis, for the pains they have taken to construct the instrument according to the plans I have given them.

#### A NEW CLUB FOOT WRENCH.

BY STEWART LEROY McCURDY, A.M., M.D.

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PITTSBURG, PA.

In the treatment of the various forms of talipes even after tenotomy of the tendo-Achilles, or the plantar fascia of other muscles and ligaments, or as individual case may require, great force is required to break up the adhesion between the tarsal bones.

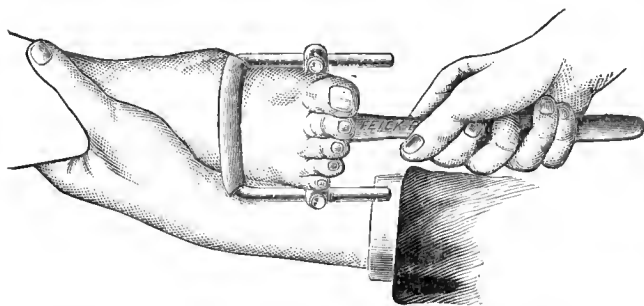
The bones which have been in abnormal position for years are bound together by dense adhesions, and have new articulating facets in abnormal position.



These distorted relationships must be disturbed. The hand of the average surgeon is not sufficiently powerful to bring the foot to a normal position. It may be necessary to even fracture the bones to overcome the deformity and when it is found necessary to do so it should be done, for by the time treatment is completed the fracture will have had ample time to unite.

The "T. T." or "Thomas Twister" as introduced in this country by Dr. Ridlon is not entirely satisfactory as a club foot wrench. Phelps machine is all powerful but it is quite complicated, expensive and cum-

bersome. Neither of the machines can be kept absolutely clean. The wrench herewith illustrated is simple, can be kept aseptic and is not expensive. While the handle is to one side of the foot in the "T. T.," the handle is in the center of this instrument, and there is great advantage given the operator in power without the annoyance of the wrench slipping around the foot. The set screw shown allows an adjustment to any sized foot. The bars as they come in



contact with the skin are protected with rubber tubing, thus avoiding the liability of contusing the skin. The wrench should be used after tenotomies have been done, for the forcible correction of the foot, in cases of talipes-equino varus, or equinus, and always done under an anesthetic. It may be used in any variety of deformity of the foot, hand or other joints of the extremities.

## SOCIETY PROCEEDINGS.

### Louisville Academy of Medicine.

The Academy met in their rooms, Monday evening, February 4, DR. T. L. McDERMOTT, President, in the chair.

DR. W. B. PUSEY exhibited an intubation tube "introducer," a modification of O'Dwyer's. It is a much lighter instrument, doing away with the spiral spring with which the tube is pushed off in the original introducer, thus making it much easier to clean. It also has a notch in which the thread rests. He also exhibited an extractor which he stated was in the experimental stage and had not been put to practical use yet.

DR. DUGAN showed a specimen removed from a child 6 years old, consisting of the trochanter and two inches of the shaft of the femur below. The child had applied to a surgeon for hip joint disease, and a splint was applied with extension. Under this treatment the patient gained in flesh until about six months ago, when she began to fail. She was put on tonics and again improved for a time. When seen by Dr. Dugan there was a boggy mass outside the thigh, which had discharged in the region of Ponpart's ligament on right side. The thigh moved on a small axis, and a spontaneous fracture was suspected, especially as there was a history of a fall one year ago. The detached trochanter was removed and two inches of the shaft which was in the condition of osteomyelitis. The periosteum was detached but healthy.

DR. CHEATHAM showed a calculus which he had removed from Wharton's duct. Two years ago a calculus had discharged through an abscess. This one was removed without difficulty after an incision, the forceps being introduced and the calculus grasped. It was situated under the tongue and about one-fourth inch from the opening, and could be distinctly felt with the finger.

The discussion upon diphtheria was then begun.

DR. KOEHLER read a paper upon the

### BACTERIOLOGIC DIAGNOSIS.

He stated that the bacteriology of diphtheria was based upon the supposition that all cases in which the Löffler bacillus is found are true diphtheria, and if not found it is a pseudo-diphtheria, which is not contagious or infectious. The bacteriologic examination is a valuable hygienic measure. The malignancy of the diphtheria bacillus is not based on theoretical grounds. The description of the bacillus and its method of culture were then briefly explained. The position of the bacteriologists is misunderstood. They do not hold that typical cases of diphtheria need a bacteriologist to make the diagnosis. Any competent physician can do that, but there are cases obscure in their nature which may be the source of disseminating the disease among many, in which a bacteriologic examination makes the course to be pursued perfectly clear. In the series of cases examined by Drs. Frank and Koehler, the staphylococcus was most frequently associated with the bacillus of diphtheria. Of the fifty cases, sixteen were diagnosed as true diphtheria, three of which did not have the clinical symptoms of diphtheria. Five of these were fatal. In the cases of pseudo-diphtheria there were no serious symptoms.

DR. KOEHLER took the stand that all cases in which the bacillus is not found are non-infectious; but when found, if the clinical symptoms do not point to diphtheria, they must be treated as such, especially in regard to isolation, etc.

DR. W. E. GRANT read a paper upon his

### EXPERIENCES WITH THE ANTITOXIN SERUM OF BEHRING.

He thought that it was a mistake for a comparison to be made between the diphtheria antitoxin and Koch's tuberculin, as the action of the two and their composition were so different. The diphtheria antitoxin has only a local influence, neutralizing the product of the disease germ, and for this reason he also used in conjunction with the antitoxin, local treatment as well as constitutional treatment as the latter was indicated; the antitoxin had been very prompt in its action. Löffler's bacillus had been found in each case. There had been no skin complications, no joint pains, no kidney troubles. The injections were made in the back under the strictest antiseptic precautions. The large needle was used, as the viscid character of the serum necessitated the large caliber. Pain was no factor, but the twisting of the child may break the syringe or the needle, and a practical suggestion was made to have an assistant hold patient over his shoulder, holding his neck and legs, thus arching the back and holding him firm. The local treatment consisted in the application of fifteen volume peroxid of hydrogen, 3iv, and bichlorid of mercury 1 grain. Constitutionally, whisky was given freely 3ij daily, with tr. chlorid of iron and chlorate of potassium, the latter given until the second day only. Digitalis and strychnia as indicated. He reported five cases in which the antitoxin had been used with recoveries in all, though one case was *in extremis* when the remedy was administered.

DR. J. M. RAY read a paper upon the

### LOCAL TREATMENT OF DIPHTHERIA.

As the disease is primarily a local one and the poison is generated here, the treatment must be begun early and that point attacked. The indications are: 1, destroy the germs; 2, neutralize the toxic products; 3, limitation of extension of the membrane. The prophylaxis is an important element. Adenoids and enlarged tonsils should be removed in those exposed especially; all discharges in those with diphtheria must be destroyed and the clothing, etc., boiled or otherwise disinfected. Local treatment necessarily has its limitations; a spoiled child by its struggling might be injured, or one much prostrated, made worse from loss of valuable vital force from poorly applied efforts at local treatment. The application of powders, if bitter, destroys appetite by creating a bad taste in the mouth. The situation and extent of the membrane and stage of the disease is a guide to the administration of local treatment. If diphtheria of tonsils, pharynx or nose, a warm alkaline cleansing solution is best, a combination of sod. bicarb., sod. chlorid and boric acid, this used as a douche, and when warm is a painless application. As a spray the best is the following:

R. Hydrarg bichlorid . . . . .	gr i.	106
Glycerin . . . . .		
Peroxid hydrogen (Oakland) aa . . . . .	3ij.	64

which if very irritating will be made neutral by adding salt or soda in small quantities. Iron has a good effect, as it destroys and shrinks the membrane. Powerful antiseptics are contra-indicated. In the laryngeal cases the laryngologist rarely sees a case until intubation is indicated. If seen early,



sprays are of no avail; we must use vapors or steam. Tr. benz. co. is pleasant and effective with ac. carbolio and eucalyptol. The Brooklyn or Corbin treatment is very effectual in laryngeal diphtheria. Statistics were given of 358 intubations without this treatment with 28 per cent. recovery, and 218 intubations in which the calomel sublimation treatment was used with 39.8 per cent. recovery. A lamp used in this treatment was shown which is used by Dr. Dillon Brown.

Dr. D. G. DABNEY spoke on the

VALUE OF THE LOCAL APPEARANCES IN DIPHTHERIA AND THE PROGNOSIS.

Only the nasal and pharyngeal varieties were spoken of. The progress in this disease was due to the advanced knowledge of the pathology, treatment and the less severe epidemics. In every suspicious case a bacteriologic examination should be made, especially if the case is a mild one. But even where the diagnosis of diphtheria is made bacteriologically it is oftentimes difficult to convince one's self that it is diphtheria because of the mildness of the form. The more extensive the membrane, the more toxin is produced, and the more grave the prognosis. If little membrane there is generally not much trouble. Cases of follicular tonsillitis are less ominous at the beginning but prognosis should always be guarded. The nasal form is always more serious because of the number of absorbents and the likelihood of a laryngeal diphtheria supervening as a complication. Nasal bleeding is a bad omen, also the extension of the membrane deeply and rapidly. Early enlargement of the glands of the neck and the presence of adenoids influence the prognosis.

Dr. W. B. PUSEY read a short paper on

INTUBATION IN DIPHTHERIA.

He gave the history of this treatment of diphtheria, and paid a tribute to O'Dwyer. The advantages over tracheotomy are obvious, especially to any one who has seen an intubation. In some cases a secondary tracheotomy is necessary but they are not many. The tube is generally worn from five to ten days, the average time being seven days as a rule. In one case he had had, the tube was worn twenty-four days, being removed every five or six days, with recovery; another had coughed up the tube at the end of twenty-four hours and re-introduction was not necessary. This is not always easy to do, but in most cases it can be performed without difficulty. Under eighteen months, the parts are so small and the tube is often longer than the length from the epiglottis to the vault of the pharynx. This makes introduction and especially extraction of the tube almost impossible. Of the 147 cases in which he had intubated, 66 recovered, 44.9 per cent. The ages ranged from 8 months to 9½ years. The introducer exhibited earlier in the evening he had used three years and it was very satisfactory.

Dr. T. C. EVANS read a paper on the

CAUSE OF DEATH FOLLOWING DIPHTHERIA.

The value of intubation is not underestimated, but so many cases occur in which intubation offers so little help; the operation is easily and quickly performed as a rule, and there is no blood, but the results are far from satisfactory. The most frequent cause of death is broncho-pneumonia, due to or existing with the extension of the membrane downward; a nephritis, heart complications, sepsis or accidental causes, among which may be mentioned strangulation from pushing down the membrane, prolonged efforts at introduction of the tube, and from the exhaustion supervening from the removal. Northrup's statistics of 103 autopsies from diphtheria were quoted; in 72 cases there was extension of membrane downward. The broncho-pneumonia of diphtheria differs from the ordinary form, or that following the exanthemata; it generally runs a rapid and fatal course by the end of the second day, not often as late as the fourth day. The picture of a case relieved by intubation is a marked one, the quiet peaceful sleep, lessened respiratory embarrassment. In twenty-four hours afterward there is a loss of appetite, the child is restless, there is an elevation of temperature and an increased pulse and respiratory rate; an examination of the chest generally shows râles over the base; there is little or no cough but a temperature from 103 to 105 degrees, shallow respiration, dilatation of alae nasi, with a rapid and feeble pulse. There is an inspiration of mucus and saliva from the trachea, which is highly suggestive of the death rattle. The pathologic condition present is an extension of the membrane all the way down; it may be discrete or confluent all through, differing lower down in the bronchi from that in the larynx; in the former place being easily

detached. It generally consists of a cast of the larger bronchi and in the smaller tubes the membrane with the exudate may plug up the bronchioles and beyond there will be collapsed vesicles or emphysematous lung. There also exists a peri-bronchial inflammation. The question of importance is, Does intubation bear a causative relation to broncho-pneumonia? All the conditions are present for an aspiration pneumonia, and as a rule the patients do not live after the second day.

DISCUSSION.

Dr. W. CHEATHAM objected to the use of the term pseudo-diphtheria, because it is misleading. The bacteriologic aspect of diphtheria is much underestimated. Two cases were given in point to illustrate how an error which may prove fatal can be made in clinical diagnosis alone. Dr. Ray's paper in the light of the antitoxin is superfluous. The alkalies do no good, as we know the bacillus grows better upon an acid medium. If antitoxin is used no local treatment is needed, unless a simple salt solution be used as a wash. He had had five cases in which he had used the antitoxin personally and four cases in which it had been used under his observation and all recovered. But this is not unusual here, especially if there is no larynx involvement. All the bad results noted are swelled and painful joints and erythema; the important point in connection with the use of the antitoxin is its early use.

Dr. R. C. GILBERT.—The tube is certainly a great stride forward, but we need some treatment for those intubated cases which die. Much diphtheria goes unrecognized until diagnosed by the sequelæ; hence the importance of an examination bacteriologically.

Dr. WEIDNER wished to know of Dr. Cheatham why local treatment should not be used in conjunction with antitoxin. We all know that the disease is primarily a local one, that the toxic product is neutralized by the antitoxin, but the production of the toxin must be stopped by local treatment, by removal of the membrane. He is a believer in the antitoxin, but the results are not as encouraging as he would wish. The difference of epidemics, the difference in the sequelæ make the taking of statistics difficult.

Dr. H. E. TULEY reported a case of laryngeal diphtheria, primary, in which he had used the antitoxin. Child 3½ years old; seen five hours after first symptoms; there was a temperature of 103½ degrees; pulse 160; great obstruction to inspiration with recession of suprasternal and clavicular notches, and of the intercostal spaces; great prostration and cyanosis. Intubation was suggested but deferred until antitoxin could be produced; 250 units were administered two hours later, with improvement in a short while of all the symptoms. A second dose of 500 units was given on next morning, and child made a rapid recovery. The first injection was only partially given, as one-half of the 500 units were lost by struggles of child, this illustrating the point made by Dr. Grant in his paper.

Dr. LOUIS FRANK emphasized the importance of the bacteriologic diagnosis. A great many cases are perambulatory and disseminate the disease. A diphtheria may be grafted on a follicular tonsillitis and examination should be made during the progress of the case.

In the series of cases reported by Dr. KOEHLER, in every case the pus producing organism (the streptococcus) was found. These cause more trouble oftentimes than the bacillus; they cause sepsis and great depression—and this fact alone should induce us to use local treatment. The antitoxin only neutralizes the toxin. The bacteriologic examination should be made as a diagnostic agent, during the course of the disease and during the convalescence, and complete disinfection should follow every case. He stated that diphtheritic laryngitis and membranous croup are identical.

Chicago Ophthalmological and Otological Society.

Regular meeting, postponed one week, held at the Saratoga Hotel, Jan. 15-18, 1895. Dr. Hotz in chair. There were twenty-four members in attendance.

The Treasurer's report showed a balance of \$60, Jan. 1 1895. This was ordered audited by a committee consisting of Drs. Westcott and Starkey.

The following officers were elected for the ensuing year: President, Dr. F. C. Hotz; Vice-President, Dr. H. Gradle; Secretary, Dr. C. P. Pinckard. Committee on Membership, Drs. W. H. Wilder, E. L. Holmes, G. F. Fiske.

Dr. W. E. Gamble was elected a member.

On motion, the Secretary was instructed to provide a ballot box.

On DR. GRADLE's motion, it was voted that the Society set apart certain evenings for discussion of stated topics, such topics to be announced at the preceding meeting.

DR. TILLEY reported three cases of asthenopia, relieved by crossed cylinders of equal strength. Efforts had been made in each case to relieve the condition by spherical lenses, by cylinders and by combinations of both. In every case there was a considerable amount of astigmatism as seen by the ophthalmometer, but in no case could the patient's vision be improved by astigmatic correction. First case seen in September, 1894. Repeated trials were made with spherocylinders to relieve the asthenopia but without success. On trying a  $-2.00$  D. axis  $180^\circ \subset -2.00$  D. axis  $90^\circ$ , the patient read 6-6 easily. After repeating the test several times, glasses were ordered and patient has been comfortable since. Second case was a lady about 45; had never seen with comfort, wearing  $+5$  D. With  $+2.50$  axis  $90^\circ \subset +2.50$  axis  $180^\circ$  vision rose from 6-18 to 6-6. These were worn a week with comfort, and then  $+4.50$  axis  $90^\circ \subset +4.50$  axis  $180^\circ$  was ordered for near. She has been using them with comfort ever since. Third case, vision was raised from 6-12 to 6-5 by  $-.50$  axis  $90^\circ \subset -.50$  axis  $180^\circ$ , and asthenopia relieved. Samples of crossed cylinders, ground by F. A. Hardy & Co., were shown.

DR. HOLMES had had a similar experience with a cataract case.

DR. STARKEY had tried such combinations but not with much success. He had seen cylinders with axes not at right angles give relief.

DR. GRADLE referred to articles by Manthner and by Channing where cylinders crossed had given relief.

DR. HOTZ referred to the fact that in mixed astigmatism crossed cylinders were better than spherocylinders. The field is said to be flatter and there is less spherical aberration.

DR. TILLEY had seen a patient wearing  $+9$ . axis  $90^\circ$  combined with  $-8$ . axis  $180^\circ$ .

DR. WILLIAMS showed Snellen's modification of Donder's instrument for measuring the color sense quantitatively. The essential feature is that the illumination as well as the size of aperture can be accurately varied. The trouble is that a different normal standard should be made for each color.

DR. HOTZ then spoke about the theory of the symmetric action of the oblique muscles in oblique astigmatism, so persistently advocated by Dr. Savage. He showed that Dr. Savage has given us no proof of the existence of such action of the muscles. Dr. Hotz has never been able to find such action in any case of oblique astigmatism and denied that the supposed rotation of the eyeballs caused by this action would benefit binocular vision. He further proved by demonstrations that oblique astigmatism does not cause obliquity of the retinal images and showed that the laws of physiologic optics do not sustain such doctrine. The theory is based on false premises and wholly untenable.

C. P. PINCKARD, Secretary.

### American Electro-Therapeutic Association.

*Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26, and 27, 1894.*

WILLIAM J. HERDMAN, M.D., President.

FIRST DAY, SEPTEMBER 25, MORNING SESSION.

The meeting was called to order at 9:30 A.M., by the PRESIDENT, DR. WILLIAM J. HERDMAN, of Ann Arbor, Mich., who said: By virtue of the authority with which I am endowed, and by means of this emblem which I use for a gavel, I declare to you that the fourth annual meeting of the American Electro-Therapeutic Association is now convened. We will hold a brief executive session in order to facilitate our future work. The first order of business is the consideration of an amendment to Article III, of the Constitution, notice of which has been given for one year as required by the Constitution.

"Every candidate for admission to the Association shall be required to present a paper to the Executive Council at least one month before the annual meeting." This is a re-

quirement which is not unusual, and we think it is time we should at least consider the advisability of adopting such an amendment.

DR. A. H. GOELET, of New York City—As the proposer of this amendment I will say that I suggested it because I believe it is the only way we can be sure of getting good men into the Association. I hope very much that it will be passed. It certainly will not exclude any desirable person from the Association.

DR. HOLFORD WALKER, of Toronto—If this amendment takes effect does it apply to the members now to be voted upon?

THE PRESIDENT—No; only for future candidates for membership.

DR. R. J. NUNN, of Savannah—In view of the light attendance, I would move if it be in order, that the discussion be deferred until there are more persons present.

THE PRESIDENT—This matter has been brought so thoroughly before the members that I think if they were especially interested in the subject they would take pains to be present. [Motion not pressed by Dr. Nunn.] A vote was then taken, and the amendment was carried, Dr. Robert Newman, of New York City, alone voting in the negative.

The Secretary then read the list of those proposed by the Council for membership.

Ordinary Fellows: L. A. W. Alleman, M.D., 64 Montague Street, Brooklyn, N. Y.; W. H. White, M.D., 192 Dartmouth Street, Boston, Mass.; C. O. Fairbank, M.D., 25 West 45th Street, New York City; Robert M. Slaughter, M.D., Theological Seminary, Va.; J. Griffith Davis, M.D., 200 West 14th Street, New York City; Robert Safford Newton, M.D., 103 East 16th Street, New York City; Caleb Brown, M.D., Sac City, Iowa; Henry S. Jewett, M.D., Dayton, Ohio; David Inglis, M.D., Detroit, Mich.; William M. Hutchinson, M.D., 205 Clinton Street, Brooklyn, N. Y.; Francis B. Bishop, M.D., 1913 I Street, Washington, D. C.; O. B. Douglass, M.D., 123 East 36th Street, New York City.

Associate Fellows: Charles F. Scott, M. A. I., M. A. T. T., Pittsburg, Pa.; R. G. Brown, E. E., 158 Montague Street, Brooklyn, N. Y.

Honorary Fellows: M le Docteur J. Bergonie, 6 bis rue du Temple, Bordeaux, France; Professor D'Arsonval, Paris, France; Professor John W. Langley, Case School of Science, Cleveland, Ohio; Professor Elihu Thomson, M. A. I., E. E., Lynn, Mass.

On motion of DR. CHARLES R. DICKSON, of Toronto, the Secretary was instructed to cast a ballot for the list of all names as read. Seconded and carried.

### SCIENTIFIC SESSION.

DR. WILLIAM J. HERDMAN, of Ann Arbor, Mich., delivered the President's address.

### THE FUNCTION OF THE AMERICAN ELECTROTHERAPEUTIC ASSOCIATION.

A remarkable activity and interest seems to have been awakened in all that relates to electro-therapeutics since the organization of this Association a few short years ago. It would be presumptuous for us to claim that this is, in any considerable degree, the direct result of our efforts. On the contrary, we may more rightly conclude that this Association is but the natural crystallization from a medium that was already saturated with thoughts, facts and efforts, having a relationship to electro-therapeutics, but "without form and void" until its advent. The more familiar we become with the history of the achievements of mankind, the more apparent it is that the plan of evolution is as applicable to the world of mind as to that of matter. No advance is made that has not been long in preparation, and while it may appear to the thoughtless observer, that chance and accident determine results, to him who looks with deeper insight, the myriad workers are disclosed beneath the surface, to whose efforts we are indebted for the progress of to-day. The formation of this Association four years ago was no accident.

It came into being as the natural and necessary result of the requirements of the times. Prophets had heralded its birth and wise men had long hoped and looked forward to its coming, and were prepared to bring the fruits of many years of their choicest thought and earnest labors to lay at its feet. For centuries, knowledge has been accumulating in independent channels concerning the part which electricity plays in the universe of matter and of force.

The chemist and the physicist have discovered, little by little, how important a factor it is in producing the phenomena which occupy their attention; while those who busy themselves with the phenomena of life, the biologist, the botanist and the physiologist are continually forced to recognize how indispensable is the presence of electricity in the building up and breaking down of vegetable and animal tissues, and in the conduct of all vital processes. The physician also—who in his best estate must be a combination of all these specialists, and more—long before any of them, observed that electric force was in many ways intimately related to animal organization, and could be made to influence and modify its functions at will. Notable among the leaders of thought, to whom history points, when tracing out the beginnings of the science of electricity, are such physicians as Gilbert, Galvani and Duchenne, whose remarkable labors in the field of physics and biology, may be said to have awakened the world to the importance of electric energy as a factor in determining the phenomena peculiar to each of these branches of modern science. But starting from these early suggestions, the physicist and the physiologist, the biologist and the physician has each pursued his independent way while seeking to discover the part that electricity had to do, or might be made to do, within his special field of observation. For a long time they seemed to have little in common, and but little intercourse between them was sought for or thought desirable. Each has evolved his own apparatus; established his own methods of research; created his own nomenclature and terminology, promulgated his theories of electric action and accumulated his facts.

Artificial barriers have thus sprung up between these lines of research, due to provincialisms in language and thought which are the necessary consequence of specialization. But each has found that he has been dealing with a force or energy whose activities extend far beyond the limits of his narrow field, and eagerness to know more of its nature and capacities has tempted one and another to overstep the boundaries of his own domain to learn what his neighbor has discovered, and get some hint that may expand his vision, and lead to larger concepts of the truth.

Man is a little cosmos and he who assumes to deal with human ailments, and attempts to set them right, must needs provide himself with every resource that will fit him for his task. The physician, then, who honestly sought in electricity an agent for the correction of some of the disordered states and functions of the body, could not, in the face of accumulated knowledge, longer hold aloof from his fellow-worker engaged in like attempt, or from any who could bring testimony of value concerning the nature of the agent he employed. In his desire to know all that was known, or could be known about this potent force, the electro-therapist recognized it was time to bring these goods to a common storehouse.

Thus was the American Electro-Therapeutic Association conceived by the wise men who first organized it, and placed it on the solid and comprehensive foundation where we find it to-day.

And now may I be permitted to briefly enumerate certain of its important functions by way of confirming the declaration I have made, that it came in the natural course of evolution, a necessary result of the progress of the times. Primarily it has a duty to perform in the improvement of electrical nomenclature and terminology. Electricity has been found to have a universal relationship to the phenomena of matter, both organic and inorganic. Those who study its manifestations, if they would interchange thought, and widen their conceptions of its action through conference, must understand each other when they meet and adopt a common language. We must have a cosmopolitan language in electric science. Words must mean the same to the electro-therapist that they do to the physicist. For the sake of simplicity, clearness of thought, and in the interests of progress, the electro-therapist must be willing to lay aside his "galvanism" and "faradism" and speak of "direct" and "induced" currents, while the physicist, the electrical engineer and the biologist, on the other hand, must avoid the extremes of peculiarly technical expression while discussing questions in a congress of this character that

have a wider scope than the limits of any one specialty. This Association, wisely providing as it does for representation from other departments of electric research, affords a channel wherein the gradual erosion of these relics of former separation will naturally disappear in the efforts toward mutual understanding, and greater simplicity and uniformity in expression will result, with wider comprehension of the truth.

We are thus led naturally, to refer to a second important function of this Association; the opportunity that it affords for the worker in pure science and the technologist to meet and compare results. The fruits of the labor of the one, enlighten and stimulate the other. The fact that the originators of this Association were prompt to recognize the value of this feature, is convincing proof that they were fitted for their mission and were "chosen vessels." Our membership is already strong in the department of electrophysics, the groundwork of the science we are attempting to build up. But in that intermediate stage between the play of forces in the inorganic world, and their part in the disordered vital processes we have much to learn before we can rationally and most efficiently adapt therapeutic methods to disease. We are in much need of the investigations of biologists and physiologists, who following in the steps of Du Bois-Reymond and D'Arsonval will determine for us the "characteristic of excitation" within normal limits for each and every form of electric energy that can be applied in therapeutics. The addition of a few more experimental biologists and physiologists to our membership would result in mutual helpfulness and materially aid in fulfilling the purposes of this Association. Again, an association of this character was needed to assist in fixing a uniform standard of electrical measurements. The Congress of Electricians in council in Paris in 1881 passed a resolution asking that an uniform system of measurement of electric stimuli be introduced into physiology and therapeutics. The advantages to be gained by such uniformity are self-evident, and it is an indispensable requisite to further progress. At the time the Electric Congress made this suggestion there was no organization in existence, national or international, competent to represent the physiologists and electro-therapists, and take the initiative in this matter. Through the character of its membership, this Association is peculiarly fitted for this duty and it should not be lost sight of in our deliberations and discussions.

Again, the times are ripe for the introduction of instruction in electro-therapeutics into the regular curriculum of all our medical colleges. The medical educator can no longer afford to disregard the therapeutic value of a force that has been shown to influence animal organism and modify life processes in so many ways. This Association has already done much to redeem the practice of electro-therapeutics from neglect and shown the folly of the contempt with which it has been regarded by many members of the medical profession. The incontrovertible testimony and demonstrations that we have been able to furnish of its efficiency have already restored many a scoffer to his right mind, and transformed him into a penitent disciple. The tardy recognition on the part of medical teachers of the value of electro-therapeutics, is responsible for much of the misuse which electricity has received at the hands of the charlatan. If the heir falls from his high estate, and fails to make good his birthright, there will always spring up false claimants and impostors seeking to lay hold of the neglected titles. But there are other influences at work, aside from the testimony offered in the transactions of this Association, that will naturally aid in bringing medical educators to their senses in the matter of instruction in electro-therapeutics. Agencies are now at work all over this broad land that bid fair to intensify the mortification of the so-called liberally educated physician because of his ignorance.

Schools of electricity and simple methods of instruction in its principles and phenomena are now providing information concerning it in a form so readily assimilable that the newsboy and mechanic will soon be prepared to ridicule the crude notions of the medical graduates concerning the capacities of electric energy. With the solid work done by this and kindred associations massed before it, and the light infantry methods for disseminating information to the laity on either flank, the medical college curriculum will be compelled to surrender to the demands of electro-therapeutics. Already we see symptoms of yielding all along the line. When the capitulation finally comes, there will be work enough for us to do in defining the conditions by which alone instruction in electro-therapeutics can be made of scientific value and fruitful in good results. It must be

thorough in the fundamental work of physics and physiology, and must be taught by laboratory methods. So you have each learned it by long and laborious effort. So must the student learn it, but with perfected facilities, and with the results of your experience to guide him to fuller and more comprehensive acquisitions.

And, finally, this Association has a duty to perform to the great body of medical practitioners throughout the civilized world, who look to gatherings like this for enlightenment and guidance. Here, it is presumed, that whatever electricity is capable of doing to cure disease will be made known; the best methods will be revealed; the best appliances described. With an open forum for the free expression of opinion by those who are not novices in the art, doubtful results and questionable statements should not go unchallenged. Especially should the Association exclude from publication in its Transactions any views or theories that are manifestly unsound or misleading, since by so doing it gives to them the sanction of its authority.

The reports of the scientific committees on the various forms of therapeutic appliances, appointed two years ago, and continued until now, can be made of great value to the medical profession. In the opinion of your President, these committees should be made standing committees, and it should be expected of them that each make known to us, and so to the profession at large, through its annual report, the advance and improvements that have taken place during the year in therapeutic work by means of that class of appliances under its supervision. These committees are comprehensive in the scope of work they cover, and by this plan the entire field of electro-therapeutic appliances will receive careful review and presentation at our meetings, by those well qualified for the task and who, knowing in ample time what is expected of them, will not be hurried in its execution.

If the Association thinks favorably of this proposal, I would suggest for the sake of greater efficiency that the title of the first of these committees, be changed from that of "Standard Coils" to that of "Induction Coils and Alternating Current Apparatus," since recent invention has added a class of apparatus to therapeutic facilities which has not been assigned to any one of these committees to investigate.

It would certainly appear from this brief sketch of what I conceive to be a few of the functions of this Association that it was not born without a purpose. It has, so far, given evidence that it is fully conscious of the weighty responsibilities that have devolved upon it and has laid its foundations broad and deep in its efforts to fulfill its mission and construct the edifice that will serve as a storehouse for truth in this department of science so intimately related to human welfare. Let it be our determination never to lose sight of the greatness and grandeur of the work we have so auspiciously undertaken and each year give abundant evidence of the necessity for our existence.

#### REPORTS OF COMMITTEES ON SCIENTIFIC QUESTIONS.

THE PRESIDENT—Many of us come here to learn what there is new in apparatus furnished for our work, and if we know quite early the opinions of these committees, it will materially help us in securing such additional apparatus as will give us the best aid. The object of these committees is distinctly educational. The foundation of electro-therapeutics should be broad and deep. The first foundation stone is electro-physics; the second is electro-biology, by which we mean the physiologic response of electricity in all its forms in normal tissues; and the third foundation stone is rational therapeutics. Our program is arranged as nearly as possible on this plan.

REPORT OF COMMITTEE ON STANDARD COILS  
was presented by DR. WILLIAM JAMES MORTON, of New York City.

The main functions of an induction coil are:

- (a) To cause muscular tissue to contract.
- (b) To produce a sensation of sedation. While physiologic effects produced by different coils differ, they do not differ so much but that a single secondary coil will fulfill all the requirements of a standard coil. For one and the same "long fine wire coil" will

- (a) produce vigorous muscular contractions
- (b) produce sedative effects.

Therefore, for the sake of simplicity and uniformity this member of the committee recommends,

- (a) A standard cell.
- (b) A standard primary winding of No. 22 wire of  $\frac{1}{2}$  ohm resistance.
- (c) A vibrator of a new type furnishing a given musical note.
- (d) A rheostat in the primary circuit to govern the note agreed upon.
- (e) A secondary coil of No. 32 wire, 500 meters in length.

DR. A. H. GOELET, of New York City, also a member of the committee, said that Dr. Morton was undoubtedly correct in his statement that the members of the committee could not agree. He was arguing from the standpoint of the neurologist, and what was suitable for the neurologist was not suitable for the gynecologist. A coil which would produce muscular contraction would not always produce sedation. Again, it would produce muscular contraction in some gynecologic conditions, but would not do so in others. For instance, in a sensitive pelvis or a condition resulting from inflammatory action, a fine wire current would produce painless muscular contraction and sedation, but if that same current is applied to a case of subinvolution of the uterus and vagina there would be absolutely no effect. Under such circumstances the stimulating properties of the current must be increased by increasing its volume and this can not be done with a coil of one length. At the first meeting of the Association, the speaker said he had suggested a combination of coils which he thought would answer the purpose, not only of the gynecologist and neurologist, but that of the general practitioner, and now after an experience of three years he was more than ever convinced that it would answer all these purposes. He was furthermore convinced that a one coil apparatus was suitable only for the person working in one line of work. On the external surface of the body where Dr. Morton had done most of his work, the resistances are high, and it is necessary to use a long wire coil. In gynecologic cases the resistances are very low, particularly when both poles are placed in the vagina. It was possible to produce most intense muscular contractions with a coarse and short wire in some cases, whereas with a long wire current, no effect whatever would result. The speaker said that before he had suggested this combination of coils he had worked with a battery which he brought with him from Paris. The coil he had estimated by measuring the resistance to contain about five hundred or six hundred yards of wire, yet he had found it entirely inadequate for his purpose. It was this that had led him to suggest this combination of coils. He did not mean to say that this particular faradic apparatus should be adopted, but on the other hand he thought every faradic apparatus should stand on its own merit. Hence, he agreed with the President that this committee should be a standing committee charged with the duty of testing every induction apparatus put upon the market, and of reporting on their merits or demerits at each annual meeting.

DR. MORTON said he desired to say that his distinguished fellow-member of the committee had given him a very narrow channel of work which was by no means his sphere of labor with induction apparatus. His remark had been based on an experience with all resistances, both high and low, neurologic and otherwise.

DR. GOELET said that he would like to add to what he had said that the only objection to the combination he had suggested was its expense. Therefore, he had the makers construct a battery with a coil of one size of wire (32) split up into different lengths which would answer for most ordinary



purposes and was cheaper. The cost is only one-half that of the other apparatus. It is a good cheap battery but its sphere of usefulness is limited.

#### DISCUSSION.

DR. G. BETTON MASSEY, of Philadelphia—said that his experience covered both fields of gynecology and neurology, and as a result of his experience he was inclined to indorse the views expressed by the second member of the committee. He was somewhat in doubt whether a single coil might not cover all the indications of both special and general work. There were very few such coils manufactured, and he was sure that one of five hundred yards would not be suitable. It was not only a question of the length and size of the wire, but the nearness of the core to the whole of the coil which was important. He had failed in one patient to get a high contracting power from any machine manufactured in New York, although he had searched among the instrument makers very carefully. In the one matter of current volume this high wire was lacking; one must have coarse wire in close approximation with the core in order to get a high contracting power. From such a core—one closely wound and having a moderate electro-motive force—we might get sedation also by introducing resistance into the extra current circuit, such as was obtained in the speaker's current controller. He was not sure but that low electro-motive force with slight current was capable of exhibiting all the sedation qualities of the current with high electro-motive force.

DR. R. J. NUNN, of Savannah—said he would like to ask the committee if any researches had been made as to the frequency of the interruptions, and he would also like to say that there should be some standard by which the length of the coil should be measured. The resistances in different individuals varied so greatly that while in one series of experiments a 500-yard coil might be sufficient, in another case a 1,000-yard coil might be required. He had observed this in his own experience.

MR. BROWN, of Brooklyn—said that this question of resistance had nothing whatever to do with the length of the wire or the efficiency of the coil. The whole matter depended, not upon the length of the wire but upon the number of turns. To speak of a coil as having a certain resistance and a certain length secondary coil was to give no definite idea of its value. With a given number of windings on the primary coil, and the second coil, the electro-motive force could be determined. For applications to the surface of the body high electro-motive force was wanted. This was obtained by increasing the number of turns on the secondary coil. If, on the other hand, it was desired to use a bi-polar electrode where the resistance was very low, very low electro-motive force would be required, but a very large quantity of current. By increasing the number of turns on the secondary, the electro-motive force was increased, but in the same ratio the quantity or volume was decreased. On the other hand, if short thick wire were used on the secondary coil, the resulting current would have a low electro-motive force but large quantity. A current of high electro-motive force would shoot right through the body, but one of low pressure instead of shooting through the tissues would follow the blood vessels and would have a more diffused action. It would therefore seem that the vital question was the number of turns of wire in a coil.

DR. A. LAPHORN SMITH, of Montreal—said he quite agreed with Dr. Goelet as to the necessity of having two distinct coils for the average work in gynecology. It was to this branch alone that he wished to refer at the present time. From the point of view of the gynecologist he thought two coils were required, and if he knew nothing about such a coil except what was derived from his own experience, he would

say that a short coarse wire coil produced results, as interpreted by the patient, which were very different from those obtained from the long fine wire coils. If the patient's head was covered up she could at once tell you by her sensations which form of coil was being employed; the coarse coil giving severe muscular contraction, the fine wire first a tingling sensation and then a "numb feeling" extending over a greater or less area. Some patients could even tell the operator the apparent size of this "numb" area. It would seem reasonable, therefore, to believe that two coils were necessary. There should be provided a short coarse wire coil with slow interruptions, and a long fine wire coil with very rapid interruptions. He felt that there should be some improvement in devices for regulating the speed of the interruptions. As a rule, the iron spring was too heavy for this purpose. In one instance he had substituted for it a piece of ferrotype plate and had obtained a very high musical note.

MR. CARTY, of New York City—said that he could sympathize with Dr. Morton's statement that we would not come to any agreement on induction coils for a number of years. If medical practitioners knew just what kind of current they needed they could safely leave the matter of the kind of coil to the electrician. He could say for the electrical engineers that a medical man could make no request for a current, whether to kill or to cure, that the engineer could not supply. The trouble was to get the medical practitioner to determine just what kind of a current was best suited to his purpose. The physician knew he had obtained a favorable effect with a machine of a certain manufacture and of a certain kind, but he could not accurately describe the nature of that particular current. At one of the previous meetings of the Association, some remarks had been made about recording tracings of the current. If such apparatus were perfected and put into general use he felt confident that this great difficulty of which he had spoken would soon disappear.

In answer to a question by the President as to the difficulties in introducing this graphic method more generally, Mr. Carty said there was no difficulty in the electrical engineer making such observations, but he thought it would be difficult to provide a cheap and portable apparatus which could be used satisfactorily by medical men.

DR. MORTON, in closing the discussion, said he had purposely omitted many interesting points because he felt that they should be discussed for a while longer by the members of the committee. He did not know what Mr. Brown meant by "volume." He would suppose that 500 meters of a given wire with a given primary coil and given rate of vibration would give in every instance the same graphic record. It was well known that electro-motive force was governed by the number of turns of the wire.

As to measurements, there had been some machine recently invented, particularly in Germany, for measuring the alternating and periodical current. He felt that Mr. Carty had touched the keynote of the whole future work of the committee. Monsieur D'Arsonval has attempted this, and had done some admirable work in determining the physical form of the waves of a continuous current, and of the alternating current. This observer considered the form of the current to be the best guide in determining its physiologic effect. Dr. Kellogg, of this Association, had already shown before the Association some very beautiful tracings of the currents which he had made. In defense of his own remark that he thought one secondary coil, all the other conditions being equal in each case, would answer all purposes, he would say that he recognized that a powerful muscular contraction was desirable, and also that a sedative effect was needed, a sort of static effect. In his opinion, with any ordinary sized wire and a length of upward of five hundred yards, all the

muscular contractions which any patient could stand could be obtained. He had seen the most powerful muscular contractions produced by such apparatus and under varying resistance. In addition to the muscular contractions he had also obtained a sedative effect. He thought muscular contractions and sedative effect did not need to be considered as two distinct entities; they could be obtained at one and the same time by the apparatus described. If it were desirable to obliterate the sedative effect, then he could conceive that a different coil might be needed—one that would hurt the patient—but this he did not think was what was wanted. The whole question seemed to him to be one of over-refinement in technique.

#### REPORT OF COMMITTEE ON METERS.

The requirements of a thoroughly good meter, which the committee has considered in examining the various instruments submitted to it, are practically those of last year, and in the descriptions of the various instruments which appeared in the committee's last report, these various requirements are taken up and dwelt upon individually in connection with each make of instrument.

The committee has had before it this year, meters of the following make: Weston, Kennelly, Jerome Kidder, Queen & Co.; Hirschmann (of Germany); Waite & Bartlett, McIntosh, Vetter and Flemming. The McIntosh and Kidder instruments were not among those tested last year.

The Kidder is an instrument handsomely mounted in a nickel-plated case. Its scale is clear and convenient. It is of low resistance and is made either for horizontal or vertical use. It is of a type similar to the Weston and Kennelly, and is practically unaffected by outside magnetism. As the makers say, the suspension system is very delicate and where a quick reading is desired it becomes necessary to put on a "drag" which renders the instrument practically "dead beat." In the instrument on test there were two scales, from 0 to 75 and 0 to 300; the change from one scale to the other is made by means of a plug which can be readily introduced. By putting on the "drag" the instrument can be transported without fear of injury. The makers say in a recent letter that they contemplate in the near future arranging their instruments so as to give a 250 milliampère scale as a maximum, thus giving broader lines of division.

The McIntosh instrument is one for which much is claimed by the manufacturers, the McIntosh Battery and Optical Company, of Chicago, but although the instrument is very prettily put together and makes a very nice appearance, the sample submitted to us has been found to be far from accurate. By reference to the table of tests accompanying this report, it will be noticed that through all the readings the McIntosh instrument lags behind, until the point was reached where the Weston standard read 500 milliampères, while the McIntosh showed but 250. In writing to the committee, this Company wishes it to be understood that they have never claimed their instrument was in any true sense to be considered as a standard instrument of precision, but that "gauged by correct standards it approximates very closely absolute reliability."

It was hoped that it might be possible to have a Gaiffe and a D'Arsonval instrument among the others tested, but none were available for this purpose without incurring the expense of purchasing one.

Since the last annual meeting of the Association the Galvano-Faradic Company have been working on their meter with a view to improving it, as they have appreciated from the first report of this committee that there must be room for such improvement, and as they are desirous of offering to the profession only good apparatus, have been doing their best to make their milliampère meter a success. It would seem that they have been progressing very well in this direction, but owing to a press of other work have not been able to finish up an instrument in time for the test.

The Weston instrument is in practically the same form as last year, as in the Kennelly, though the scale of the latter has been considerably improved. The strictures which were last year placed upon the Waite & Bartlett, Flemming and Vetter meters may be repeated this year, although the scale of the Vetter instrument tested is better than the one before the committee last year.

#### THE TEST.

The current for the comparative test of the meters was obtained from the street circuit of the Edison Illuminating

Company, and for convenience it was passed through a Kennelly adapted as a means of regulating the flow to the meters for the readings up to and including 200 milliampères after which a large box of variable resistance was substituted as a regulator. The fourteen meters on test were all placed in series, those having large permanent magnets being in one group and those of the galvanometer type being in another group at a considerable distance from the first. In this way the supersensitive instruments were entirely withdrawn from the baneful influences of stray magnetic lines of force from abroad. It even became necessary to take off and put away the watches of the committee, as well as any pieces of steel and iron which they might have about their persons.

As was done last year, the Weston instruments were used as a standard of comparison during the recent tests, and it would seem that this was fully justified by the absolute correspondence within perceptible limits of the readings from the different Weston instruments, as well as from the recognized position held by the Weston meter for general accuracy. But to avoid any possible doubt as to the accuracy of these standards, they were after the completion of the test, checked by Prof. F. B. Crocker, of the School of Mines, Columbia College, with a standard Thomson Centiampère Balance, the results showing very close approximations to the readings of that standard. Their use for this purpose was abundantly justified.

The following table shows the readings of the instruments with certain corrections made necessary by the fact that in the case of the Kennelly, the Kidder and Queen instruments, the needles were slightly off zero to begin with, due possibly to jars received in transportation.

Make of Instrument.	MILLIAMPERES READ IN TEST.													
	Scale.	10	10	10	10	10	10	10	10	10	10	10	10	10
Weston . . . . .	* 0 to 100	100	100	100	100	100	100	100	100	100	100	100	100	100
Kennelly . . . . .	* 0 to 100	100	100	100	100	100	100	100	100	100	100	100	100	100
Kidder . . . . .	* 0 to 100	100	100	100	100	100	100	100	100	100	100	100	100	100
Queen . . . . .	* 0 to 100	100	100	100	100	100	100	100	100	100	100	100	100	100
Hirschmann . . . . .	* 0 to 100	100	100	100	100	100	100	100	100	100	100	100	100	100
Waite & Bartlett . . . . .	* 0 to 100	100	100	100	100	100	100	100	100	100	100	100	100	100
McIntosh . . . . .	* 0 to 100	100	100	100	100	100	100	100	100	100	100	100	100	100
Vetter . . . . .	* 0 to 100	100	100	100	100	100	100	100	100	100	100	100	100	100
Flemming . . . . .	* 0 to 100	100	100	100	100	100	100	100	100	100	100	100	100	100

NOTE.—The scales of each make of meter marked with a star (\*) are on the same instrument; it is thus shown that there were two Westons and one Kennelly instrument in the test, etc.  
 † This Kennelly meter has been in constant use a year without re-standardizing.

We consider that in all these cases there was no inaccuracy indicated by the erroneous starting point beyond acci-

dental bending of the needles, and that for these reasons they were entitled to these corrections. In this table, the Weston scales which were used as standards during the various portions of the test are indicated by heavy type. It might also be said that the Kennelly meter, marked with a dagger, is one which has been in use without re-calibration for over a year. In this connection it might be stated as the opinion of the committee that it would be advisable for any one using milliamperè meters, of whatever make to have them re-calibrated at least once a year.

As the meters were of different maximum capacities it became necessary to drop some of them out as the readings progressed into the higher ranges, and when maximum reading of any instrument was reached the comparative temperature of that instrument was observed. There was no apparent over-heating observed in any of those on test, and this is noteworthy because most of the meters were subjected to a gradually increasing current for about three hours.

The matter of the graduation of the scale was very carefully considered by your committee and they are disposed to believe that it would be better to have a double scale in the more expensive instruments. There is no doubt that it would be best for oculists and aurists who use small current strength, say from a fraction of a milliamperè to three, four, ten or twenty-five, to have a separate meter with a proper special scale, while a meter constructed so as to read from 1 to 25 and then in five milliamperès up to the highest number on the scale would be more desirable for general use. Among the Weston milliamperè meters is one which combines a fine scale from 0 to 10 graduated in tenths of a milliamperè, and a second scale from 0 to 500. This is applicable to the needs of all practitioners.

Your committee has also considered the question of the advisability of a meter reading as high as 500, and are of the opinion that it is not of general use and the cases are exceptional where higher reading than 100 is required. In hydro-electric methods and in the Inglis Parsons treatment of cancer, a scale reading as high as 500 is desirable, but in average medical work there is no need of a higher reading than 250, while even that is of doubtful necessity. It is not necessary, in order to determine whether the current is flowing in the right direction through a meter, that the meter should be so arranged as to read from a scale on both sides of the zero mark. In fact, a meter whose zero is in the center of the scale sacrifices clearness and range for an imaginary convenience, provided that an opportunity is given for the needle to move backward to a certain extent with a wrong direction of current flow. This opportunity almost invariably exists.

#### POSITION OF METER.

A meter should be so placed in an office as to avoid the influence of any magnetic field caused by masses of metal or circuits carrying light or power currents. Such field may sometimes have its center outside the apartment in which the instrument is located. When placed upon a table, cabinet or horizontal switchboard, a meter is liable to be affected by vibrations, particularly accidental jars to the entire board. The horizontal position is always the best, because a meter so placed is not affected by gravity, while in the use of a vertical meter, unless perfectly counterbalanced, gravity will sometimes retard their operations and sometimes assist them. The easel position of the Queen meter is a very convenient one to the operator for reading. Your committee would recommend, however, that meters should be suspended from the wall by elastic cushions or bearings, and where such suspension makes the act of reading inconvenient, it may sometimes be assisted by placing a mirror on the wall behind the instrument.

#### MAGNETIC SHIELD.

The matter of a magnetic shield or encasement to prevent the effects of an exterior magnetic field such as results, for example, from an operating motor near at hand, has been considered by your committee. It is not deemed necessary either in the Weston or Kennelly meters. It is not advisable to use these meters close to a strong magnet, not only on account of stray magnetic leakage influence, but because it is possible (though difficult) to alter the results secured by their permanent magnets, by an accidental powerful field in their vicinity. Ordinary care, however, is all that is necessary with instruments thus constructed. Other instruments such as the Waite & Bartlett, McIntosh, Flemming, Vetter, etc., would be strongly affected by a similar disturbing influence of less power, and can not be expected to be controlled by ordinary care for, as has been indicated here-

tofore in this report, it was necessary to lay aside watches, keys, pocket-knives, etc., before coming near any of these instruments.

#### VOLT METERS.

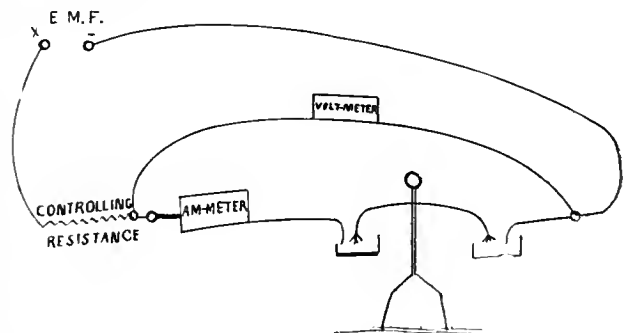
While there was no actual test made of volt meters, yet your committee would report in favor of the Weston volt meter or the one manufactured by Queen. The Weston volt meter used in certain experiments, which will be detailed, is generally recognized by electrical engineers as being an excellent instrument.

#### WATT METERS.

Your committee have considered the advisability of securing a watt meter which will directly indicate the amount of energy expended in a given treatment. The matter was looked into with considerable care and it was decided that to get a watt meter of sufficient delicacy, considerable time and expense would be required. Owing to the fact that the amount of energy used by physicians in their applications is so very small, such an instrument would necessarily be extremely delicate and therefore expensive. All the requirements can for the present be met by the combined use of an am-meter and a volt meter, which instruments possess independent and separate usefulness, whereas a watt meter as ordinarily constructed could only be of special value for its own indications. It was, therefore, decided to consider the use of a volt meter and am-meter together, the connections being made in such a manner as to place the volt meter in shunt with the patient, plus the am-meter of negligible resistance and thus measure the fall of potential between the electrodes. By multiplying the amperage and the volts, the number of watts of power expended in a circuit between the volt meter terminals will be obtained. Given the number of watts, the energy in electrical horse-power may be readily obtained by dividing by 746.

It is desirable that there should be the best electrical contact at all binding posts and shunt switches, especially where, in a test for watts, the volt meter spans the am-meter as well as the subject operated upon, otherwise the amount of power being expended upon the individual will not be correctly indicated. Where a meter is permanently mounted upon a cabinet or switch-board, the binding posts should be provided with lock-nuts or equivalent devices to prevent impairment of contact.

In this connection the following observations may prove of interest. The volt meter used in all these experiments was the Weston.



The above diagram represents a volt meter in the circuit so as to get a reading both of volts and amperes or fraction thereof. By multiplying volts by amperes the number of watts is obtained, while dividing this product by 746, the number of watts to an E. H. P., the E. H. P. used is determined.

H. E. C. Fibroid tumor with exudates on right side. A hydro-electric application given with the vaginal douche electrode, two and one-half quarts saline solution, an Apostoli pad over the abdomen, forty-two square inches in area. Pressure 53 volts, c. s. .060 of an ampère. The voltage multiplied by the ampère gave 3.1 watts. This divided by the number of watts in E. H. P., namely 746, gave .004 of an E. H. P., the power or the rate of energy. The resistance was 8,830 ohms.

M. E. S. Goitre. Indifferent electrode, hands in gallon jar of salt water, active, negative, eighteen square inches in area over growth. Pressure, 56.75 volts, c. s. .020 of an ampère, giving the power or the rate of expanding energy at 1.1 + watts or .001 + E. H. P. The resistance in this instance was 2,837.5 ohms.

M. A. Facial Acne. Electric douche to face, pressure 57

volts, hands in saline solution, c. s. .010 of an ampère, the rate of expanding energy .5 watts or .0007 of an E. H. P., resistance 5,700 ohms.

M. A. Vaginal electric douche, saline, negative, indifferent electrode, abdominal pad forty-two square inches, pressure 52 volts, c. s. .050 of an ampère, watts 2.6 or .003 E. H. P., resistance 1,040 ohms.

M. E. S. Hemorrhoids. Treatment, cupric electrolysis, indifferent electrode abdominal pad thirty-six square inches, pressure 56 volts, c. s. .018 of an ampère, watts 1.4 or .001 E. H. P. Resistance 3,111 ohms.

M. E. S. Vaginal electric douche, negative, pressure 55 volts, c. s. .040 ampère, 2.2 watts or .003 E. H. P. Resistance 1,375 ohms.

H. E. N. Vaginal electric douche negative, pressure 55 volts, c. s. .050 of an ampère, 2.7 + watts, or .003 + E. H. P. Resistance 1,100 ohms. Condition, chronic vaginitis, with eczema of the vulva.

E. C. M. Chronic peritonitis, sacro-abdominal (per cutaneous) application, electrode thirty-six, and forty-two square inches in area, pressure 90 volts, c. s. .025 of an ampère, 2.25 watts or .003 E. H. P., R. 3600 ohms.

P. H. Gonorrheal vaginitis, vaginal electric douche cataphoric  $\text{Ca}_2 \text{SO}_4$ , 6 grs. to qt., 3 qts., indifferent electrode, abdominal pad 42 square inches, negative, pressure 110 volts, c. s. .008, ampère .880 watts, R. 13,750 ohms.

These experiments give in recognized units of measurement the rate of expanding energy in given treatments. They do not cover a very wide range of applications, owing to the fact that in very busy office life one has not always the time to take the measurements and make mathematical calculations. However, these observations are going on from time to time, and are intended in time to cover as wide a range of applications as can be made in the treatment of disease by the constant current.

NOTE.—The following is the result of the examination of the two Weston instruments, used as standards, by Prof. F. B. Crocker, of the School of Mines, Columbia College, with a standard Thomson Centiampère Balance:

No. 204 Thomson Balance.	No. 2272 Milliampère meter.	No. 2131 Milliampère meter.
25.45 milliampères.	25.	25.
50.	50.	52.
75.15 "	75.	76.5
100.25 "	100.	100.5
151.	150.	151.
204.2 "	.....	200.
249.8 "	.....	250.
298.6 "	.....	300.
99.6 "	.....	500.

NOTE No. 2.—Before submitting this report, it is with pleasure we note that the McIntosh Manufacturing Company have about ready for the market a new and improved milliampère meter which promises to be an exceedingly valuable instrument. It was not completed in time for the test this year, but we trust that it will be placed in the hands of the committee during the year.

#### RECAPITULATION OF SUGGESTIONS.

Meters should:

1. Be re-calibrated once a year.
2. Be constructed to indicate fractions of milliampères on one scale to a predetermined point, and higher currents on a second.
3. Be (ordinarily) required to indicate only up to 100 milliampères.
4. Be placed in a horizontal position.
5. Be flexibly suspended from solid support.
6. Be re-inforced by a mirror to assist in reading the scale.
7. Be provided with magnetic shields when not made with strong permanent magnets.
8. Be capable of indicating either direction of the current, but measuring it in only one direction.
9. Be furnished with reliable binding posts and shunt switches.

Signed, MARGARET A. CLEAVES, M.D.,  
Chairman.

W. J. JENKS, E.E.  
ENIL HEUEL, M.D.

#### DISCUSSION.

DR. MORTON said that as there was frequent occasion to reverse the current he could not understand what was meant by recommending meters which would register in only one direction.

THE PRESIDENT said he considered this kind of work an extremely important part of the labors of the Association.

Within the last three years he had found considerable benefit from using extremely small continuous currents—those registering one-tenth of a milliampère or less. From this it would seem that the scale should be even more finely divided than that recommended by the committee. He was satisfied that there was important use for constant currents, if not for other currents, of very low ampère continued for a long time.

DR. MORTON said that he thought it would be desirable in the future to report upon what provision could be made for measuring the current more minutely.

DR. DICKSON said that last year he had spoken about the beneficial effects he had observed from currents of one-tenth to one-fifth of a milliampère. In his work at the Toronto General Hospital he met many specialists and he found that the oculists were especially interested in electro-therapeutic work. In some of the ophthalmologic cases one-half a milliampère would not be tolerated, hence the importance of improving the scale in the direction just suggested. The report of the committee was a most excellent one.

DR. MASSEY said he wished to take exception to the slighting remarks made as to the possible value of very heavy currents, although he appreciated the value and importance of the work of the committee. He thought we occasionally needed meters which would register 500 milliampères or more, particularly in cases of cancer or of highly vascular tumors in cavities contiguous to the surface of the body. Under anesthesia, one might easily use from five hundred to one thousand milliampères of current in that way, and so increase the surgical possibilities in this direction.

DR. CLEAVES, in closing the discussion, said that the objection to meters registering both ways was that it interfered with the clearness of the scale. Some of those who had spoken, seemed to have lost sight of the fact that the committee had recommended that the meters should read as minutely as one-tenth of a milliampère. The remarks made by Dr. Dickson on this subject at the last annual meeting did not refer to the use of such a current, but to whether the instrument could be depended upon for such minute measurements. The value of heavy currents was not lost sight of and readings of 500 advised for special work.

The Association then adjourned at 12:30 A.M.

(To be continued.)

**Ligature of the External Iliac Artery.**—At the *Société de Chirurgie* of Paris, held in December, 1894, M. Chauvel, reported the case of an Arab child who had been wounded in the thigh by a pocket knife. It immediately resulted in a spurting hemorrhage, which spontaneously ceased, but recommenced after six hours. On admission to the hospital a compress bandage was applied and left in place for eight hours. When it was removed the clot was thrown out and the hemorrhage was again active. M. Nicot decided to ligate the external iliac, which was done without chloroform, by cocaineization. Cure by second intention resulted. On the thirteenth day there was secondary hemorrhage which was arrested by direct compression. Some days afterward there was gangrene of the foot which was self limited and the child recovered. The reporter was of opinion that it would have been preferable to seek for the divided ends of the vessel and tie them in the original wound.—*Revue de Chirurgie*, Jan. 10, 1895.

**Adulterating Olive Oil with Castor Oil.**—Olive oil is found to be frequently adulterated with castor oil. It is even claimed that the olive, especially if it has become strong smelling or rancid, is improved by the addition. As much as 20 per cent. of the adulterant may be added without detection. "An Italian expert," says *Food and Sanitation*, "claims its presence may be discovered by taking 10 cc. of the suspected oil, mixing it with half its volume of hydrochloric acid, and then shaking them together in a test glass graduated to 0.1 cc. If any castor oil is present the liquid will separate, on standing, into three well-defined layers, the lowest of which will be the hydrochloric acid, the top the olive, and the middle the castor oil. This test may also be used with sesame, cotton seed, colza, earthenut and linseed oils."—*Pharmaceutical Era*.



## THE

# Journal of the American Medical Association

PUBLISHED WEEKLY.

## SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,  
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.  
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, FEBRUARY 23, 1895.

## THE PREVENTION OF BLINDNESS.

The census of 1880 as compared with the census of 1870 showed an apparent increase in the number of blind, very much greater than the increase in population. Attention was called to this by a paper read before the American Ophthalmological Society and a committee was appointed to examine into the cause of blindness in the United States. In the report of this committee it appears that in this country, as in Europe, at least 15 if not 20 per cent. of all the children in blind asylums are there because of purulent conjunctivitis of childhood, and stress was also laid upon the fact already well known that when these cases receive proper attention in the very early stages of the disease the number of unfortunate cases is reduced to a mere fraction of 1 per cent. Evidently, then, it is simply a question as to how these children can be brought promptly to the attention of some one who is supposed to be qualified to treat them, or if he fails to do so can be made responsible to the parents. In other words, the natural inference was the advisability of legislation which should require nurses and midwives to report these cases at as early a stage as possible to some legally qualified practitioner. There were, naturally, many other causes of blindness referred to by that committee, and various suggestions made in regard to those forms, but we wish to invite attention at present to the blindness caused by ophthalmia neonatorum. When these and similar facts were formally presented to the Legislature of the State of New York by another committee of medical men, a bill was unanimously passed known as chapter 41 of the law of 1890 and read as follows:

## AN ACT FOR THE PREVENTION OF BLINDNESS.

SECTION 1.—Should any midwife or nurse having charge of an infant in this State, notice that one or both eyes of such infant are inflamed or reddened at any time within two weeks after its birth, it shall be the duty of such midwife or nurse so having charge of such infant, to report the fact in writing, within six hours, to the health officer or some legally qualified practitioner of medicine, of the city, town or district, in which the parents of the infant reside.

SEC. 2.—Any failure to comply with the provision of this Act shall be punishable by a fine not to exceed one hundred dollars, or imprisonment not to exceed six months, or both.

SEC. 3.—This Act shall take effect on the first of September, eighteen hundred and ninety.

Slight changes were made in this law subsequently, the wording being retained practically the same, but for the sake of convenience and for greater efficiency it was incorporated into the penal code. Following the example of New York, almost exactly the same law was passed by Maine in 1891 and by Rhode Island and Minnesota in 1892.

Meanwhile, at the Milwaukee meeting of the AMERICAN MEDICAL ASSOCIATION a paper was read by one of the members of the Ophthalmological Section calling attention to the reasons for such legislation and showing what had been accomplished in that direction. The discussion which followed the paper resulted in the unanimous indorsement of the advantages of such legislation and the Section reported a resolution appointing a committee of five whose duty it should be "to urge in all parts of the country, by personal application, by circulars to physicians and legislators, and by blank forms of a desirable law, such legislation as will tend to lessen the blindness caused by this disease." The committee consisted of DR. LUCIEN HOWE, DR. HENRY GRADLE, DR. GEORGE M. GOULD, DR. JAMES L. THOMPSON, and DR. G. C. SAVAGE. Last year a similar law was passed in Maryland and Ohio, and this year bills have been either presented or soon will be presented in the Legislatures of several other States.

The general plan in each of the States has been about the same. At the suggestion of this central committee, appointed by the AMERICAN MEDICAL ASSOCIATION, one or two leading ophthalmologists in the different States have been asked to read papers at the meeting of their State medical societies, calling attention to the dangers of ophthalmia neonatorum when the cases are neglected, and the excellent results obtained when these cases are seen in the early stages, and citing the increased cost to the State for indigent blind who are in that pitiable condition, usually in consequence of the negligence of midwives and nurses. Following these papers, resolutions have been adopted by the State medical societies, strongly indorsing some form of legislation to abate this evil and appointing a committee to take charge of the matter. This committee has then gone before the Committee on Public Health in the two branches

of the Legislature and presented the reasons for the existence of such a law.

In Pennsylvania an excellent paper was read by DR. GEORGE M. GOULD at the last meeting of the State medical society. A series of strong resolutions were adopted by the society indorsing this law. A committee now has the subject in charge and will have it presented at an early date. In Vermont such an act has been read twice and referred to the joint Special Committee on Public Health. In Michigan and Illinois, bills have been introduced in the Legislature at the instance of the State medical societies, and in the latter State the interest of the governor has been enlisted in securing its passage. In California, the bill goes before the Legislature with the unanimous indorsement of the leading medical societies of the State. In New Jersey a bill has been drawn up and will be presented to the Legislature at this session. In New Hampshire it is before the Legislature. In Indiana and Connecticut it is before the Committee on Public Health.

There are other States in which the question of such legislation is being agitated or advised, and it is earnestly hoped that before many years such a law will exist in every State of our glorious Union.

#### THE CARE OF THE INEBRIATE.

This question comes more and more frequently to every general practitioner in the country. Within a comparatively recent period it has become a well recognized fact that the inebriate is diseased and curable by medical means and measures. The class of cases curable and the exact remedies and appliances for this purpose are not so well defined, and like all other new questions is open to some differences of opinion.

The appeals of friends and relatives of patients, and even of patients themselves, to the physician for help are touching and very urgent. In some vague, half-defined way the average medical man may recognize the possibility of help from drugs, but the uncertainties of medicines and his doubtful knowledge turn him to ethical and moral lines of treatment. He gives placebos and severe lectures to the patient, threats, warnings, appeals, and accepts pledges and promises. He may go beyond this and administer secretly, medicines to produce nausea, or narcotics to check the morbid impulses. In one case a disgust for spirits is expected to give power to abstain in the future; in the other, checking the drink craze, is supposed to destroy it. The latter is always disastrous in turning the drink craze into other and even more incurable channels. Many good physicians, in despair of other remedies, have turned to morphin by the needle, and secured temporary relief, only to find that, later, morphinism was developed. Chloral, cocain, and many other drug

habits have begun in this way. The not infrequent failure of the family physician to successfully treat these cases, has opened wide the door for quacks and quack remedies.

The wild wave of gold cure specifics was only possible through the failure of physicians to recognize the physical nature of inebriety, and failure to give these cases the care and attention they deserve. Some few physicians seemed infected with the charlatanism of the secret gold cure remedies, and believed the loud boasts of supposed cured victims was sound evidence of success. Such persons ignore all facts of the physiologic action of certain drugs, and psychologic laws and forces, and manifest credulity that reflects sadly on their scientific training. While the injuries and diseases from the use of spirits and drugs require a considerable part of the physician's time and work, he has most unfortunately not studied the physical side of inebriety, but been content with the half moral and half physical theories of reformers and non-experts. As a result he is unable largely to do anything or even to advise soundly as a scientific man. Theories of inebriety and alcohol popularly held to be true, do not bear the tests of accurate inquiry, and opinions that are without any bases of facts are repeated from side to side as if beyond question, when in reality they are simply delusions. The few men who have made a study of this problem in many circles are still called cranks and extremists, while the positive dogmatist, who claims full and explicit knowledge on all phases of this subject is the medical hero of the hour. An ever increasing number of thoughtful men in the profession begin to realize that this drink problem has a very important medical side which when carefully studied, will enable the physician to answer the despairing cry: "What can we do with the inebriate?"

The physical study of the inebriate (whose drink craze is a symptom), of distinct conditions and causes that can be known and prevented, is the only true road to successful treatment. The physician must realize that appeals to him for help, come from organic suffering, the same as in other diseases. It is not damaged morals and ethics of conduct; it is a cry for relief from a morbid impulse to suicide, and to escape the injury from alcoholic poisoning. If each case is studied as one of disease, the remedies and means of relief will be apparent. Medical colleges should take up this subject and give its advanced students some instruction along this line, for inebriates are often among the first persons they will be called to treat.

Physicians who have studied the inebriate along lines of exact science, are agreed in asserting that the successful treatment of the inebriate should be begun by the family physician at home. That the physician should be able to prevent and cure the

inebriate in the early stages; and in the near future this will be done with as much certainty as other diseases are now treated. This is confirmed by the experience of practical men in individual cases everywhere. It seems a reflection on medical skill that these armies of inebriates should grow up and go down to destruction in every town and city of the country, with no help from medical art. The few small asylums where these cases are treated, are practically lost and insignificant in the scope and limits of their work.

The boasting charlatan occupies the field with his specifics, and the wilder dogmatists and reformers, are struggling to reach this disease by the pledge, the prayer, and the promise. Evidently the answer to the appeal for help, addressed to physicians everywhere must come from a great revolution of public sentiment in regard to the inebriate and his malady. In the meantime, physicians should study these cases more earnestly, and seek to know the causes and means for relief that are only possible by accurate study. Then this question can be answered, and a new field of cure and prevention will be opened.

#### THE INSPECTOR-GENERAL OF THE ARMY ON HOSPITAL CORPS DRILL.

The report of the Inspector-General of the Army has the following with regard to the Hospital Corps:

"The instruction given in the Hospital Corps has continued throughout the year and in some instances with results approaching perfection. The company of the Hospital Corps at Fort Riley has had under instruction 100 men, 53 of whom have been transferred for duty to other stations. At date of inspection the company was partially armed with carbines, revolvers and knives, and, as reported, was devoting three-quarters of an hour daily to carbine drill.

Admitting without question the very great necessity to an army of a Hospital Corps, it is not easy to understand why its members should be instructed in the military use of any such weapon or in what way such instruction prepares a recruit for the duties of dressing injuries or nursing the sick. On the other hand, there is a manifest impropriety in giving arms of any description to a soldier of the Red Cross, whose duties do not demand it and whose neutrality in time of war renders it wholly unnecessary.

Another view of this subject is presented by the facts: If it be found necessary to the proficiency of the Medical Department that its members be trained as combatants, then a return to the old system under which those who now compose the Hospital Corps were recruited would probably subserve the best interests of that department. Only soldiers who have proved their aptitude and efficiency for the duties were transferred as a rule, and having already been instructed in the use of arms, there was no encroachment on their time or that of medical officers for that purpose, and no temptation to turn from the legitimate duties of the Medical Department to those which are wisely intrusted to other hands."

It may be added that the "Drill Regulations of the Hospital Corps" provides for no rifle or carbine drill.

Rifles are mentioned only in connection with the extemporization of litters; and each detachment of the Hospital Corps is furnished with a few rifles for use in practicing such extemporizations. The criticisms of the Inspector-General would be relevant only if these drills were general or called for by War Department orders. Local commanders are not prohibited from putting carbines into the hands of raw men for purposes of drill. No doubt they may, if they please, make use of this arm just as they may make use of any article of the outfit of the gymnasium.

#### CLEVER MALINGERING.

The Chicago daily papers have recently contained an account of the operations of a family of sharpers who have victimized railroad corporations. Their plan of operations consisted in having a member of the family feign paralysis, which it was asserted had been brought about by a fall while on a railroad train or street car. In almost all of these cases a convenient banana peel was the predisposing cause while a jolt or sudden start of the conveyance furnished the exciting factor. An investigation of an attempt to obtain money from the Chicago, Rock Island & Pacific Railroad led to an exposure of their numerous efforts in Chicago and Boston to extort money from railroad and street car companies.

It seems that one member of the family had succeeded in so far overcoming natural sensibility that she would allow pins to be thrust into her skin without flinching. The usual claim was a complete motor and sensory paralysis of the lower extremities.

The following is a copy of one report made by a physician of Boston:

"FANNIE FREEMAN has double vision. One object appears as two at times, and her vision is blurred. She has photobia or dread of light; is unable to move her limbs in bed. Examination shows scrapes along the spine. Tenderness to pressure and percussion over the lumbar and dorsal vertebræ. Can't stand, walk, or sit unless completely supported, and then can only be held in the half sitting and half reclining position, all the time evidencing great agony. Reaction of pupils normal. Tongue clean, pulse 90 at the beginning of examination and 80 at the end. Apparent anesthesia of the lower limbs. When I stuck pins into her legs and feet and touched them with my hands she declared she could not feel any sensation, and I couldn't surprise her into painful expression. Her feet felt cold to me; knee-jerk normal. It was evidently painful for her to be moved, either to be got up or to be turned from her back to her side in bed. She sees no gain or improvement in her condition, and thinks at times she is going to die."

We are at a loss to understand how so transparent a fraud could have so long escaped detection. Had she chosen to confine her operations to "traumatic neurosis" or "spinal concussion," one could readily understand how deception could have succeeded. A

total paralysis, sensory and motor, of both lower extremities could mean only a lesion of the cord and this would soon have been followed by atrophy and changes in the electrical reactions. A complete motor paralysis of both lower extremities without palpable atrophy, associated with a normal knee jerk, is certainly so rare that it ought at once to excite remark.

#### REDUCED FEES AND INCREASED RISKS.

A prominent life insurance company has notified its medical examiners that their fees will be reduced from five dollars to three dollars for examinations. The following, quoted from a circular letter, is the argument advanced—presumably in all seriousness—for the reduction: “The considerations which have led up to this conclusion are that the company has in the past placed in your hands a considerable amount of business, and, should you accept the proposed terms, it is its intention to continue to give you as much business, if not more, than heretofore. The company feels that it stands in the same relation toward you that a patient stands in toward his attending physician. A physician charges five dollars a visit for occasional visits where he would hardly feel warranted in charging so large a fee for regular medical service extending over a considerable length of time. In the latter case it certainly is the uniform custom among physicians in making out their bills to make considerable reductions from the fee for a single visit on account of the number of those visits.”

The letter then goes on to say: “Of course we do not know whether you will feel warranted in accepting this reduced fee and in continuing to serve us as our examiner.” It occurs to the JOURNAL that the doubt which should exercise the company’s mind is whether its policy holders—who are, in effect, its stockholders—“will feel warranted in accepting” the kind of risks which the three dollar fee will be apt to pass. The examination of the present policy holders involves the exercise of professional skill and ability, not too highly paid for even by a five dollar fee. How will they relish seeing the value of their policies and their prospective profits impaired by the accession of lives admitted on a scrutiny 40 per cent. less thorough—measured by the fee—than that to which they were subjected?

It is highly probable that, as our cotemporary, the *American Practitioner and News*, pithily puts it: “The public will look askance at any one of the would-be leading companies that will in any way cheapen or weaken its most vital safeguard.”

#### THE DEPARTMENT OF PUBLIC HEALTH.

Senate bill No. 1840, introduced by SENATOR GRAY, of Delaware, is the bill recommended by the Committee of the AMERICAN MEDICAL ASSOCIATION. It

antagonizes none of the Public Services and there is no reason why there should be any opposition to the bill. The Marine-Hospital Service will ultimately be greatly strengthened by this bill, and the other medical branches of the Government, under the terms of the proposed Act will have frequent opportunity for consultation and appropriate work. A supplemental bill recasting the relations of the Marine-Hospital Service, the only Public Health Service now in existence, will undoubtedly be required, for with the creation of the new Public Health Department, there will be every reason why that excellent Service should become its executive arm. There no longer exists any reason why the financial department of the Government should assume direction of a Service that has worked out the problems of national quarantine, sanitary inspection of vessels, and is now operating its great laboratory in the direct interest of the public health.

The lateness of the session may possibly prevent action this year, but without doubt the AMERICAN MEDICAL ASSOCIATION will finally succeed in passing this great public measure.

#### THE STREETS OF NEW YORK CITY.

The experience of New York City in the matter of street cleaning has well demonstrated the great advantage to the public, of securing competent and thoroughly qualified men for the conduct of technical departments of municipal governments.

The reform Mayor of New York, MR. STRONG, could have selected no one better qualified for the street cleaning department, than that well-known sanitary engineer, GEO. E. WARING, Jr., formerly of Newport, Rhode Island, and now of New York City, an active member of the American Public Health Association.

Already in the business portions of the down town district, the paving stones have reappeared, the gutters have been cleared, and Broadway presents a clean and tidy appearance quite to Bowling Green.

We are assured that the adjacent districts will soon feel the refreshing effects of the Colonel’s scrubbers as soon as possible. In the meantime those of us who have occasion to watch the vagaries of our unfortunate municipalities will rejoice that our leading city, has had the good sense to place a man at the head of one of its most important sanitary bureaus, who is not only a “scholar in politics,” as the current phrase goes, but is at the same time a competent sanitary engineer.

#### CORRESPONDENCE.

##### Leprosy and its Diagnosis.

PHILADELPHIA, Feb. 9, 1895.

To the Editor:—As one who for many years has studied leprosy, and who, moreover, has had opportunity of observing many cases in this and in other countries, I write this



note with the view of calling forth additional information upon the "Report of two Cases of Leprosy in native-born Citizens of Ohio," by Dr. J. G. McDougal, of New Lexington, Ohio, in this JOURNAL, Feb. 2, 1895. The history and symptoms are in several ways remarkable, so much so that one familiar with leprosy might be inclined to question the correctness of the diagnosis without further facts and proofs being given. It is not the intention of the writer to criticize the report at present. It may, however, be stated that it is very unusual for leprosy to develop at the age of "fifteen months." It would, moreover, seem probable that the affection of the "nose and upper lip" from which the father at one time suffered was not lepra, but may have been syphilis. There seems to have been not even a suspicion that the father had at any time symptoms resembling those of lepra; nor that these children ever came in contact with a known leper.

Under these circumstances all other allied or similar diseases, such as the several non-specific forms of peripheral neuritis, Raynaud's disease, and the analgia, Morvan's disease, syringomyelia, syphilis, sclerodactylia and tuberculosis should be excluded by differential diagnosis before these two cases (sisters) are entitled to be classed among the examples of indigenous leprosy of the United States. It is admitted that there is much to be said in favor of the view that these cases are actually lepra, but the history and the symptoms are so unusual that the reader of the paper who may be interested in that disease is disposed to ask for more facts, and especially for the points in differential diagnosis, together with the results of bacteriologic examination for the bacillus lepre.

Cases of leprosy occurring in infants and children who have been born in this country, and who have not been in any way exposed to known lepers, are so extremely rare as to be worthy of the fullest possible account of them that can be given. Indeed, it may be stated that the writer knows of no such cases heretofore recorded.

As illustrating rare or undescribed forms of disease simulating lepra, the case figured and reported by E. von Düring, of Constantinople, in the "International Atlas of Rare Skin Diseases," plate xxxi, may be referred to. The patient was a boy 6 years old, the morbid process being characterized by a kind of myxomatous swelling of the first and second phalanges of the fingers and complete absorption of the terminal phalanx. All ten fingers were involved. The terminal phalanges of the two middle fingers, of the left index finger, and the fourth finger of the left hand were completely absorbed. A sclerosed ring encircled the middle of the second phalanx of the right index finger. The bones of the other fingers were thickened and the soft parts extremely indurated. The nails on the absorbed phalanges had shrunk to small and thickened plates. The reporter of this case named the disease "sclerodactylia annularis aninhumides." Leprosy was excluded.

Respectfully,

LOUIS A. DUHRING, M.D.

### The Practice of Medicine Act in Congress.

DR. S. C. BUSEY TO THE COMMISSIONERS.

WASHINGTON, D. C., February, 1895.

Honorable Commissioners of the District of Columbia.

Gentlemen:—I am instructed by the Committee on Legislation of the Medical Society of the District of Columbia, to communicate to your Honorable Board the objections of said committee to several provisions of the bill, known as the "Commissioners' Bill," and entitled, "A bill to regulate the practice of medicine and surgery, to license physicians and surgeons, and to punish persons violating the provisions thereof in the District of Columbia."

The committee of the Medical Society suggests that Sec. 1 be so amended that not more than two of the Board of Medical Supervisors shall be appointed from either of the three systems of medicine recognized in the bill, so that it will be impossible for either of these systems of medicine to acquire a majority of said Board of Medical Supervisors.

The committee recommends the omission of all of Sec. 3 after the word "surgery" in line 30. This clause provides for the licensing of "any applicant intending to practice in the District of Columbia any system of medicine or treatment other than the regular or homeopathic or eclectic system," and is objectionable not only because it is an invitation to the horde of charlatans, pretenders and impostors driven from the States by the enforcement of medical practice laws, which prevent the prosecution of their nefarious and mercenary impositions, to settle in this District, now the common rendezvous of such disreputable classes, but it is a direct and positive insult to every intelligent and educated physician, in that it ignores all and every method and system of preliminary and technical education, and is in direct conflict with the reforms and elevated standard of medical education which the profession is putting in active operation throughout the country. There is now in this city one system claiming to have a charter under the provision of the general incorporation law, with one emeritus professor, and one graduate who signed the certificate of his own graduation. Under the clause referred to, unlike systems but similar institutions may be chartered at the will of any drug or medicine fiend, and be entitled to a license to practice the science of medicine in this District.

The same clause of Sec. 3, lines 45 to 47, compels such applicant, when licensed, to insert "in any advertisement he may cause to be displayed, the designation of the system of medicine or treatment employed by him for the cure or relief of disease." Thus, not only is the fraud to be licensed, but when licensed, he is required to commit a fraud upon the credulous public by advertising to do that which he knows he can not do.

The third objection to the "Commissioners' Bill" refers to the omission of any provision prohibiting "publicly advertising ability to treat and cure diseases," as is usual in medical practice laws. Such a prohibition would banish from this District every such disreputable pretender, and protect this community from that class of frauds and impostors driven from the States and territories. It is idle to claim that such result can be accomplished by the enforcement of the rules, regulations and codes of medical ethics, when only such persons can be made amenable to such rules and codes as may have acquired membership in ethical organizations. The advertising charlatan has no code but that of fraud and criminal deception.

The Medical Society of the District of Columbia is willing to accept any one of the forty medical practice laws now in force in the States and territories of the country, except the Alabama law, to which it objects because of a provision somewhat similar to the objectionable clause in Sec. 3, of the "Commissioners' Bill," but which is more securely guarded because of the supervision of the State medical society.

The committee, therefore, requests the Board of Commissioners to so modify the bill S. 2685, known as the "Commissioners' Bill," that it may give to it its unqualified support.

I have the honor to be your obedient servant,

SAMUEL C. BUSEY, M.D.,

Chairman of Committee of the Medical Society of the District of Columbia.

### The Ophthalmoscope in Kidney Disease.

WABASH, IND., Feb. 19, 1895.

To the Editor:—"Advanced kidney disease is often first discovered by ophthalmoscopic examination."

Illustrating the truth of the above item taken from a recent medical journal, I wish to report a case which came under my observation recently:

C. M. was sent to me by Dr. K. to be fitted with glasses. He had been complaining of failing vision for about four weeks in right eye and for two weeks in left eye. Vision was equal to counting fingers at ten feet. No improvement with glasses. Ophthalmoscopic examination showed extensive patches of albuminuric retinitis in both eyes. I then questioned him about his general health, which he said was very good. Had not been sick and felt as well as usual. No trouble with kidneys as far as he knew. I sent him back to his family physician, Dr. K., with a letter, telling him what I had found, and asking him to make a careful examination of the patient's urine for albumen, and to put him on treatment. In a few days I received a letter from the Doctor stating that he had found C. M.'s urine very heavily loaded with albumen. Fifteen days after the first examination I again saw the patient, and he was still feeling about the same. Vision in right eye was equal to counting fingers at five feet, and in left eye to counting fingers at ten feet. At this time I am satisfied he would have been accepted as a good risk by any life insurance company that did not require an examination of the urine, and many good companies do not. He took his bed shortly after this, developing in a short time all the well marked symptoms of Bright's disease, and died in five weeks from the last examination.

OREN ONEAL, M.D.

### Archiv für Verdauungs Krankheften.

BALTIMORE, MD., Feb. 12, 1895.

To the Editor:—The rise of a specialty in medicine is marked by the appearance of journals especially devoted to it. We are glad to inform you, that the new specialty of "Diseases of the Digestive Organs" is about to have its own publication—the *Archiv für Verdauungs krankheiten* which will appear in April. It will be published in Berlin, Germany, by S. Karger. The editor is Dr. I. Boas, the well-known author of a work on "Diseases of the Stomach." He will be assisted by specialists in Germany and other countries. The *Archiv* will contain original articles, besides reviews and abstracts of recent literature, and will embrace diseases of the stomach, intestine, liver, pancreas and peritoneum, constitutional diseases and dietetics. Those interested may communicate with the editor or the publisher.

Yours, etc.,

JULIUS FRIEDENWALD, M.D.

### To Military and Naval Medical Officers..

To the Editor:—The undersigned, members of the "Committee on Litter," appointed by the Association of Military Surgeons of the United States, to report at the approaching annual session a desirable form of military litter for the comfortable, safe and expeditious transportation of the sick and wounded, solicit from medical officers of the National Services and the National Guard of the several States, suggestions, plans or models of such an appliance, to be delivered to either of them at their respective addresses, on or before the first of April, 1895.

ALBERT L. GIBON, Medical Director, U. S. Navy,  
U. S. Naval Hospital, Washington, D. C.  
JOHN VAN R. HOFF, Major and Surgeon, U. S. Army,  
Governor's Island, Harbor of New York.  
MYLES STANDISH, Capt. and Asst. Surgeon, M. V. M.,  
200 Dartmouth Street, Boston, Mass.

### The Surgical Section.

HARTFORD, CONN., Feb. 9, 1895.

To the Editor:—Will you kindly give me the name and address of the Secretary of the Surgical Section of the AMERICAN MEDICAL ASSOCIATION? Yours truly,

M. M. JOHNSON, M.D.

ANSWER:—Joseph Ransohoff, M.D., 296 Walnut Street, Cincinnati, is Chairman, and Reginald H. Sayre, M.D., 285 Fifth Avenue, New York City, is Secretary. We have printed these names each week since the San Francisco meeting.

## BOOK NOTICES.

**A Manual of Diagnostic Neurology for General Practitioners and Students.** By ALEXANDER B. SHAW, M.D. Illustrated. St. Louis, Mo. 1894.

This little work of 114 pages makes a decidedly favorable impression. It is compact, and at the same time we note that there are no serious omissions in the description of the diagnostic relations of the nervous system. The arrangement of the book is excellent and accentuates the diagnosis of nervous diseases in a manner which will bring them home to the student and fix them in mind in a much better way than they can be obtained from the general treatises on nervous diseases. The first chapter deals with objective symptoms, such as aspect and expression, motor symptoms, ataxia, titubation, rotatory and choreic movements, tremor, and spasm in all its varieties. The reflexes are briefly considered, and we note that the writer does not regard the absence of them as always an evidence of a pathologic condition. In this we would heartily agree with him. It is the loss and not the absence of the reflexes which determine the value of this sign in the pathology of nervous diseases.

The diagram on page 10, showing the reflex centers of the spinal cord, will materially facilitate the regional diagnosis of cord lesions. Page 25 has an excellent diagram illustrating the varied effects of lesions of the motor and sensory paths from the cortex to the periphery. These ought to prove of great value to the beginner in nervous pathology. It is a simplification of the more complicated diagrams which are found in German works and is much easier of comprehension than most of the diagrams of this kind. On page 26 a case of myotonic spasm is reported, which is an exceedingly interesting one, and illustrates well the diagnostic relations of this condition. We doubt, however, the propriety of putting into a work of this kind a purely controversial matter such as that concerning this case.

Throughout the work the author has given us some excellent tables of the differential diagnosis of certain lesions of the nervous system. We would especially call attention to the table relating to the differential diagnosis of paralysis from cortical cerebral lesions and paralysis from non-cortical cerebral lesions. This, and the table showing the points of resemblance and difference between spinal apoplexy, hemato-myelitis, hemorrhage into spinal membranes, Landry's paralysis, acute poliomyelitis, painful paraplegia and acute central myelitis and multiple neuritis, are of especial value. Another table giving the differential diagnosis of monoplegia of central, spinal and peripheral origin, is one that will prove useful.

The writer says that tactile sensibility may be roughly estimated, by touching the part to be examined by the finger or camel's hair pencil, and he gives the preference in testing sensation to the esthesiometer. In our judgment this instrument is of comparatively little value in neurologic work. Better results can be achieved by the use of a small pledget of cotton in determining tactile sensibility and its acuteness, and then by such simple means as varying weights, coins or other well-known objects placed in contact with the skin. These, combined with the use of a pin, will achieve much more accurate results and in less time than they can be reached with the use of the esthesiometer.

The chapters which relate to the diagnostic relations of the optic nerves and the testing of vision, as well as that which deal with aphasia, are exceedingly compact, well written, and contain about all that is of practical importance in the diagnosis of nervous diseases.

On the whole the work is well written; the illustrations are well selected, but many of them are very poorly printed.

While this mars the general appearance of the work, it does not detract from its usefulness. We think that a short chapter on electrical diagnosis would have materially added to the completeness of the work without greatly increasing its size.

## PUBLIC HEALTH.

**Rapid Production of the Diphtheria Antitoxin.**—That section of the report of the Director of the British Institute of Preventive Medicine which deals with the diphtheria antitoxin (London *Lancet*, February 2) is somewhat disappointing in that it contains no reference to Dr. E. Klein's experiments, made for the Medical Department of the English Local Government Board—having for their object a study of the preparation and nature of the diphtheria antitoxin. Last December Dr. Klein claimed to have succeeded in reducing the time necessary for the production of the serum to less than one-fifth that usually consumed, and explained his method as follows: By a few injections of the attenuated living bacilli (the attenuation is due to the age of the culture) along with their toxin into the horse, this animal is furnished with a certain degree of resistance. Next, large quantities of living diphtheria bacilli (minus their toxin) taken from the surface of solid cultures of gradually increasing virulence, are repeatedly injected subcutaneously, so as to allow the bacilli to grow and multiply and to produce gradually within the body of the animal, as is the case in the natural order of things, the toxin and, ultimately, the antitoxin. Every such injection is followed by a temporary reaction, a rise of temperature varying between 0.6 degrees and 1.8 degrees C. and a local tumor; but there is no suppuration at the seat of inoculation. As soon as one such tumor has disappeared a new injection is made, as stated above, with large quantities of living bacilli scraped from the surface of solid media (agar and gelatin). By the third week the animal will bear the scrapings from the surface of two whole agar cultures of virulent character. In the case of one horse, by this method, antitoxic serum was obtained in twenty-three days; in another horse in twenty-six days from the date of first injection. If, after the first bleeding of the horse, it be again twice or thrice injected with virulent living bacilli (taken from the surface cultures) the further serum obtained from such horse possesses even increased antitoxic power. The antitoxic power of the serum in the twenty-three and the twenty-six days' horses was tested on guinea pigs, and it was found that one part of serum was capable of protecting from 20,000 to 40,000 grams body weight of guinea pig against the living bacilli and toxin (not merely against pure toxin), considerably more than a fatal dose of living bacilli having been injected. Dr. Klein says this serum has been used in cases of diphtheria on the human subject—some of them very severe cases. It was injected in doses of from 5 c.c. to 8 or 10 c.c., and in severe cases the injection was repeated within twenty-four hours. The result was highly satisfactory. In some severe cases it was particularly striking, the further spread of membrane being entirely arrested, and rapid loosening and discharge of the existing membrane being also a conspicuous feature.

More than sufficient time has elapsed since Dr. Klein made his method public in which other producers could have tested it, and it is not a little singular, considering Dr. Klein's high scientific standing, that the Institute should have ignored it. Dr. Ohlmacher, Director of the Laboratories of Pathology and Bacteriology of the Medical Department of the University of Wooster, at Cleveland, has succeeded in rendering a horse proof against diphtheria in forty-six days, but his method has not yet been made public, and it is not known whether he has followed Dr. Klein in any degree.

**Decline of Smallpox.**—The steady diminution of the smallpox incidence continues—except in St. Louis, where an Associated Press dispatch of the 20th says there were seventy-two cases in the Quarantine Hospital at noon of the 19th; ten new cases were reported on that day, and the

dispatch adds, "it is thought this number will be greatly increased when full returns are received to-night." Nothing official has been received by the *JOURNAL* concerning this outbreak, information of which is in the nature of a surprise. In Chicago there were eighty-four cases remaining under treatment on the 20th inst.; twenty new cases occurred during the week; eleven localities were under surveillance on that day as against sixty-one one month previous. All known cases are in the Isolation Hospital. During the week ended February 18, there were seven new cases and two deaths in Milwaukee and two cases at other points in the State. At that date there were thirty-six cases remaining under treatment in the city—fourteen in the hospitals and twenty-two in homes, as against forty-three under treatment one week previous—sixteen in hospitals and twenty-seven in homes. Isolated cases continue to occur in other parts of the country and an occasional steamer is quarantined on arrival on account of the disease; but the smallpox "epidemic" of 1894-95 seems to be substantially at an end. This speedy termination of what threatened a year since to be a serious calamity is fairly attributable to more general and effective vaccination than was possible fifteen or twenty years since, and this has been accomplished to a very large extent through the support of the courts which have uniformly sustained the health authorities in enforcing vaccination. The latest instance is that of the Supreme Court of Brooklyn which, on the 16th inst. handed down a decision, in which the Court says: "The prevention of smallpox is of such paramount importance as to justify all reasonable means for its accomplishment. The propriety and wisdom of the course pursued by the [Brooklyn] Board in vaccination is beyond criticism. Its acts have all been within the lines of statutory authority and they have been discreet and in evident good faith in the presence of an impending pestilential danger."

**Water Supply for Boston.**—The Massachusetts State Board of Health, which has had under consideration the question of the water supply for Boston and suburbs, recommends, as a result of its investigations, that the supply be taken from the Nashua River above Clinton. It is proposed to build a dam which will raise the water of this stream 107 feet above the surface of the mill pond at Lancaster Mills, thus constructing a reservoir which will have a capacity of 63,000,000 gallons. It is claimed that the merit of this plan will be its permanent solution of the water problem of the district. Should this supply be inadequate, it will be entirely feasible at a small expense to reach the valleys of the Ware and Swift Rivers, which, with accessions from the Westfield and Deerfield Rivers, will furnish a supply of the best water for a municipality larger than any now found in the world. The Board rejected the only other plans which seemed worthy of critical examination, namely: A supply from Lake Winnipiseogee, and one from the Merrimac River above Lowell. The lake supply was abandoned because the Board thinks it doubtful if the State of New Hampshire would allow the quantity needed to be taken from the lake, to say nothing of the expense of \$34,000,000 for a conduit, and a further sum for damages for diversion of the water. The supply from the Merrimac River would need filtering, and this would involve an investment of \$17,400,000 besides annual cost of maintenance. It is estimated that the total first cost of the Nashua River supply would be about \$19,000,000 and the ultimate expenditure for the full development of the supply from this source, about \$25,000,000 for an average of 173,000,000 gallons daily.

**Cows, Oysters and Typhoid.**—As a result of his recent investigations, Dr. Thorne Thorne is convinced that just as un-boiled milk mixed with typhoid-infected water may dis-

tribute typhoid fever among its consumers, so also the liquid of uncooked oysters may be the means of conveying typhoid fever, if water infected with typhoid fever is imprisoned between the valves of the oyster. He does not believe, however, that either the cow or the oyster can elaborate typhoid fever from sewage, but it is quite possible that oysters may mechanically convey typhoid fever, just as milk mixed with infected water may be the medium for distributing this disease. He thinks that in both cases it is more than probable that the danger is much exaggerated; to which it may be added that a similar exaggeration of the danger of conveying typhoid fever through the medium of sewage-irrigated vegetables is also more than probable—the results of bacteriologic examination of such vegetables, including “sallet stuff,” water cress, lettuce, etc., being thus far entirely negative.

**Malarial Fever in Italy.**—The Italian Bureau of Statistics has recently issued a map of the distribution of malaria in Italy, showing the different degrees of mortality by various tints. From it the *Journal d'Hygiene* learns that in the years 1890-91-92 there were 49,407 deaths, or an average of 54 per 100,000 inhabitants yearly. Along the Mediterranean intense endemic centers of malaria are shown in the Grossetano, in the Pontine marshes, in the Salernitano and in the environs of Pestum. Deaths from malaria are rapidly decreasing in Rome; in 1881 there were 650 deaths from this cause; in 1882, 505; in 1892, 139; in 1893, 189. Malaria is more intense in the Roman Campagna and on the Adriatic coast. A strongly colored zone is shown on the map, beginning at the promontory of Gargano, descending by Molene and ending at Iomo. The disease is still strongly epidemic in Sicily and Sardinia.

**Cholera Precautions.**—Owing to the reappearance of Asiatic cholera in the suburbs of Constantinople, the Direzione della Pubblica Sanita of Italy has increased the stringency of its regulations requiring the medical visitation and disinfection of all vessels coming from the Black Sea, from the colonial French ports, from those of Russia and of Roumania on the Danube, from the Sea of Marmora, from the Aegean and from the North African littoral (excluding Tripolitania) and from Brazil. The Argentine government has formally recognized the existence of cholera in the Confederacy.

**A Yellow Fever Congress.**—It is proposed to hold a Congress on yellow fever during the Cotton States and International Exposition at Atlanta. The plan proposed is that the leading physicians of the city invite the leading physicians of the South Atlantic and Gulf cities, with a view of securing concert of action on quarantine measures and methods of dealing with the disease.

## SOCIETY NEWS.

**The St. Louis Medical Society** held a regular meeting February 9.

**The Lehigh Valley Medical Society** held a regular meeting February 12.

**The Lackawanna County Medical Society** held a meeting February 12.

**The Atlantic County Medical Society** held its annual meeting at Atlantic City February 6. The following officers were elected: President, H. C. James; Vice-President, Philip Marvel; Secretary, E. L. Reed.

**The New York State Medical Society** concluded its session February 7. The following officers were elected for the ensuing year: President, Roswell Park, of Buffalo; Vice-President, Wm. Maddren, of Brooklyn; Secretary, F. C. Curtis, of Albany.

**The Arizona Medical Association.**—The fourth annual session of the Arizona Medical Association convened at Phoenix, Ariz. February 6. The following officers were elected for the ensuing year: President, Dr. P. G. Cotter; Vice-Presidents, Drs. Neil McIntyre, B. G. Fox and A. M. Givens; Secretary, Dr. L. D. Dameron; Treasurer, Dr. I. B. Hamilton; Essayist, Dr. F. H. Willes. The next meeting will be held in Prescott, May 28, 1896.

**The Obstetrical Society of Cincinnati** at its annual meeting elected the following officers for the ensuing year: President, Dr. A. W. Johnstone; Vice-President, Dr. Sigmar Stark; Secretary, Dr. E. S. McKee; Corresponding Secretary, Dr. W. D. Porter; Treasurer, Dr. G. E. Jones.

## SELECTIONS.

**Treatment of Senile Heart.**—In his recently published work on “The Senile Heart,” Dr. G. W. Balfour thus summarizes his method of treatment: *Precordial anxiety*—careful dieting; cardiac tonics; rest at first, afterward regulated exercise. *Intermission and irregularity*—careful dieting; vascular stimulants, combined with cardiac tonics; sedatives, especially for women about their climacteric, occasionally hypnotics; antacids and anti-arthritis; assafetida (pil. galbani co.); moderate exercise. *Palpitation*—antacids; stimulants; mustard over precordial region; hot foot-baths. In interval strengthen patient by open air exercise, good food and such tonics as may seem needful, especially iron. *Treatment cordis*—careful dieting most important; antacids; anti-arthritis; pil. galbani co. *Tachycardia*—careful dieting; in recent cases following cardiac overstrain, belladonna or atropin must be pushed till pupils dilate. In cases of poisoning by tobacco or alcohol, tonic doses of digitalis useful. Cardiac tonics, especially digitalis and arsenic, continued for a long time in moderate doses, supplemented by hypnotics at bedtime especially morphia. Digitalis most useful in vagus paralysis, morphia in affections of the sympathetic. Cholate of soda slows the pulse, but it destroys the blood corpuscles, and the benefit is thus a doubtful one. Antipyrin has been recommended theoretically. Faradization of the skin over the precordia, or of the vagus nerve; or the skin or vagus may be galvanized. Compression of the vagus. Forced inspiration, holding the breath as long as possible. Ether sprayed along the cervical spine. A chloroform poultice over the precordial region. *Bradycardia*—in the hemi-systolic variety, cardiac tonics, especially digitalis. In true bradycardia, digitalis is also indispensable, to maintain the elastic tonicity of the heart, and to enable the heart to cope with the exceptionally high blood pressure prevalent during part of the systole. *Delirium cordis*—careful dieting; vascular stimulants, cardiac tonics, antacids, and anti-arthritis. *Angina pectoris*—during the paroxysm, nitro-glycerin, nitrite of amyl, chloroform and morphia, during the interval most careful and abstemious diet, especially towards evening. Vascular stimulants in combination with cardiac tonics, especially arsenic. Exercise is to be avoided, and only undertaken when duly prepared for by the ingestion of some vascular stimulant.

## NECROLOGY.

JAMES BURNS, M.D., Louisville, Ky., on the 11th inst. Dr. Burns was born in Dayton, Ohio, Nov. 15, 1820, and was in his seventy-fifth year.—William T. McGinnis M.D., of Eminence, Ky., February 13. Dr. McGinnis was a graduate of Center College and of the Louisville Medical College.—L. C. Wagner, M.D., of Nicholasville, Ky., February 14.

WILLIAM GODFREY DYAS, M.D., of Chicago, was instantly killed by a railroad train February 17. He was born in Dublin, 1807. At the age of 16 he entered Trinity College, Dublin. From thence he was transferred to the Royal College of Surgery, where he was graduated in 1830. In 1832 he received an



appointment to the cholera hospital, County Kildare, which was under the supervision of the government. At the closing of this hospital he was placed in charge of the fever hospital, and also three dispensaries. In this extensive field of practice he labored for a period of twenty-five years, when on the approach of the potato famine and its final consequence, he returned to Dublin, and was appointed Assistant Demonstrator of Anatomy at Trinity College. A year later (1856) he came to America; in July, 1859, he moved to Chicago and for some months was editor of the *Chicago Medical Journal* under the late Dr. Brainard. He was President of the Cook County Medical Society for the year 1873-74. He was one of the prime movers in the establishment of the Woman's Medical College.

## MISCELLANY.

**Diphtheria-Serum.**—Dr. Ohlmacher, of Cleveland, writes us that with the coöperation of Drs. C. B. Parker and H. W. Kitchen, all of Cleveland, he has completed the immunization of a horse against diphtheria. The time occupied was one month and sixteen days. He has verified the immunization by repeated tests and is of opinion that this is the first diphtheria immune horse in the United States.

**Protection from Facial Paralysis.**—Chabbert (*Le Progres Medical*) thinks the protection afforded by the hairy covering of the face plays an important rôle in the prevention of facial paralysis *a frigore*. The influence of this factor explains why facial paralysis is much more common in women than in men, and why in the male sex we notice it more frequently in those with smooth faces. The beneficial influence of the beard on tri-facial neuralgia has already been pointed out.

**Diagnostic Import of Premature Expulsion of Meconium.**—Rossa observes that premature expulsion of meconium is generally supposed to indicate danger to the fetus from asphyxia, and is consequently a reason for hastening delivery. The author (*Arch. f. Gyn.*) thinks this is an error and has shown that it is not true in a large number of cases. In his opinion it is due to increased peristaltic movements in the fetus, which may depend on a number of causes other than asphyxia. Among these causes Rossa insists on those of maternal origin—gastro-intestinal among other.

**Ice-Chloroform.**—J. Christian Bay, F.G.B.S., Bacteriologist to the Iowa State Board of Health, is pursuing investigations into the mortiferous poisons of chloroform, and asks that samples of long-preserved chloroform and other fluid chemicals containing whitish flocks or precipitates be sent him for examination. He claims to have found in chloroform which had caused death, certain chemie products of the putrefaction of the anesthetic. Following in this line the investigations of Dr. René Du Bois-Reymond, Mr. Bay says that these poisonous products may be removed by crystallization in ice, and that such ice-chloroform presents the only security against danger from a long kept specimen.

**Excito-Motor Power of the Stomach in the Insane.**—G. Dotto furnishes the results of his experiments to determine the excito-motor power of the stomach in the insane—*Arch. di Farmacol.* The betol test was used in patients not receiving any other medicament. Two hours after the ingestion of one-half liter of milk, one gramme of betol was given and the acidulated urine was tested with ether for the first traces of salicyluric acid. The researches of Lovisetti, Fodera and Corselli prove that the betol test is better than that with salol and more practical than Leube's test. Apart from special lesions the excito-motor power is normal in

arrested psychic development (idiocy), diminished in hysterical lethargy, increased in those forms of mental alienation with psychic and motor excitation, and but little increased in cases of psychic depression.

**Ablation of the Mammary Gland.**—Horner gives the results obtained in 172 cases of malignant tumors of the breast treated by amputation—*Beitr. z. Klin. Chir.* Of this total number of cases, 158 were cancerous in nature. The operation itself caused 5.9 per cent. of deaths. The mean duration of life was eighteen and eight-tenths months more in these 172 cases than in those not operated upon. Horner adds that there were 17.7 per cent. of definite recoveries—that is to say, with no return of the disease after more than three years. These statistics include fourteen cases of sarcoma, the average age of the patients being a little over 39 years. Thirteen of these patients had a total of seventeen operations performed; of this number there were ten recoveries, a mean of 76.9 per cent.

**Function of the Suprarenal Capsules.**—Some light is thrown upon the nature of the function of the suprarenal capsules by a series of experiments made by De Dominicis. He concludes (*Arch. de Phys.*) that total extirpation of these bodies, either simultaneously or with an interval between, invariably causes death after a maximum lapse of two, three or four hours. This ablation immediately causes intense shock, with phenomena of stupefaction and of general collapse, especially of the heart. Section of the spinal cord in advance, or the exhibition of atropin, notably retards these symptoms, and at the same time diminishes their intensity. The theory of auto-intoxication appears to De Dominicis less in accord with these facts than with that of a violent neurolytic action, thus apparently confirming the recent opinion of Fusari that the suprarenal glands are nervous ganglia.

**Harvard Medical School.**—The resignation of Prof. H. P. Bowditch from the office of Dean of the Harvard Medical School, after a period of service extending over ten years, is made the occasion for a review of the progress made by the School during that time in the annual report of the President and Treasurer of the Harvard College. In 1883-84 there were 243 medical students; in 1893-94 there were 472 in attendance. During the same period the number of the faculty has increased from twenty-two to twenty-eight persons, and that of the instructors from thirty to fifty-eight; a new building was occupied; the laboratory method of teaching was extended and improved; the activity of the school as a center of medical investigation was heightened; the compulsory four years' course of study went into effect; the annual receipts and expenses of the school increased by about 75 per cent. A most satisfactory showing for the decade, and a conclusive proof that a high standard of medical education is not incompatible with increased classes and revenues, but the contrary.

**Medical College of Virginia.**—Since the return of the classes of 1894-95, in attendance at the Medical College of Virginia, was made (as published in the *JOURNAL* of January 12), the aggregate has been increased to 138. This increase is in accordance with the information conveyed in the following note from Dr. Christopher Tompkins, Dean of the Faculty, the reference number to which was transposed as previously stated: "We have ten State scholarships, given in consideration of the fact that we receive aid annually from the State. We have no other scholarship feature, as is so often found in other medical institutions, or our number of matriculates would have been greatly increased. We have no dental or pharmacal department connected with our school. It is proper to state that the number of students as above for season of 1894-95 is incomplete, as we expect a number more

to come in soon." The Medical College of Virginia is a three-year graded school of six-months' sessions, is one among the oldest in the country, this being its fifty-seventh session, and is a member of the Southern Medical College Association.

**Malarial Influence in Abortion and Sterility.**—At the Indian Medical Congress last December, Mr. A. J. Weatherly, M.R.C.S., Eng., L.R.C.P., Lond., gave his experience in Africa, Florida and India on malarial influence in abortion and sterility. In England and in healthy parts of South Africa where malaria is unknown, he had ninety-one confinements at term with four abortions. In malarious parts of Africa and India he had 100 confinements at term and 48 abortions, and in Florida 30 confinements at term and 22 abortions. He has observed that a large proportion of his cases, though living in malarial districts, did not abort at times of attack of fever—in fact, in very many cases malaria showed itself only in the habit of abortion. He has also noted that a very much larger proportion of women are sterile in malarial districts than in others and that if they reside many years in such districts this sterility becomes permanent; whereas, if they leave before too long a time has elapsed they may bear children. He adds: "The influence of malaria on abortion and temporary sterility is still more marked in the very deadly malarious climate of Florida, where I saw twenty-two cases of abortion to thirty confinements at term, and ten cases of temporary or permanent sterility in a period of two years in a very small district."

**Against the "Christian Scientists."**—Following is the full text of the measure now before the New Hampshire Legislature to govern and regulate fraudulent medical practice and the so-called Christian science or faith cures:

SECTION 1.—No person within the limits of this State shall treat, attempt to heal or cure any other person or persons by the so-called Christian science or faith cures.

SEC. 2.—If any person shall treat, attempt to heal or cure, or claim or pretend to heal or cure any other person or persons by either of said methods and shall directly or indirectly accept or receive any money or other thing in payment for or on account of such services, or directly or indirectly accept or receive any gift or reward therefor in any form, such person so offending against the provisions of this act by so accepting or receiving such money, gift, reward, or other thing shall be fined a sum not exceeding three hundred (\$300) dollars for each and every offence, and half of such amount to be given to the complainant, the other half to the State.

SEC. 3.—This act shall take effect upon its passage.

**Semi-Centennial of the American Medical Association.**—Extract from a forthcoming volume, entitled "Personal Reminiscences," by Samuel C. Busey, M.D., Washington City, D. C.—"I was present at the meeting of the AMERICAN MEDICAL ASSOCIATION held in Philadelphia, in May, 1847, and was present when Chapman was elected President, witnessed the dignified formalities of induction into office, and heard his inaugural address of thanks for the honor. The circumstance of my presence at the first session, and witnessing the inauguration of the first President of that august assemblage of medical men, suggested the inquiry to ascertain the number, names and residences of those who have survived the period of forty-seven years since elapsed. I am enabled, through the politeness of Dr. Wm. B. Atkinson, the Permanent Secretary, to state that but five are now (July, 1894) known to be living. They are Hiram Corson, Plymouth, Pa.; Alfred Stillé and Lewis Rodman, Philadelphia; Oliver Wendell Holmes,<sup>1</sup> Boston; and Nathan S. Davis, Chicago.

"There were undoubtedly many students like myself residing in Philadelphia, who attended the meeting, and it would

be interesting to ascertain their names and residences, but it is not possible to do so, except by their voluntary statement of the fact of their presence.

"In view of these facts it seems eminently proper that preparations should be initiated at Baltimore, in 1895, for an appropriate commemorative celebration of the semi-centennial anniversary at Philadelphia in 1897. Efforts should be made to secure the attendance of the survivors of the founders, and also of those now members who were students in attendance as spectators in 1847. This latter proposition is somewhat experimental, inasmuch as there is no record of such accidental attendants, whose casual presence would hardly entitle them to official participation in such commemorative ceremonies."

**Surgical Pathology of Madagascar.**—Dr. Thesen, in charge of a Norwegian hospital at Tananarivo, has issued a report of the work done by it, which is quite large considering that it has only thirty beds. From a summary in the *Bulletin Medical* it is learned that in three years 300 administrations of chloroform were given, with one death from pulmonary edema; 211 cataracts were operated on, three unsuccessfully. The so-called senile cataract appears early; three patients were only 31 or 32, and a large number had not passed 50. Autoplastic operations comprised twelve barelips, ten transplantations and two rhinoplastics. Various kinds of tumors were operated on, among them fifteen cases of elephantiasis Arabum, fourteen of which were in females from 18 to 40 years old, all in connection with syphilis which had not been treated. M. Thesen states that the doctor who makes his observations in Madagascar can not deny the intimate etiologic relation which exists between syphilis and elephantiasis of the genital organs. Malignant tumors were rare; in three years only three cases of sarcoma and six of carcinoma being noted. Osseous and articular tubercles seem excessively rare, for no case occurred. Abscess of the spleen and liver is common; stricture of the rectum either from syphilis or dysentery is also common. Hemorrhoids are very frequent—forty-five cases were operated on. In the three years forty-one operations for vesical calculi were performed, 59 per cent. uric acid, 18 per cent. mixed, 9 per cent. phosphatic, and 14 per cent. oxalate of lime; three quarters of these were children under 15. The author adds that the hygiene in the town is deplorable. It is necessary to go a long distance for drinking water. The morals are very lax. The climate is not suited for any one from the north of Europe; those from the south easily become acclimated.

**Can give Opinion as to Effect of Tumors.**—In an action brought to recover damages for personal injuries a question was put to a physician which called for an opinion "upon the exciting cause of the illness" from which the plaintiff suffered from Jan. 9, 1887, till her death, on May 18, 1892. The nature of the illness was described in the question. The answer was: "From the result of the autopsy, knowing that there was a tumor of the brain, I presume that was the exciting cause of the troubles from which she suffered." When the witness was called, the counsel for the defendant admitted him to be a good practicing physician, a graduate from a good institute, and of long experience, but not an expert on tumors. The exceptions also recited that: "Before the hypothetical question was put to him he was asked if he was familiar with tumors of the brain, to which he replied that he was not. He was then asked if he knew what caused tumors, to which he answered that he did not mean to be understood that he understood the causes of tumors; that he knew what the authorities said in regard to them; that the causes were chiefly unknown." The Supreme Judicial Court of Massachusetts holds, in the case of *Hardiman v.*

<sup>1</sup> Died Oct. 8, 1894.

Brown, decided Jan. 3, 1895, that the physician was qualified to answer as he did the hypothetical question put to him. It says a good practicing physician, of long experience, who knew what the authorities said in regard to tumors, could properly be permitted to answer the question as this one did, although in his practice he had not been familiar with tumors on the brain, and did not pretend to understand the cause of tumors. He was not permitted to give any opinion upon the cause of the existence of the tumors at the base of the brain of the plaintiff, but only of their effect in producing the symptoms of disease which appeared in the plaintiff's case. A doctor of medicine may be competent to express an opinion upon the effect of pressure at the base of the brain, whether it arises from tumors or other causes, although he may never have been called to a case where tumors were known to exist there; and, in determining the qualifications of a physician, the extent of his reading in his profession may be considered, as well as his experience.

**Depopulation of France.**—In a discussion before the Paris Academy of Medicine, reported in *Le Progres Medical*, M. Cadet de Gassicourt said that the doctors, while seeking to diminish mortality, could do very little to increase the birth rate. M. Javal thought that physicians, might by their counsels, have some effect against the diminished birth rate; the latter is caused principally by the voluntary sterility of families, and physicians could point out the hygienic evils entailed by it. M. Guerin had little faith in the efficacy of the physician's advice. He believed the depopulation arose, in the first place, from people leaving the country to go to the cities; hence the children, which in the country were riches, so to speak, in the city were a charge and a constant source of uneasiness. While physicians can be of but little help in overcoming this diminished natality, surgeons can do something by leaving a few ovaries from time to time. M. Charpentier showed the difficulties and the contrary results which statistics of infantile mortality often presented. He also believed the principal factor in the diminished birth rate arose from voluntary sterility—families in France did not wish for more than one or perhaps two children. M. Pinard, while admitting the influence of voluntary sterility, regarded M. Charpentier's assertion as slightly exaggerated. He had seen numerous families with more than two children. A singular fact showing clearly that sterility is voluntary is that when the sole child dies, the parents have another after ten, twelve or even fifteen years of sterility. M. Guerin cited the frequency of abortions; in a recent trial at Limoges, the prisoner had performed no less than 5,000 abortions. He also called attention to the influence of alcoholism on the parents, by diminishing fecundity and increasing infantile mortality. M. Lagneau said that in the country, in Normandy for example, the natality is most restricted. The social conditions and the more or less easy outlet offered to children of the numerous families played the preponderant rôle. M. Lannelongue had particularly studied the influence of alcohol; this is very difficult to interpret. In parts of the country which consume the most alcohol, as in Brittany, we find the fecundity is considerable. In the most isolated districts, in Gers for example, natality is very low, but he admits the influence of alcohol on infantile mortality. These are the principal arguments invoked to explain the diminished birth rate. It seems that the system of taxes which weighs so heavily and so directly on large families may also have something to do with it.

**The Pacific Coast Association of Life and Accident Insurance Examiners.**—Early in January a circular, signed by Dr. C. K. Cole, of Helena, Mont., Nominator, Equitable Life of New York; Dr. J. B. Eagleson, of Seattle, Wash., Referee, Mutual Benefit Life of Newark, and Dr. Henry W. Coe, of Portland, Ore., was sent to the Insurance Examiners of Montana, Idaho, Utah, Washington, Oregon, California and British Columbia, inviting them to meet in Parlor B, of the Portland Hotel, Portland, Ore., on Wednesday, January 30, at 10 A.M., for the purpose of forming an Association of Insurance Examiners. In reply to this call, sixty-six applications for membership were received and the Association was successfully organized under the above name, with representatives from seven States and Territories. The following prelude

to the By-Laws states that "the object of the Association is to live interest in the important department of life and accident insurance work of physicians. To widen the knowledge of its membership upon such subjects through interchange of ideas and unity of purpose, to the end that the local examiner and surgeon may have a broader view of his duties and responsibilities, do his work better, and thereby protect to a fuller degree the companies which have intrusted vast interests to his care. Also to devise any necessary protection of the examiner in the legitimate pursuit of such avocation against encroachments upon his, from any and all sources."

During the meeting the following papers were read and discussed: "Fees for Life Insurance Work," by Dr. H. W. Coe, of Portland; "References," by Dr. G. S. Armstrong, of Olympia; "Overweight," by Dr. H. W. Coe; and "Careless Examinations," by Dr. W. F. Amos, of Portland.

It was decided that the meetings hereafter should be held at the same time and place of one of the State medical societies of the region covered by the Association. The next regular meeting will be held at the time of the Washington State Medical Society at Seattle, on May 18, 1895.

Dr. Richmond Kelley, of Portland, Ore., was elected President, and the following Vice-Presidents elected to represent the States to which they belong: Dr. L. M. Sims, of Kalama, for Washington; Dr. W. J. McGuigan, of Vancouver, for British Columbia; Dr. F. D. Bullard, of Los Angeles, for California; Dr. C. K. Cole, of Helena, for Montana; Dr. C. L. Sweet, of Boise, for Idaho; Dr. C. S. Baldwin, of Salt Lake City, for Utah; and Dr. J. D. Fenton, of Portland, for Oregon. Dr. Henry W. Coe, of Portland, was elected Secretary and Treasurer.

This is the second Association of Insurance Examiners organized in this country (the first being the Georgia State Society of Insurance Examiners), and from its large membership and the enthusiasm of its organizers, it will no doubt be the means of doing much good among its Fellows and for life and accident insurance work generally.

### Washington Notes.

**MEDICAL SOCIETY OF THE DISTRICT.**—At the meeting of the Society held on the 6th inst. Prof. W. J. McGee read a paper entitled, "Primitive Trephining in Peru," and illustrated it by the Muniz collection of crania. Dr. G. N. Acker reported two cases of heart disease and presented the specimens. Dr. J. T. Johnson reported a case of extra-uterine pregnancy and presented the specimen. On the 13th inst. Dr. Sofie A. Nordhoff read a paper on "Kinetic Therapeutics in Gynecology or Thure Brandt's System." Dr. Stone reported a case and presented a specimen of cancer of the ovary.

**THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.**—The two hundred and twenty-third meeting of the Society was held on the 15th inst. Dr. Van Rensselaer read a paper on the "Necessity for Early Operation in Mammary Cancer." Dr. Bowen reported a case of stricture of the female urethra and exhibited the patient.

**THE FOLLOWING CIRCULAR** has been sent by the Health Officer to the physicians of the city:

"Your attention is respectfully invited to the following amendment to the Regulations made under the Act to prevent the spread of scarlet fever and diphtheria in the District of Columbia, approved Dec. 20, 1890.

"SECTION 3.—Is hereby amended, to take effect Feb. 15, 1895, so as to read as follows:

"SEC. 3.—The warning sign shall remain on premises in which there is a case of scarlet fever for a period of not less than three days after the complete recovery of the patient as certified by the attending physician.

"The warning sign shall remain on premises in which there is a case of diphtheria for a period of not less than four weeks from the complete disappearance of the membrane as certified by the attending physician, but may be removed before the expiration of that period if a bacteriologic examination by a competent person has demonstrated the absence of the Klebs-Löffler bacillus.

"In no case will the warning sign be removed before the premises have been disinfected to the satisfaction of the Health Officer."

**MORTALITY OF THE DISTRICT.**—Notwithstanding the severe winter weather for the last week, a condition of good health prevailed throughout the District. As shown by the returns of mortality to the Health Department, there was one less death than in the previous report. The death rate for the whole population fell to as low a figure as 15.66, as compared with 20.43 for the corresponding week of last year. There was a slight increase in the number of fatal cases of chronic affections, accompanied by a relative decrease in acute lung attacks. There seem to be no malignant fevers prevalent, and mortality among the aged over 60 years and children under 5 years is at a minimum and below the average. The effort to limit and eradicate smallpox is apparently proving successful.

**EASTERN DISPENSARY.**—The Commissioners have transmitted to Chairman Williams of the Sub-Committee on District Appropriations of the House, the needs of the Eastern Dispensary, an institution which has been in useful existence for several years. It is managed by some of the best citizens, ladies and gentlemen of high standing, who have carried it on without much aid from the public funds. For a year or two the Commissioners have devoted \$500 per annum of the appropriation for the relief of the poor for that institution. It has recently come to the attention of the Commissioners that the lady managers are desirous of establishing an emergency hospital service for the eastern part of the city of Washington, and with this end in view they ask for an appropriation of \$1,000 for the fiscal year 1896.

**ST. ELIZABETH'S HOSPITAL.**—W. W. Godding, Superintendent of the Government Hospital for the Insane, has submitted a report to the Commissioners for the month of January, 1895, noting the changes among the inmates of the hospital, and admissions during the month by order of the Commissioners. During the month there were admitted nineteen white and five colored inmates. During the month there were fifteen dismissals, of which number nine died, four being colored and five white, and the remainder on visit and improved.

#### Louisville Notes.

**MORTALITY REPORT.**—The report of the Health Officer shows a total number of deaths of seventy-seven, and of these more than one-third, twenty-seven, were due to pneumonia. This is an unusual death rate from this cause, and shows the generally severe type of the disease which prevails this year. Of the number, forty-three were male and thirty-four female, sixty-four white and thirty-four colored, fourteen were under 1 year of age, and twenty-six from 50 to 80 years of age. There were five deaths from cerebral meningitis, six from consumption, three from typhoid fever.

**SMALLPOX.**—The smallpox which was reported in these columns recently as having developed in Lexington, Ky., shows no signs of being under control. Four new cases have been reported, and at a special meeting of the council on the 13th, it was decided to establish a pesthouse. Every precaution is being taken to prevent its spread to this city. All of the stable boys and jockeys now at the Churchill Downs race track have been ordered vaccinated by the City Health Officer, and all newcomers must be vaccinated by one of the city physicians.

**ILLEGAL PRACTICE.**—During the week the attorney for Dr. Rice who is charged with illegal practice of medicine, moved in the police court to quash the two warrants that have been pending for some time against Dr. Rice. The counsel of the State Board of Health objected, and the warrants were filed away, as Dr. Rice moved from the State before they could be served on him.

**RAILROAD AGREEMENT.**—For a number of years the hundreds of medical students in this city at the close of the college term, have been in the habit of clubbing together and demanding rates and other concessions which the agents have oftentimes granted to get travel. If one road did not grant

the concession it had the alternative of seeing another road gain the business. The medical student travel in and out of the city is very large owing to the number of colleges here, and to secure their business is a great stroke on the part of any passenger agent. The agreement made between the outgoing roads from Louisville was to hereafter make no concessions to medical students in order to gain their business, but to sell tickets to them at tariff rates as they are sold to other travelers. The agreement was entered into as a means of protection, as the roads saw that a continuation of such conditions would bring upon them much loss and a perpetual state of unrest. No affront is meant to the medical students, but they state they have simply taken a step which is just to themselves and the public generally. The roads also stipulate that they will allow the medical students no meals or other concessions as bait for the business.

#### Hospital Notes.

**PLANS** have been drawn for the new hospital for contagious diseases at Rochester, N. Y. The building will be one story in height, thirty-three feet wide and one hundred and fifteen feet long.—The forty-eighth meeting of the Alumni of charity hospitals was held in New York February 8. Dr. Adolph Rupp presided.—An annex to the Kansas City Hospital took fire February 8. The blaze was extinguished before serious loss resulted.

### THE PUBLIC SERVICES.

**Army Changes.** Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Feb. 9, 1895, to Feb. 15, 1895.

Col. CHARLES C. BYRNE, Asst. Surgeon-General, is relieved from duty as Medical Director, Hdqrs. Dept. of Dakota, and announced as Medical Director, Hdqrs. Dept. of the East.

Lieut.-Col. HENRY R. TILTON, Deputy Surgeon-General, is announced as Medical Director, Hdqrs. Dept. of Dakota.

First Lieut. GUY C. M. GODFREY, Asst. Surgeon, will proceed without delay from Ft. D. A. Russell, Wyo., to Ft. Omaha, Neb., and report for temporary duty.

**Marine-Hospital Changes.** Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the fifteen days ended Feb. 15, 1895.

Surgeon GEORGE PURVIANCE, detailed as chairman of board for examination of Asst. Surgeons for promotion, to convene in Washington, D. C., March 11, 1895, Feb. 8, 1895.

Surgeon J. B. HAMILTON, granted leave of absence for six days, Feb. 7, 1895.

Surgeon H. W. AUSTIN, detailed as member of board for examination of Asst. Surgeons for promotion, Feb. 8, 1895.

Surgeon FAIRFAX IRWIN, detailed as recorder of board for examination of Asst. Surgeons for promotion, Feb. 8, 1895.

P. A. Surgeon W. G. STIMPSON, to assume temporary command of Service at Port Townsend, Washington, during absence of P. A. Surgeon J. O. COBB, Feb. 13, 1895.

Asst. Surgeon J. M. EAOER, ordered to examination for promotion, Feb. 9, 1895.

Asst. Surgeon RUPERT BLUE, granted leave of absence for six days, Feb. 13, 1895.

Asst. Surgeon SEATON NORMAN, ordered to examination for promotion, Feb. 9, 1895.

#### LETTERS RECEIVED.

Busey, S. C., Washington, D. C.; Beck, Carl, New York, N. Y.; Beuchel, O. B., Battle Creek, Mich.; Bumgarner, A. E., Piquette, Ohio. Conant, W. C., New York, N. Y.; Crosby, W. E., New York, N. Y.; Conorton, M., Chicago, Ill.; Caldwell, F. H., Sanford, Fla.; Cantwell, G. M., Little Rock, Ark.

Drysen & Pfeiffer, New York, N. Y.; Daly, W. H., Pittsburg, Pa.

Edwards, T. L., Cuba City, Wis.

Friedenwald, Julius, Baltimore, Md.; Fann, Mrs. G., Kelley's Island, Ohio; Flite, B. W., Resaca, Ga.; French, Pinckney, St. Louis, Mo.; Fox, Philip R., Madison, Wis.

Gilhon, Albert L., Washington, D. C.; Greene, F. C., Chicago; Goss, E. L., Sheffield, Iowa; Gardner, E. W., New York, N. Y.

Howe, Lucien, Buffalo, N. Y.; Hay, Thomas, Philadelphia, Pa.; Henel, Emil, New York, N. Y.; Hyatt, B. F., Delaware, Ohio; Hare, G. A., Fresno, Cal.

Johnson, M. M., Hartford, Conn.; Jones, W. T., Georgetown, Texas.

Lyman, C. N., Wadsworth, Ohio.

Millard, F. H., St. Paul, Minn.; MacGowan & Cook, Chattanooga, Tenn.; McClelland, F., Cedar Rapids, Iowa; Medical Advertising & Publishing Bureau, New York, N. Y.; Martin, Ira M., Raymond, Wis.

Mansfield, L. F., Santa Barbara, Cal.

Newman, H. P., Chicago, Ill.; Newsom, D. F., Arroyo Grande, Cal.

Nordhoff, Sofie A., Washington, D. C.

Ohlmacher, A. P., Cleveland, Ohio.

Paquin, Paul, St. Louis, Mo.; Phillips The Charles L., Chemical Co., New York, N. Y.; Prow, W. J., West Baden, Ind.; Pantograph Printing & Stationery Co., Bloomington, Ill.; Perpona Chemical Co., New York.

Reed, R. Harvey, Columbus, Ohio; Ruggles-Gale, The Co., Columbus, Ohio.

Stevens, O. L., Athens, Pa.; Sharp, W. H., Parkersburg, W. Va.; Starr, Emmet, Skiatook, I. T.; Stewart, F. E., Detroit, Mich.; Stengel, Alfred, Philadelphia, Pa.; Shaw, Edward K., New York, N. Y.

Todd, W. H., Dobb's Ferry, N. Y.

Ventch, W. H., Carthage, Ill.; Vail, A. M., Rock Rapids, Iowa.

Wood, Casey A., Chicago; Woodruff, Ezra, Fort Keogh, Mont.



# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, MARCH 2, 1895.

No. 9.

## ORIGINAL ARTICLES.

### THE TECHNIQUE OF OPERATIONS FOR CANCER OF THE BREAST.

Read before the Denver and Arapahoe County Medical Society,  
Jan. 29, 1895.

BY CHARLES A. POWERS, M.D.

CONSULTING SURGEON TO ST. LUKE'S HOSPITAL AND ATTENDING SURGEON  
TO ST. ANTHONY'S HOSPITAL; LATE ATTENDING SURGEON TO ST.  
LUKE'S HOSPITAL AND TO THE CANCER HOSPITAL, NEW YORK.  
DENVER, COLO.

I do not feel that apology need be made for introducing to the society for discussion, the subject embodied in the foregoing title; the widespread and increasing prevalence of cancer of the breast,<sup>1</sup> its painful and terrifying features, and, above all, the very great attendant mortality, render it one of the most important of surgical conditions and one in which the most strenuous effort should be made to cure, and when cure be impossible, to ameliorate. The views which I have the honor of laying before you are based on some fifty operations in my own hospital and private practice. These operations have been done under modern methods and nearly all the cases have been followed from year to year. You will, therefore, pardon me if my observations are largely personal, and if I quote but little from other writers.

With the causes of cancer in general, we are as yet unfamiliar. Heredity bears but a slight relation, predisposition and trauma are still indefinite. The parasitic theory has of late years had zealous advocates and equally positive negations. At best it remains unproved. Discussion of this, however, is without the scope of this paper. So, as well, of the diagnosis but little need be said. A persistent lump, be it large or small, in the breast of any woman, young or old, is a matter demanding the most careful consideration. It may be cystic or solid. This will be determined by the exploring syringe. If it be solid, its malignancy can often be accurately determined only by incision. In those at or beyond middle life, a solid tumor is generally cancer. In girls, while the chances are quite in favor of adenoma or fibroma, a sarcoma may be found. In patients between the ages of 20 and 35, any of these forms may be encountered. I have more than once seen cancer of the breast in a woman under 30 years.<sup>2</sup>

So, in general, whatever be the age, the earlier our diagnosis be made accurate, the better it will be for the patient.

Operations for cancer of the breast are designed to be curative or are merely palliative, and it is needless to say that the end in view is determined by the extent of the neoplasm. Whatever this may be, the

preparation of the patient is practically the same. The bowels are well moved on the day preceding the operation, the chest, axilla and arm well scrubbed with soap and water and thoroughly shaved and a green soap poultice applied to the region of the incision and the surrounding parts. This is left on over night. On the morning of the operation the green soap is removed, the parts scrubbed with a 1 to 1,000 sublimate solution and a compress wet in this applied and left in place until the patient is under ether. If there be an ulcerated area it may be covered with iodoform gauze and collodion, or it may be touched with the thermo-cautery after the patient is anesthetized. The assistant who is to give the anesthetic should prepare his hands as though he were to participate actively in the operation itself, and should wear a sterilized gown. Care should be taken to see that the ether cone is cleanly.<sup>3</sup> The best table is one of medium height, with the chest and head piece moderately elevated.

Let us assume, if you please, that the left breast is the seat of operation and that the tumor is of moderate size, not adherent to the chest wall and not in the periphery of the gland. The arm is abducted to beyond 90 degrees and held by an assistant or nurse. The skin incision must be ample, well distant from the supposed margin of the growth. It is of advantage in placing this incision to make light cuts in the skin for landmarks. One at the inner angle of the incision (which will be at about the middle of the inner, lower quadrant), one in the axilla at the lower border of the tendon of the pectoralis major, and one each at the middle of the breast above and below.

These landmarks are of distinct advantage, for when the tissues are placed on the stretch in cutting, it is difficult to estimate the amount of retraction which has been made.

This upper cut goes well through the skin and subcutaneous fat; at the outer upper margin of the growth it swings down below the pectoral tendon and is prolonged to beyond the middle of the axilla. An assistant pulls up the inner flap and it is well dissected from the chest toward the median line. The knife then cuts toward the ribs, well into or through the costal portion of the pectoralis major, and a part or the whole of this muscle is raised, with a few deep strokes, from the chest wall. The surgeon's left hand, grasping the breast and lifting it, makes this easy.

At times a few vessels may require forcé pressure, often a sterilized towel crowded into the wound and firmly pressed down by an assistant will check oozing. The lower incision is then made, the lower, outer flap dissected up and the breast and underlying muscular tissue cut from the chest, the pectoral tendon

<sup>1</sup> Bryant, New York Medical Record, Jan. 19, 1895.

<sup>2</sup> I would like, here, to record the opinion that cancer is much more frequent in the third decade than is generally supposed. I have seen cancer of the rectum, uterus, lip, breast and stomach in patients under 30.

<sup>3</sup> The physician's hands and the cone are so near the field of operation. In one of my suppurative cases I felt that I could trace infection to this assistant.

severed and the mass left hanging by the fatty tissue beneath and below the pectoralis major. These fatty tissues are then carefully divided from the chest wall from above downward and outward toward the axilla. The axillary vein is exposed by cutting through overlying fascia. This is best accomplished by slipping a blade of a medium, blunt, curved scissors beneath the fascia and cutting from within outward. The vein should be exposed for some two inches or more, the fascia and fat carefully dissected from it. The tributary veins should be clamped before cut, otherwise they retract and ooze in a troublesome way. If involved lymphatic glands be adherent to the vein it (the vein) may be resected. I have not seen more than temporary edema follow this.

The entire axillary space is to be thoroughly cleared of the structures crossing it, the subscapular veins should be spared, the subscapular artery will not generally require ligation. The apex of the axilla and the space of Mohrenheim are to be carefully investigated and the contained fat and fascia removed. Finally, the entire mass of fat and glands is cut away from the serratus and latissimus muscles.

All bleeding is to be carefully checked and the wound closed. If the tumor be small the edges of the chest flaps can generally be approximated. If, however, it is large there will be a gap of large or small dimensions left. Here, in certain instances, the sliding flap method of Shradz will avail. In other cases lead plates with relaxation sutures will bring the flaps together as nearly as possible, and blood-clot (Schede) closure be obtained under strips of rubber tissue. Secondary skin grafting (Thiersch) may be done in eight or ten days.<sup>4</sup>

For sutures I prefer the silkworm gut, interrupted and not too closely placed. An axillary drain may be inserted or omitted. My recent cases have healed promptly without drain and under a single dressing. The ideal dressing is plain sterilized gauze. A mass of this crowds the fornix of the axilla well up, and the entire dressing is firmly and evenly held in place by broad strips of rubber plaster. A mass of sterilized absorbent cotton envelops the chest, with an ordinary binder over all. The arm is outside this and loosely fixed at the side.

The foregoing description applies to an ordinary case, in which the tumor is not large, say the size of a pigeon's egg, centrally placed and not adherent. It is needless to say that varying conditions demand essential modification in technique. If the cancerous mass be no larger than a plum and not extending to the under surface of the gland it suffices, I think, to remove the pectoralis fascia and leave the muscle. If the tumor be peripheral a corresponding amount of tissue must be removed in its vicinity. When the tumor extends to the base of the mamma, the greater pectoral must be excised, and it is worthy of note that two experienced observers, Halsted<sup>5</sup> and W. Meyer,<sup>6</sup> have recently advised that it be removed in all instances. Each of these surgeons has carefully devised a definite operation for the removal of both of the pectoral muscles, the former surgeon removing them in part, the latter *in toto*. Halsted reports fifty cases in which he has done this, which he calls the "complete" operation; and with the magnificent resources of the Johns Hopkins Hospital at his command we might well expect definite and ex-

tensive histologic reports of the involvement or freedom from invasion of the muscles, lymphatics, fascia, fat and other tissues. Such details are, however, lacking in the reports of his cases, and we must at present consider the proposition of theoretic value, though most certainly having the advantage of thoroughness and the wide removal of surrounding tissues. It is of interest to note that Halsted does not find this addition to increase the risk of the operation, and his patients regained excellent use of the arm in retaining the clavicular portion of the greater pectoral. I have repeatedly removed a large part of the muscle and have never seen resulting disability. As to the most important point in this proposition of Halsted and Meyer, the ultimate cure of the patient, we must await further report. For of Halsted's cases 75 per cent. have been done within the past three years (the generally accepted limit of "cure") and the remainder have but an average (22 per cent.) of freedom from relapse. Meyers' procedure is more radical, but he has had opportunity to apply it in but one or two recent cases. We shall await with much interest further reports on the all important question of radical cure.

The axilla must, in all cases, be invaded and thoroughly cleared out. This is a position universally accepted, which admits of no debate. It makes no difference whether glands be felt therein before operation. I have repeatedly found small, cancerous lymphatics in an axilla which seemed normal on palpation. The axillary dissection must be thorough and carried to the highest possible point. So, as well, it is of the greatest importance that the tissues between the breast and axilla, the fascia, fat and contained lymphatics be removed in a single mass.<sup>7</sup> It is useless to say that the cases in which the axilla is not involved are those in which the prognosis is the best. Invasion of the high axillary glands makes it almost certain that there are involved lymphatics beyond reach. And I have been led, also, to expect speedy recurrence in those cases in which the axillary fat has a sandy, granular feel. Halsted advises in every case the excision of the supra-clavicular glands. This adds but a few moments to the length of the operation and one can but regard it as of material value.

Throughout the entire procedure, active assistance is of the greatest importance. All bleeding vessels should be promptly seized, the retraction should be intelligently made, especially when the axilla is the field of work. It is of distinct advantage to make the proper flaps at the first cuts, for if they require revision time will be lost in checking the accompanying hemorrhage. A "dry" wound is the best assurance of prompt healing.

In those unfortunate cases in which the disease is too far advanced to permit thought of mere palliation, operation is justifiable whenever it is felt that life may be prolonged and the comfort of the patient enhanced thereby. In such instances the operation may be modified to suit the requirements of the individual case. Our rule in regard to these palliative procedures should be a simple one; to act as the best interests of the patient demand.

As has been said, these cases may be put up with or without drainage. In my latest cases, in which I have operated in the dry, aseptic way, I have been able to dispense with drains. Unless there be some indication for change the first dressing may be left

<sup>4</sup> In general I have found this preferable to primary grafting.

<sup>5</sup> Annals Surgery, November, 1894.

<sup>6</sup> N. Y. Med. Record, Dec. 15, 1894.

<sup>7</sup> All incisions outside the cancerous tissue.

until the sixth or eighth day, at which time the silk-worm stitches are removed. From this time on, the patient is encouraged in the use of the forearm and arm. The functions return in due time and I have never seen permanent disability in patients in whom the axillary fornix had been crowded well up.

The immediate prognosis in the modern operation for cancer of the breast is good. I have myself had some fifty operations without a post-operative death. Halsted reports seventy-six cases without mortality, Weir over one hundred. In general, the death rate is 2 or 3 per cent. As regards the most important feature, the ultimate result, statistics are steadily improving. The most important contribution to this, in fact the most valuable article on cancer of the breast, which has yet appeared, is the recent paper by Bull.<sup>8</sup> This surgeon reports 118 personal cases, of which he traced to the end 115, or all but three. The exceptional value of these data will be appreciated when we realize that all of these cases were carefully and conscientiously followed from month to month. A large proportion of them were seen by me and examined every three or six months.

In case of death, the statements of the attending physician were obtained as to the cause. Patients who lived at a distance were regularly examined by the family physician, and his report noted from time to time in the history.

Bull's cases are properly divided into two classes: 1, those operated upon during the past three years; and 2, those previous to that time. Of these the second class alone are utilized as to ultimate results, seventy-five in number. And of these seventy-five cases, twenty or 26.6 per cent. are living, free from recurrence, at periods varying from three years nine months to ten years after operation. That is, 26.6 per cent. of all cases may be classed as "cured." This is, as Bull says: "A higher proportion of cures than has been previously reported."

Bull's statistics might, however, mislead us in concluding that the prognosis is less favorable than it really is, for his cases include those in which the operation was palliative, as well as those in which the disease was yet in an early stage. So, in this way, Bull finds on dividing his cases, that those in which the axillary glands were free from invasion show over 50 per cent. of three year cures.

I, myself, in my last year's work at the New York Cancer Hospital, divided my operable cases into three classes, as follows:<sup>9</sup>

1. Those in which the disease is so limited that it is thought reasonably probable that it is entirely excised and that the patient has a fair prospect of cure.

2. Those cases in which the surgeon is doubtful, after removal, whether he has gone beyond the limits of invaded tissue; and,

3. Cases frankly incurable, in which a palliative operation affords a fair prospect of adding to the life and comfort of the patient.

It is needless to say that no sharp dividing lines can be drawn. One places an individual case in its approximate class after he has operated, and after he has read the detailed report of the pathologist.

It would be quite as irrational to include all cases of pulmonary tuberculosis in one class, both incipient and advanced, and to say that the percentage of

cures is thus and so, as to pursue a like course in cancer. An adherent breast cancer the size of a cocoanut is one thing, a nodule no larger than a robin's egg is quite another matter; and it is obviously unfair to allow the latter to bear the recurrence percentage of the former.

The histologic examination of the parts removed is of the greatest importance and should be made in a most thorough manner. No specimen can be certified as cancer until the microscope has so proved it, and it is not sufficient to make a perfunctory examination of a piece of the tumor itself. Segregated glands should be carefully examined, especially those lying highest in the axilla. It has been my custom to mark certain outlying portions of the breast, skin, muscle, fasciæ, glands, etc., for special report by the pathologist, and he should note the amount of healthy tissue intervening between the tumor itself and the cut surface of the parts removed. In this way alone, may we be reasonably assured that we have gone beyond the confines of the growth, and in this way, as well, may we compare with the original history of the case the development of recurrent nodules.

Our responsibility in these cases of mammary cancer does not end with the simple removal of the growth. The patients are to be placed under the best hygienic conditions and are to be followed carefully from year to year. My own rule has been to instruct them to return for thorough examination every three months, and in the interim, if they find evidence of suspicious nodules. The more intelligent class of people will, as a rule, see the necessity for this and gladly comply. The poorer classes will often fail to return and must be looked up in their homes. As an evidence of the thoroughness with which this can be done, I may again refer you to Bull's list of 118 cases in which 115 were kept under constant observation to the end. Internal recurrence admits of no relief. Local nodules may, however, be removed from time to time, and while in general the prognosis in recurrent cases is unfavorable, yet we may often add to the comfort of the patient and at times achieve a lasting cure.

As an example of the value of this frequent revision I may cite the case of a woman of 46 years who was in one of my wards at the Cancer Hospital in May last. Bull had removed the right breast of the patient for cancer some four years previously. A year later Weir excised an extensive scar recurrence. Something like a year after this, I removed the opposite breast and axillary contents for a cancerous nodule, the size of a robin's egg, and have since excised small nodules on four different occasions from the scar of the right side. Her general health has not yet suffered and she is able to support herself and children. It is now over four years since her original operation, and but for the fact that she has been watched constantly, she would doubtless have died long since.

I purposely omit more than the briefest mention of the use of erysipelas injections in malignant growths. In sarcoma the method seems deserving of the most extended trial. In carcinoma we have practically no evidence that it is of value.

I can but class these operations for cancer of the breast as among the most important with which we have to do in surgery; not that they are in themselves dangerous, but that the best chance for cure requires the exercise of mature judgment. And in

<sup>8</sup> N. Y. Med. Record, Aug. 25, 1894.

<sup>9</sup> N. Y. Medical Jour., September, 1894. I use the word "doubtful" in its broadest sense. It is needless to say that one never feels certain.

conclusion, I beg to express the view that mammary cancer is a curable disease, and that the keynote to its successful management is to be found in the earliest possible diagnosis, prompt and wide excision and careful observation of the patient during the remainder of her life.

Stedman Block.

## RELATIONS OF DISEASE, CRIME AND VICE..

Read before the Omaha Medical Society, Dec. 11, 1894.

BY W. O. HENRY, M.D.

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I would define these terms by saying that disease is the violation of any physiologic law or any abnormal activity in living tissue. Crime is the violation of any human law, or any abnormal activity in the civil world. Vice is the violation of any moral law, or any abnormal activity in the moral world.

We have to-day in the United States more than one hundred thousand tramps who find it easier to get a living by begging from door to door than by labor, and hence take to this sort of life.

There are more than five hundred thousand criminals in this land to-day and only one-fifth of them are behind the bars. It is estimated that two women out of every one hundred in this country are fallen women. The percentage of divorces to marriages is alarmingly great so that in some States there is one divorce granted to every twelve marriage licenses issued. Ten thousand children roam the streets of Chicago homeless and without suitable food, clothing, shelter or guardianship. While this appears to be a very large number it is probably not greater than will obtain elsewhere.

Although it is impossible to get at statistics upon the frequency of criminal abortions, yet so prevalent is it even in the so-called "better" classes of society that in some quarters a great cry has justly been raised against it in which every physician should join, for he alone has any adequate conception of its frequency and disastrous results, morally and physically.

By sentimentalists and would-be reformers it has of late become quite common, and especially since the "Keeley cure" and "Christian science" fakes, to hear it affirmed that alcoholism or drunkenness is a disease and the victims are irresponsible for their acts. Thus morphinism, cocainism and allied disorders are placed in the same category, and heredity is very properly given a prominent part in their production.

T. D. Crothers, of Hartford, a recognized authority, estimates that there are in the United States 1,600,000 excessive drinkers besides a large number of victims to morphin, chloral, cocain and other narcotic drugs. He says: "Alcohol used either in moderation or excess, always deranges sensation and the brain centers, which receive and determine the value of the impressions. False impressions come from the senses and the brain is unable to correct them. Associated with this the delusion of mental health, and clear accurate judgment of his conditions and surroundings. This condition is present in every drinking man, only different in degree. . . . The criminal acts of the inebriate spring from this confusion

of sense and judgment. This shows the irresponsibility of inebriates."

Dr. L. D. Mason, of Brooklyn says: "The large majority of inebriates become so from necessity, not from choice, there being a *vis a tergo* of heredity, environment and disease that produces physical degeneracy and plunges them into drunkenness."

Wilson, of Edinburgh, says: "Drunkenness is the outcome of an ill-organized constitution."

Two noted French medical authorities in a report to the Government Hygienic Committee give the opinion that, "alcoholism is now a social danger, undermining the bodily and mental health of posterity, and that from its injurious influence on the children and ulterior descendants of the habitual consumer, a degeneration of the whole nation is being induced."

The large increase of drinkers among women both in this country and England is a cause for serious alarm. Lawson Tait says: "An educated and intelligent woman never becomes a drunkard but from some deep-rooted and often carefully concealed cause. The indulgence may be from physical suffering or mental distress." He holds that many of his cases of suffering from inflammatory affections of the uterine appendages have been cured of these habits by the treatment which cured their physical suffering.

Dr. F. O. Marsh, of Cincinnati, in a paper read before the Miami Valley Medical Society upon morphinism said: "The deviation from the normal standard of nerve nutrition and nerve function resulting therefrom, and which impels to and necessitates the continuance of morphin is a disease. . . .

The moral responsibility of the patient at any given time for the continuance of the habit diminishes in direct proportion as the nerve degeneration has become deep-seated and inveterate."

Dr. Norman Kerr, of London, says: "The permanent impairments of the nervous system in inebriety are described as phases of alcoholic dissolution, a retrogressive pathologic process. In the etiology of alcoholic nerve degeneration there are two elements, viz., the effects of the direct pathologic action of alcohol on the newer tissues, and of the impoverished blood supply. These are chiefly the breaking down of the nerve elements, with thickness and inelasticity of the blood vessels and overgrowth of the connective tissue. The gradual appearance and development of an appetite for excessive drink often indicates brain degeneration."

Dr. B. Clark, of New York, in speaking of alcoholism says: "It is responsible for over one-half of the sum total of human miseries." Again he says: "It is a disease that can be managed much more readily than imagined and yet a disease which few physicians know how to handle when called upon to do so."

Henry O'Neill, of Belfast, cites among police cases, the fining of a woman 10s. for drunkenness who had been convicted of the same offense ninety-two times. Another woman fined 10s. whose previous record was 140 convictions, and still another fined 20s. who had been before the court on a like charge 170 times. He then states that nearly all the highest penal records had been of women and draws the conclusion that fines and punishment are failures as reformatory measures. Therefore it is said: "It is inevitable that drunkenness is a disease, not a crime. In German, Austrian, Swiss, Italian and Dutch law, there is a



distinction between culpable and inculpable intoxication. English laws generally exact complete responsibility. In Austria a peasant farmer while intoxicated, killed his brother. In Britain he would have been hung, or, at least have received a very long term of imprisonment. Under the Austrian code provision of a reduction of punishment in the non-intent of intoxication, he served nine months imprisonment, became a changed man, and headed a temperance reformation in his district, where a monument has been erected to commemorate his great service to his country." Precisely the same kind of sentimental foolishness advocated by some Americans. So much, Mr. President, for drunkenness and its allied affections.

Dr. Hunter McGuire, of Virginia, in writing to Dr. Lydston, of Chicago, requesting a "scientific explanation of the sexual perversion of the negro of the present day," says: "Before the late war between the States, a rape by a negro of a white woman was almost unknown; now the newspapers tell us how common it is. In the South the negro is deteriorating, morally and physically. . . . During the days of slavery, insanity was very uncommon among the negro race. Now, our large asylums are not capacious enough to hold the insane negroes of both sexes." He then refers to their lack of proper food, shelter and clothing as compared with their former supply and says further: "We have also intemperance excess and impure air from overcrowding. . . .

Mental depression and anxiety are also common. Laughter and music, universal with them before the war, are now rarely heard. . . . Pulmonary phthisis and other purely tubercular diseases, while common enough in the mulatto, were comparatively infrequent in the negro. Now, however, . . . tuberculosis is fearfully common."

In his reply, Dr. Lydston very properly remarks: "Notwithstanding the horrible crimes perpetrated under the influence of the *furor sexualis* by the negro, particularly in the South, I believe that he compares quite favorably as regards sexual impulses—taking all abnormalities into consideration—with the white race. The more I see of white men in so-called refined society, the more contempt I have for quite a large proportion of male humanity."

Now, as to some of the reasons he offers as explanatory to the questions propounded let me cite a few:

1. "Hereditary influences descending from the uncivilized ancestors of our negroes."
2. "The removal of certain inhibitions placed upon the negro by the conditions which slavery imposed upon him."
3. "An incapacity of appreciation of the dire results to himself of sexual crimes."

Again he says: "The enormous increase of the negro since the war has had much to do with his physical and intellectual degeneracy, and therefore with his criminal propensities. As man descends in the scale of differentiation the number of offspring at a birth approximates the multiple pregnancies of the lower strata of animal life. Morel, De Monteyel, Hagen and one of our most eminent American writers—Kiernan—have conclusively shown that multiple pregnancies are most frequent among the degenerate types of humanity. The offspring in such multiple pregnancies are defective from an obvious double cause. Upon them, all degrading influences act with greater power." Once more he says: "The lack of

systematic occupation and the forced assumption of responsibilities for which he was by nature and training unfit—to say nothing of the acquirement of vices and profligate indulgences for which he had relatively few opportunities while he was in bondage, and for which he was directly responsible to those whose interest it was to keep him in the best possible condition morally and physically." Finally he speaks some ringing words which I wish might be burned indelibly into the minds of all men but especially medical gentlemen: "Ignorance of sexual physiology has led the average white boy, at the age of puberty, to believe that fornication is a necessity, or at least a luxury at which the whole world winks. You well know the train of misery following the indoctrination of such ideas. This fallacious idea is responsible for much of prostitution and sexual crime. . . . Sentimentality and morals aside, the most materialistic of us must acknowledge that sexual purity is wholesome in its effects. The remedy for the evils of youth and early manhood is, never to begin indulgences that create physical and injurious necessities."

The Chicago *Inter-Ocean* said: "Out of thirty-two young men in New York City who were recently examined for West Point cadetship, only nine were accepted as physically sound. Such a note might well make the young men of our cities pause for a moment's thought. Beer, the cigarette, too much amusement, and the hidden vices are making havoc with the physical manhood of all our towns and cities." Dio Lewis said: "This species of indulgence is well nigh universal, and as it is the source of all other forms—the fountain from which the external vices spring, I am surprised to find how little has been said about it."

Dr. J. D. Bond, of Cincinnati, well says: "If the progenitors of our boys practice unrestrained licentiousness in wedlock, the transmission of lust is as sure as though the prostitution were not sanctioned by law. . . . Any doctor who recommends prostitution to cure masturbation is ready to damn two souls to save one body and deserves to be hooted in his community."

Dr. Percy, in the President's address before the Military Tract Medical Association, said that the most prolific source of prostitution is, "Ignorance of things sexual on the part of all mankind," and held the medical profession correctly responsible in large part for this marvelous ignorance. In the same address he said: "The vast majority of legalized marriages the world over, but especially in America, are nothing more or less than legalized prostitution. . . . Is it any wonder then that the offspring of such unions become weak passionate creatures, a prey to all sorts of nervous ailments, and that sexually they show no stability of character? Is it strange that the product of such wedlock often becomes prostitutes and the employers of them?"

A physician speaking of the vices of young men says: "Let us also warn the unhappy victims of follies that are past undoing to improve the means of restoration while there is still hope. In its track we find the ravages of loathsome disease, physical, mental and moral degradation, disrupted homes, asylums filled with imbeciles and graves that have kindly thrown the mantle of oblivion over wasted lives." So much for licentiousness. Let us now refer briefly to heredity and crime in general:

In a little work entitled, "The Jukes," R. L. Dugdale reports that in seven generations a single abandoned home bequeathed to the world 1,200 descendants, a large majority of whom were idiots, imbeciles, drunkards, lunatics, paupers, prostitutes and criminals. Seven hundred and nine of the 1,200 have been registered and their history studied in Mr. Dugdale's work. He finds that while harlotry in the community at large averages nearly two out of every hundred women, it was over twenty-nine times more frequent among the Juke women. In the line of Ada Juke, better known as Margaret, the mother of criminals, it was found that crime among the men was thirty times greater than that in the community in general. Of the 535 children born, nearly 24 per cent. were illegitimate. Among the women of the Juke family, the number of paupers was seven and one-half times, and among the men nine times greater than in the community at large. Among the sick and disabled of both sexes, nearly 57 per cent. were paupers. . . . Summing up the crimes and pauperism of this single family, Mr. Dugdale estimates that in seventy-five years it cost the public over \$1,250,000, without reckoning the cash paid for whisky, or taking into account the establishment of pauperism and crime of the survivors in succeeding generations, and the incurable disease, idiocy and insanity arising out of this debauchery and reaching farther than we can calculate."

Dr. Van Fleet, in a paper read before the New York Academy of Medicine said: "In carefully looking over the ground, we find that we can divide the causes of crime into two groups, namely, the moral and the physical. They are so dependent upon each other and both so important that we find our thoughts constantly drifting backward and forward between the two." He says again in speaking of defective vision in certain criminal classes: "To them things are never as they seem; they think the whole world is wrong. They become criminals from necessity."

Dr. Bayard Holmes, of Chicago, in a paper read before the American Academy of Medicine said: "Only a very small number of physical defects, such as blindness and deafness, can be referred to heredity, but this is not the case with mental defects, or with those forms of mental incapacity which result in delinquency or criminality. Thus we find that the insane are, in a very large per cent. found in families in which the taint is hereditary." Again he says: "It seems to me that the medical profession ought to bring an indictment against that method of doing business which keeps one-fourth of our men idle all the time, all of our men idle one-sixth of the time, all men at work long hours when at work at all, and still puts into factories and shops children and women. It is the settled policy of capital to have at hand a large body of idle starving workmen. . . . From this condition of warfare in business, from the idle workers necessary to wage-slavery results our great burden of voluntary and involuntary able-bodied dependents. Of the criminal class 45 per cent. are essential criminals or criminals from defect. The criminals have increased in the United States from 1850 to 1890 over 400 per cent., while the population has increased only 180 per cent. . . . There is every reason to believe . . . that the great increment in crime during the past forty years has come through unjust and unethical laws and their inhuman administration, and through the production of a

large class of landless, homeless, and generally idle people through the natural evolution of society."

The late Dr. O. W. Holmes seemed to recognize the influence of heredity, especially in the moral world, for once upon being asked when the training of a child should begin, he replied: "A hundred years before he is born."

Superintendent Byrnes, of the New York Police Department, says: "I know that children of criminals are very apt to become criminals themselves."

It is hardly necessary for me to call your attention in detail to the evils following cancer, tuberculosis, syphilis and gonorrhea, for all physicians know only too well the dire results to homes, wives and children and therefore to the State of these diseases.

Now while I am ready to admit, as every intelligent medical man must admit, that disease and numerous hereditary defects may and do follow the drink, morphin, chloral, cocain and other evil habits, yet it is not true in general that these habits depend upon some internal *vis a tergo* over which the victims have no control, and that they necessarily become such victims and are therefore irresponsible for their conditions. This teaching I believe to be highly unscientific and immoral. The gentlemen who have drawn such conclusions have in my opinion been illogical in the extreme and their data do not warrant their opinions.

If, according to these gentlemen, every drinking man is diseased in a greater or less degree and therefore more or less unaccountable for his acts, and if the criminal is such from necessity, surely we are a people in a deplorable condition, for at least 90 per cent. of our adult male population drink in some degree, and they together with our entire criminal population can have little or no moral responsibility for what they do. But they are accountable; they can quit their drinking and control their appetites; they can refrain from crime and they do so under circumstances which prove the truth of the assertion. Why, in the matter of drink, it is well known that many, of their own free will, give up their cups never to return to them. Multitudes more by simply embracing Christianity stop *at once* their drink habits and criminal practices, but you never hear of the multitudes being immediately cured of smallpox, scarlet fever, tuberculosis or puerperal fever by such treatment.

The trouble is with these drinkers and criminals, in the main, that the rewards for reformation and the punishment for persistence in their evil courses is not sufficient to bring into play their will power. Now, accepting the facts furnished by the gentlemen from whom I have freely quoted, although in some instances drawing different inferences from those facts, allow me to present what I believe to be the legitimate conclusion of these facts, many of which may be confirmed by every physician in his own experience:

1. Inheritance, ignorance and idleness are fruitful sources of disease, crime and vice.
2. Poverty, overwork and slavery to corporations is a fruitful source of disease, crime and vice.
3. Every human being is entitled to a home, proper food, clothing, education and employment together with his earnings; failing to secure which he becomes a criminal and vicious in cases too numerous to mention; therefore it is the duty of the State to secure to her citizens these things.
4. Ovariectomy and testiotomy should be done for

sexual crimes, insanity and some other constitutional diseases and upon the incorrigibly vicious.

5. Physicians should teach the serious effects morally, mentally and physically of masturbation, licentiousness, prevention of conception, abortion, the drink and allied habits, both upon the victims and their posterity.

6. There is no question but parents transmit to their offspring tendencies to disease, crime and vice.

### REFRACTION IN SCHOOLS.

Read before the Minnesota Academy of Medicine, Feb. 6, 1895.

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This is an age of prevention rather than of cure. The greatest efforts are being made to cure disease before disease occurs. Can anything more distinctly exemplify the disinterestedness of the physician than his earnest and unremitting efforts towards prophylactic medicine? Reflect for a moment upon the discovery of vaccination for smallpox, and the villification endured by its progenitors and advocates. Note the active work accomplished by the medical profession in all questions involving sanitary reform and hygiene. Observe the earnestness of scientists as they endeavor to prevent the existence of diphtheria, tuberculosis, cholera, etc., by laboriously exhausting their very lives over the microscope and test tube. No one can affirm but that the existence of disease is more profitable to the physician than its dissipation; and yet the proudest member of our profession is he who discovers a prophylactic rather than a curative measure.

Along this line of thought, one of the greatest reforms may be indicated in anything that establishes and preserves the health of the coming generation. The present generation is launched for good or for evil, and while relief to its necessities is most urgent, it surely can not compare with procedures calculated to produce in our descendants a race of people strong and vigorous in mind, body and heart. It is for this now well-recognized principle that wise and thoughtful philanthropists are engaging with accumulating energy, in the establishment of kindergartens, Sabbath and mission schools, gymnasiums, etc. They recognize the superlative importance of early training, and that the most efficient method of dealing with ignorance, vice and disease, is to emancipate the race from their existence.

The paramount importance of proper and well-regulated school-life becomes, therefore, clearly apparent, and educators should appreciate that in the sacred and responsible position occupied by them, it is their duty to carefully guard the body as well as the mind of the youthful generation intrusted to their charge.

Without doubt, many of the most distressing diseases incident to human existence can trace their origin to the school life of the sufferer. Admitting that such pathologic changes are not invariably the primary and direct offspring of improper school existence, but may be the result of the submission of an already vitiated and hereditarily changed constitution to improperly constructed and badly managed school buildings and school life, we can not, even then, as citizens, advisers and educators, shirk the responsibility. The tendency of modern civilization

leads toward education and progress, and such development should be encouraged. Such advantages are shared by rich and poor, by young and old, by the healthy and by the sickly, by those whose ancestors were blessed with vigorous minds and bodies, and by those who can only gaze retrospectively at a line of antecedents cursed by the presence of dissipation and disease.

Admitting the existence and operation of a law requiring a proper medical certificate before admission can be obtained to the school, there would still be a large percentage of scholars apparently healthy, but burdened by unfortunate inherited tendencies, capable of development under improper and vitiated circumstances. The responsibility of the present to the coming generation regarding school life is, therefore, enormous, and involves such questions as the location of school buildings, with regard to air, space and drainage; the construction of the building itself with regard to window space and the direction of light; proper ventilation, plumbing and drainage; the necessity for good and sufficient artificial illumination; the tendency towards overcrowding; the necessity for medical sanction before admittance to schools may be obtained; the use of proper drinking water; the providing of separate basins, towels and soap—which is an unquestioned source of contagion, especially of an ocular nature—the construction of desks of different sizes for different ages, so that the pupil may firmly plant his feet on the floor, and always occupy the same relative position to his desk; the construction of desks that are of the proper slant and height, and compel an upright position of the body in reading and writing, thus lessening the tendency to a contracted chest and distorted spine, which are prime factors in the production of consumption and spinal disease; the frequent intermission from studies and the change from one study and occupation to another, thus compelling a combined rest of eyes, mind and body; the proper regulation of the *means* of study, such as the distances and color of blackboards, the color of slates, the character of print and the paper upon which it is printed; the necessity for vaccination; the exclusion of contagious diseases, and the execution of advisable quarantine regulations and proper rules or laws, intended to exercise a beneficent care over the sight and eyes of the rising generation; these and many other subjects pertinent to the matter under discussion must appeal to the consciences of those having under their control the health and morals of these embryo men and women in whose hands must shortly be placed the future of our country. The scope of this article must necessarily preclude the possibility of even a casual discussion of most of these subjects, and the writer is, therefore compelled to limit his remarks to observations pertinent to the eye, and the pressure exerted upon it, by modern school existence.

The deleterious influence of education and intellectual advancement, upon the human organism can not be questioned. Not that knowledge invariably goes hand in hand with physical retrogression; but uneducated and untutored races are always superior types of bodily development, to those nations renowned for an insatiable appetite for knowledge.

The eye is no exception to the principle involved in this statement. The eyes of a people engaged in rural and pastoral occupations will demonstrate few,

if any, errors of refraction; and in races of a barbaric or semi-barbaric nature such pathologic conditions may be said to be positively unknown.

Ramas, who made an examination of 2,000 Mexican school children, found only 88 myopics, 60 hypermetropics and 10 astigmatics. He asserts that *pure* Mexicans rarely show *any* errors of refraction, and such deviations are almost invariably found in the mixed races. Compare this for a moment with the statistics of the German Empire, the home of the most highly intellectual people in the world. The most advanced seats of learning show that 50 per cent. of the pupils are afflicted with myopia, to say nothing of hypermetropia and astigmatism; and as if this were not enough, one school in Vienna produces 75 per cent. of myopic youths!

Unquestionably, therefore, school life is disastrously prolific of refractive errors, and should be controlled with every means possible by those having such matters in charge; and while it can not be denied that myopia is found much more frequently than hypermetropia and astigmatism, still the existence of the latter conditions must not be ignored, for they often enact an important function in the health and character formation of the scholar.

Still, from the very nature of myopia, and the possibility of its extreme development under adverse circumstances, combined with its influence on heredity, it becomes inevitably the most potential factor in the consideration of the matter under discussion.

Statistics on this subject are enormous, as from the time of Cohn's investigations in the Breslau schools in 1865-66 to the present time, more than two hundred thousand pupils have been examined by competent observers, for statistical purposes. These investigations have occurred in all civilized countries, under all circumstances of age, sex, race, cranial formation, health, heredity, intellectual advancement, and school architecture and management. Many of them have followed a certain number of pupils from class to class and from school to school. They all point to one inevitable conclusion, viz., that mental culture is obtained at the sacrifice of ocular perfection, and that such imperfections are usually myopic in their nature.

It is unnecessary to detail the reports of individual investigators, it being sufficient to remember that such men as Cohn, Jäger, Rüte, Erismann, Loring, Derby, Agnew, Risley, Hippel, Schmidt-Rimpler and many others of equal eminence, have contributed their time and ability to this work. Neither can additional investigation materially influence the consensus of opinion on the subject.

Certain facts have thus become established, and as they can not be further proved, our duty lies clearly in the line of an earnest and concerted effort tending toward, at least, a material mitigation of an existing evil. These facts may be briefly mentioned as follows:

The human eye at birth is normally decidedly hypermetropic. Herman, who examined the refraction of 110 children at about the age of 3 months, found them all hypermetropic without exception. Some deviations from these statements are recorded by observers who have detected myopia in very young infants by the ophthalmoscope; such instances are however, exceptional, and while doubtless true, immaterial.

The eye which shows hypermetropia in later life

probably never reaches the emmetropic line; but the eye which develops myopia, gradually assumes a condition of emmetropia, from which point its axis is elongated by circumstances of heredity, health and occupation.

The claim that myopia is entirely an acquired disease can hardly be substantiated, when we reflect upon the many instances, observed by all ophthalmologists, where myopia will run from father or mother to every child in the family; such cases can not be coincidences, neither can they result from certain peculiar environments. Dr. Matais, of Angers, France, examined the families of 330 young myopic subjects, and arrived at the following conclusions:

1. The hereditary influence of myopia is manifest.

2. It exists in 216 out of 330 families.

3. Hereditary myopia is characterized by its early appearance, its comparatively rapid development and the high average of its degree.

4. Myopia is transmitted from the father to the daughter 86 times out of 100, and by the mother to the son 79 times out of 100.

The same author believes myopia to be inherited in 65 per cent. of all cases, and claims that hereditary myopia is more sharply defined than the acquired form, and that it reaches a higher degree more rapidly, and complications are more frequent.

Dr. M. Kirchner, of Germany, who has made exhaustive researches on the subject, says that children are most liable to be near-sighted when both parents are myopic, less liable when the mother only is affected, and least so when the father is the source of transmission. Boys of myopic parentage are twice, and girls four times, as strongly inclined to myopia, as the offspring of non-myopic parents. He thinks that girls are a trifle more inclined to myopia than boys.

Schwabe believes that the highest degrees of myopia can invariably be traced to heredity.

M. Francesque Sarcy, the well-known French critic, whose intelligence and veracity can not be questioned, even though he is not a member of the medical profession, has some interesting personal experience which he reports in pleasing and picturesque language. He begins: "I was born near-sighted, dreadfully near-sighted; many physicians assert that persons are never born near-sighted, but only become so. Science may say what it pleases; I was born myopic. One day, prompted by a spirit of mischief, I got hold of the big silver spectacles which my father wore and clapped them on. Fifty years have passed since then, but the sensation I experienced is keen and thrilling to this day. I gave a cry of astonishment and joy. Up to that moment, I had seen the leafy dome above me only as a thick green cloth, through which no ray of sunlight ever fell; now, oh, wonder and delight! I saw that in this dome were many little brilliant chinks; that it was made of myriad separate and distinct leaves, through whose interstices the sunshine sifted, imparting to their greenery a thousand forms of light and shade. But what amazed me most, what enchanted me so that I can not speak of it to this day without emotion, was that I saw suddenly, between the leaves, and far, far away beyond them, little glimpses of the bright blue sky. I clapped my hands in ecstasy, and was mad with astonishment and delight."

Sarcy undoubtedly had congenital myopia, and in later life he became blind in both eyes. In one he



suffered a retinal detachment, and in the other a cataract. The latter eye was operated upon, and he acquired better sight in it than ever before.

The existence, therefore, of absolutely direct congenital myopia while rare, can hardly be doubted; and the frequent transmission of an inherited tendency in the tissues of the eye, only requiring favorable circumstances for development, is so evident that argument is scarcely necessary.

The question of the influence of race and nationality upon the development of myopia is one of some importance, and has engaged the attention of scientists for many years, but has not yet reached a satisfactory settlement.

There is greater proneness to myopia in some races than others, but such tendencies can usually be traced to greater intellectual advancement, which is indicative of greater eye strain. Cohn, for instance, when he examined the Constantinople schools found very little myopia, owing to the small amount of writing accomplished by the scholars, and the manner in which it was performed. The contrast between the eye of the Oriental youth and the German (where the percentage of myopia is easily 50 or 60 per cent. and in extreme instances, 75 per cent.) is, therefore, very marked; but the probability is that it is due *not* to nativity *per se*, or cranial formation, as claimed by Stilling (who argues that a low-broad orbit favors the development of myopia) but to indolence, inappreciation of intellectual advancement and mental and moral perversity on the one hand, and entirely opposite qualities on the other. The claim of Stilling can hardly be maintained in view of the fact that Pyska, of Dorpat, Russia, carefully examined 338 scholars, mostly of Esthic nationality, and found only 17 per cent. of myopes. Since these people have broad faces and low orbits, and the proportion of myopes is less than in the inhabitants of western Europe, Stilling's theory can not be correct. Pyska feels that the development of myopia depends on the demands made upon the eyes by modern civilization, and not upon the form of the cranium.

It has been claimed that the Jewish race is more prolific in myopia than others. There seems to be no valid ground for this assumption, other than can be found in the fact that Jewish vocations, the world over, are usually those of shop-keepers, money-changers, etc., which necessitates close application to books and textures. In countries where the great mass of inhabitants turn to open air employment, and where the Jew naturally gravitates towards commercial life, no surprise need be experienced if examination of scholars shows a wide discrepancy in the development of myopia; but proof fails to demonstrate the same variance where Jew and Christian are reared alike, and where inherited tendencies from one generation to another can be estimated upon a basis of similarity.

Dor claims that "the further south you go, the more normal eyes you find." This statement may not be exactly correct, and has been the subject of debate; still, when it is observed that in countries approaching the equator, where life becomes progressively indolent, application nears a minimum, the noon-day and other siestas are frequent and general keenness and intelligence are lacking, it becomes easy to believe that our Southern friends may more nearly approach a condition of emmetropia than those who reside further north.

Callan, of New York, examined 457 negro children, varying from 5 to 9 years of age. In the lower schools only about 1.5 per cent. were myopic and in the higher, about 3.5 per cent. making the average about 2.5 per cent. In the primary, he found no myopia.

Fox has examined the scholars of the Indian schools of Carlisle, and found only an average of 2 per cent. of myopia. Examinations have been made in various countries, such as North and South America, the British Isles, Germany, France, Switzerland, Russia; Italy, the Caucasian and Oriental countries, Norway and Sweden, Roumania, etc. The result of these investigations may be stated, in the language of Cohn, to be that "in the whole civilized world, in all nations, the number of the short-sighted increases with the demands which their school work makes, and from class to class."

The percentage of school myopes in our own country, perhaps, does not exceed an average of 25 per cent., but it is constantly increasing to correspond with the requirements of our advancing civilization. This comparative myopic infrequency need not, however, detract from national pride, when reflection is made upon the polyglot character of our citizens. Undoubtedly, statistics taken from native born Americans would increase the percentage, and perhaps enable the egotistical enthusiast of our soil to refute the statement that there is on the earth a more studious and intelligent race of people than in the land where the eagle flaps its wings, and the starry flag waves majestically in the wind.

The coincident occurrence of advance in classes and myopia is exceedingly interesting and instructive combined, as it is, with a diminishing hyperopia in almost exactly reverse proportions. In this connection I can not refrain from quoting the figures of Erismann who, in 1871, examined 4,368 St. Petersburg scholars. They are as follows:

Class . . . . .	1.	2.	3.	4.	5.	6.	7.	9.	10.
Myopia . . . . .	13.6	15.8	22.4	30.7	38.4	41.3	42.	49.8	41.7
Hyperopia . . . . .	67.8	55.6	50.5	41.3	34.7	34.5	32.4	36.2	40.

The almost invariable increase of myopia from class to class and the similar decrease of hyperopia is striking in its accuracy. The apparent discrepancies in the latter classes may be due to the fact that as a class approaches graduation its number usually diminishes, which would produce a different proportion in percentages. The table of Erismann practically corresponds with others prepared on this subject, and is an impressive comment on the effect of modern civilization on ocular refraction, and tends to confirm the belief that the very cause which produces myopia diminishes hypermetropia.

If the physical condition of a myopic eye is an elongated axis, what are the abnormal circumstances which produce such an elongation, irrespective of whether the eye has a natural myopic tendency or not? Most text-books furnish an explanation of this phenomenon, but the most comprehensive I find given by Fenner, and take the liberty of quoting his words: "They (the scholars) usually sit bending over a desk in a stooping position; the abdominal organs are compressed, preventing the free return of the blood from the head; the insufficient illumination at many schools and colleges necessitates the

bringing of the eyes very near the book, so as to obtain a larger visual angle; and as the book usually rests on a desk or table, the head has to be bent over; this posture produces an increased flow of blood to the eyes, while the higher degree of convergence necessary, causes an increased pressure of the lateral recti muscles on the equator of the globe; thus increasing the entire ocular pressure. The congestion of the fundus oculi causes softening of the scleral tissue, which gives way under the increased pressure, and the organ is elongated backward (posterior staphyloma); the other portions of the sclerotic coat are supported by the broad muscles. The retina is then pushed backward, behind the focus of the dioptric apparatus. When this condition once begins, all the causes which first gave rise to it act with increased force; there is a greater stooping posture necessary, because the eyes have to be brought still nearer to the object; an increased convergence is demanded, and the congestion of the fundus oculi increases; consequently, the softening processes progressively augment, causing the posterior portion of the sclerotic to yield more and more; hence myopia is usually progressive, particularly in the higher grades. There is a greater tendency to the development of this condition in youth from the causes above mentioned, because then the scleral tissues are softer and consequently more yielding than in later life. With the increase of age this coat hardens, becomes firmer and better able to withstand intra-ocular pressure; hence it is rare that posterior staphyloma, giving rise to near-sightedness, begins after the twentieth year of life."

Consideration must now be turned towards those conditions of school life which encourage and perpetuate the production and spread of myopia, and the first item that claims attention is that children should not be placed in school at all unless their general health is sufficient to endure the strain. It is unnecessary and space does not permit me to impress upon physicians the importance of this assertion, and the large influence exerted upon the eye by the general condition of the patient; but it is unquestionably imperative that we, as medical men, should emphasize the truth to the laity, and especially among those families committed to our care. We are, at present, dependent upon personal influence and the intelligence of those people not medically educated, to exclude from our schools those children not physically prepared to enter; but the time should and undoubtedly will come, when every scholar will not only be compelled to show a doctor's certificate before entrance, but will find it necessary to produce a similar document at the beginning of every school year.

What, then, are those conditions of school life which directly aid in the encouragement and perpetuation of myopia? First of all, the building itself should be so constructed as to present as few obstacles as possible to the proper exercise of the ocular function, and to give the pupils all the advantage possible in the way of location, space (inside and outside) heat, ventilation, plumbing, general cleanliness, water, basins and soap.

The building should be lighted properly and sufficiently, as there can be no question that a paucity of illumination necessitates a closer apposition of books, which in its turn means increased convergence and an encouragement of myopia. Just seeks

to controvert this statement by claiming no decrease in myopia in the new and well-lighted schools of Zittau, in Saxony; but the experience of others will scarcely support him in his position. For instance, in Coburg, Germany, 2,323 children were examined in 1874 and showed an average of 21 per cent. of myopia; the same number examined in 1877, after better lighting and seating had been provided, showed only an average of 15 per cent. of myopia. De Metz, of Antwerp, found only about 2 per cent. of myopia in well-lighted as against 5 per cent. in badly-lighted schools. Other statistics, even more striking than these might be produced to show the importance of proper illumination, but it is scarcely necessary as its principle must commend itself to the mind of any one who gives the subject even a casual observation.

The light in the school room should be direct, and not the indirect illumination from the walls of some adjoining building. It must be constant, and dependence should not be placed upon the immediate rays of the sun; for this reason, the windows should face the north. The most remote portion of the room should be bright, even on dark days, to the extent of receiving an illumination equal to ten candle power. Every scholar should, from his place, be able to see some portion of the sky. Light should come from the left, and as high above the scholars as the ceiling will admit. The total window surface should bear to the area of the floor a proportion of 1 to 5, and the panes should be as large as possible. It would be better if artificial illumination was never used, but if it is, a profusion of incandescent electric lights is the best substitute. They should be ample in number, properly shaded and brought sufficiently close to the desk to afford an abundant illumination. This light is much superior to gas, kerosene, etc., as its color is whiter, is capable of uniform distribution and concentration, and does not heat or vitiate the atmosphere.

The question of the construction of seats and desks is one of great importance. Seats should permit each scholar to squarely rest the feet upon the floor, thus favoring a natural and upright position; for this purpose, it will be necessary to provide seats of different sizes for individual pupils, who should be seated according to their height. The seats should have comfortable backs. The desks must correspond in size and have a slightly slanting top, and be far enough away from the head of the scholar (when sitting in an upright position) not to necessitate close approximation of the page of a book. Many seats and desks are so illy constructed for the needs of the individual student, as to just allow the head of the patient to emerge from the top of the desk, thus necessitating enormous convergence when attempting to study. These defects are usually observed in primary departments, where full-sized desks are used by very young pupils. Strict rules are enunciated by Fuchs and others as to the relation which should exist between the desk and seat. Fuchs says that "the proper position is that in which the shoulders and pelvis are parallel with the edge of the desk, and the head upright or bent but slightly forward. As to the construction of desks and seats, there must be several sizes, to suit scholars of various ages. The distance between seats and desks in the vertical direction, must be but little greater than the distance between the elbow and the ischial tuber-

osity. The edge of the desk must overhang the seat about two inches; the scholar can then sit upright."

Rohe does not think it necessary for the desk to overlap the seat, but says that "a line dropped from the near edge of the desk should strike the front edge of the seat."

The object, in any event, is, if possible, to prevent stooping and to compel the scholar to study in an upright position. Various apparatuses have been constructed for the purpose of forcing an erect attitude, but as yet nothing satisfactory and practical has been proposed.

Attention should be given to the distance and location of blackboards, to prevent their being placed at so great a distance from *any* scholar as to necessitate a strain in order to see, and to carefully avoid a position where rays of light will reflect upon their surface in such a manner as to obscure the characters inscribed thereon. Similar care should be given to the placing of maps, from which scholars from time to time are required to study. Some investigators believe in doing away with blackboards entirely, and substituting therefor white surfaces and black crayons, as black writing on white background can be read at a greater distance than the reverse. The same plan has been proposed and practiced in some schools with slates; white slates and black pencils are used on account of lessened reflection. Good results are claimed. Other investigators believe in ceasing to use slates at all, owing to the glistening surface, and substituting in their stead paper and pencil or pen, the paper to possess a non-glistening surface and be non-translucent.

School books should be of a size easily handled, and the paper should be reasonably thick, of good quality, and have a dulled surface; some authorities think that yellow instead of white paper is to be preferred. The Latin letters are best for all kinds of reading, and it is certain that if Germany would absolve itself from nationalism sufficiently to declare an emancipation from its miserable type there would be less myopia in the Fatherland. The letters should be well-printed, clear, distinct and large. Cohn insists that all books should be prohibited from schools in which smaller type is used than long primer, a less interval between the lines than one-tenth of an inch, a longer line than four and one-half inches, and more than sixty letters to a line.

The question of erect or slanting handwriting is one that is much agitated at present. Ellinger, in the first place, opposes the practice of inclining the copy-book to the right instead of straight ahead, feeling that it favors the development of myopia. However this may be, it is certain that there is variety in the opinions expressed relative to the preference as to erect or slanting writing, with the drift of sentiment favoring the former. Berlin favors the inclined writing, but he appears to be occupying a somewhat isolated position, as a tendency of opinion from Shubert, Manz, Königshofer, Seggel and others certainly indorses vertical handwriting. It is felt that the oblique system favors myopia by an unnatural position of the head, and by the fact that upright writing is usually clearer and more easily read than the reverse. Continuous work is detrimental to the health of the eye. This can be avoided in the school by often changing from one occupation to the other, as from desk work to recitations, and by frequent intermissions, during which time the rooms should be thor-

oughly aired. Matais claims that at the Military Prytanæum and at the School of Arts and Industry at Angers, myopia is relatively rare, although the hygiene is not better than in the colleges, because the interruptions in work are frequent, consisting in manual work, games or active exercises.

Unquestionably, much harm is done by indiscretion in ocular service at home. Granting that our directors performed an elimination of all existing school evils relative to ocular hygiene, there would still remain an element beyond their control in the abuses at home. Here we have a recapitulation of all the evils already enumerated in school life, to which others are added. Provisions are not usually made as to proper desks and seats, light and interruptions in work. Children are allowed much latitude as to what they read, and when and how they read it. Poorly printed novels are absorbed before and after going to bed, in sitting and reclining postures, by any light that happens to be convenient. In view of such abuses which will inevitably exist, especially among the poor and ignorant, the warfare against myopia is not of an encouraging character; but it does not absolve us from pressing the battle whenever the opportunity presents. If perfection can not be obtained, progress can at least be made, and much benefit will accrue from educating school directors, teachers and the laity who can, in their turn, perform a part in disseminating a knowledge of the subject among those who are less informed than themselves.

As a rule, children are sent to school too early in life, and too little attention is paid to the individual adaptability of the child for school life and its requirements. It is felt that a child must go to school at a certain age, irrespective of his physical condition, and such generalizing of educational methods is frequently followed by exceedingly detrimental results.

Children often go into kindergartens with perfect refraction, and acquire myopia before entering the primary department of the public school. The use of the eyes at a tender age, especially in those children inheriting a myopic, tuberculous or scrofulous tendency is exceedingly hazardous. Their tissues are soft, pliable and yielding, particularly where such parental predispositions exist; and the confinement and bad school hygiene, coupled with the desk and eye work incident to school life, unquestionably form a combination of circumstances conspicuously favoring the development of myopia.

Myopia is rare before the eighth year of life. Hypermetropia is the normal refraction of early life. Myopia usually begins about the tenth year and reaches its maximum at about the twentieth year. Statistics show that the less educated the nation, the more cases of normal refraction are found. Hence these early years of life should be guarded from the refining influences of intellectual advancement as much as possible, bearing in mind that it is better to devote our youth to laying the foundation of a strong constitution, and that the rural child, raised upon the farm, with practically no educational advantages until about the fifteenth year, often far outstrips his city rival whose life has been spent in kindergartens and other graded schools.

The question as to what shall be done with these children of perverted tendencies is one of great importance. Shall they be sent to the public school at

the average age, to be thrown into the common receptacle, to be assigned the same lessons, and to be treated in exactly the same way, as the youth of untainted health and robust constitution? Common humanity unhesitatingly answers in the negative. Such children should rather be allowed to spend their lives in the open air, with a judicious intermixture of properly assigned manual labor. Their early education should be religiously neglected, and every effort should be made to mitigate the unfortunate tendencies of birth by a physical rather than an intellectual life, spent preferably in the country, where the air is good and the surroundings healthy. Systematic study should not be begun until about the fifteenth or sixteenth year, after the body is thus strengthened, and the ocular tissues have grown firm and better able to resist the encroachments of myopia. Even now, it will be better to teach the child at home, or at some private institution, where its student life can be properly controlled.

It may be urged that such advantages are only for the wealthy, and the question may be asked as to what must become of the poor myope. This may be exceedingly pertinent, but it must not be forgotten that the compensations of life are somewhat evenly divided, and that myopia, is much more prone to occur among the wealthy and intellectual, than among the poor and illiterate; consequently the necessity for such restrictions in the early career of our youth will not so often be required of the latter class.

Can myopia be cured? This is a question which is forced upon us, and must be conservatively answered. When once thoroughly established, and decided organic changes have occurred, the probability is that with our present knowledge of the disease it can not be cured; it can only be alleviated. That by improved school hygiene, education of the laity, and careful and uniform correction of refractive errors, it is susceptible of material mitigation in a community, is amply proved by the careful and painstaking investigations of Risley and his associates in Philadelphia. But it must ever be borne in mind that the only reasonable hope for even partial emancipation must necessarily rest in prophylaxis, school hygiene, an intelligent coöperation of the laity, and a proper correction of the refractive error by suitably adjusted glasses.

But while the subject of myopia in youths is of signal importance, we must not lose sight of another class of perverted refractives, viz., the hypermetropes and astigmatics. These, it is true, do not possess that element of danger to sight found in malignant myopia, where the disease marches on to posterior staphyloma, detached retina and blindness; but it does mean much, in the possible intellectual progress of the individual, and the attainment of those heights of knowledge apparently demanded by modern civilization.

The myopic eye is often a strong eye, capable of performing much work at short range; but the hypermetropic or astigmatic eye possesses attributes quite the reverse, viz., comparative ease in distant service, but great inconvenience for close work. The hypermetropic or astigmatic youth suffers from those various symptoms, such as headache, eye-tire, etc., generally classed under the one term, asthenopia, and which have their principal origin in an overtaxed ciliary muscle. He goes to school, but takes no in-

terest in his studies; he is called idle, because he gives so little attention to his books; he is classed as stupid, from never knowing his lessons; he is thought to be a complainer, because he frequently has headaches; he taxes the patience of both teacher and parent, whose wonder is excited when the inane, idle, stupid, fault-finding child is transformed into a wide-awake, industrious, healthy student by the aid of a properly adjusted pair of spectacles. This is an experience common to every teacher or oculist; and the frequency of its occurrence should be an incentive to active efforts for relief on the part of those from whence relief must come. An important matter of this nature can not with safety be left to the laity to settle, for the laity is frequently ignorant, careless and impecunious. Some means must be devised by which an ocular examination of each scholar shall be a requisite for entrance into a school, and by which a repetition of such an examination must be made at stated intervals during the scholar's school life. Opinions differ as to the necessary frequency of such tests; some feel that they should be held every six months and others that annually will be sufficient. Either would be an improvement on the present system, where nothing of the kind is required.

In addition to this, provision must be made by which children who shall be adjudged to possess defective eyes, shall be required to produce a proper certificate from a reputable physician, before admission to the school is permitted. Such a specification would exclude work done by opticians, jewelry and department stores, etc.

The ideal method would be to have a competent physician appointed by the proper authorities, whose duties shall be to pass upon the eligibility of all scholars, both upon entrance and at stated intervals. This would, however, be open to certain objections. It would involve a salary which the different boards might be unwilling to pay, and would inevitably impair the efficiency of such a law, by a degeneration into political jobbery. Beside this, the appointee would undoubtedly be distasteful to many pupils or parents, which would constitute an obstruction to harmony and an embarrassment to the examiner.

In case such a method is deemed inadvisable, the next best procedure would be to require of each pupil a proper certificate from a reputable physician, stating the ocular condition of the applicant, with recommendations for relief if necessary. This, again, would be opposed by the people as compelling an ocular examination where it is perhaps unnecessary, thus incurring a useless expense to parents or guardians. It is true that a combination of both of these methods might be adopted, and a law passed requiring that each pupil shall pass an ocular examination, by a physician employed by the Board of Education, but leaving it optional with the parent or guardian whether the child shall be passed upon by the school examiner, or taken to a physician of recognized standing whom they themselves shall select. This would be a compromise measure but would still be open to the combined objections of both procedures in mitigated form.

There is another method of dealing with the subject, proposed by the writer, which may not be considered sufficiently stringent and scientific for enthusiasts on the matter, but which the writer believes to be all that can be accomplished at present and may pave the way for something more energetic in the



future. It can be executed at practically no expense to our school treasury, will but seldom cause useless expense to parents and guardians, can be universally applied and, if thoroughly accomplished, will give general satisfaction. The idea is simply to have a physician of recognized ability deliver a lecture or talk on the subject to the principals of the city schools, once a year, just preceding the opening of the schools. This talk shall include plain and comprehensive remarks on the anatomy and physiology of the eye, refraction, and how to use but not abuse the eyes in school and home work. It will also instruct the principals how to test the eyes, in accordance with the subjoined scheme. Besides this, printed directions for testing the eyes shall be given to each principal, which might read something like this:

#### INSTRUCTIONS FOR EYE EXAMINATIONS.

The examination should be made privately and singly, in a room apart from the general school session.

Place a card of Snellen's Test Types on the wall in a good light; do not allow the face of the card to be covered by glass.

The line marked xx (20) should be seen at twenty feet, therefore place the pupil twenty feet from the card.

Each eye should be examined separately.

Hold a card over one eye while the other is being examined. Do not press upon the covered eye, as the pressure might induce an incorrect examination.

Have the pupil begin at the top of the test card, and read aloud down as far as he can, first with one eye and then with the other.

If the pupil can read xx (20) test type with each eye and does not, upon inquiry, complain of tired and painful eyes or headache, he may be admitted to school; but if he can not read xx (20) test types with both eyes, or complains of tired and painful eyes or headache he should be sent home with a card of information to the parent or guardian.

This card might read as follows:

MINNEAPOLIS, Oct. 1, 1894.

Dear Sir:—Your son, John Smith has been examined by me this day as to the condition of his eyes.

I believe it to be advisable for him to consult a physician of recognized standing, from whom he must bring a certificate, stating it to be wise for him to continue his studies. Some regular oculist is recommended.

Without such a certificate he must be denied admittance.

Respectfully,

MARY JONES,

Principal of Douglas School.

This scheme possesses many advantages. The physician selected to deliver the lecture or talk to the principals, would undoubtedly be glad to do so gratuitously, and much useful and practical information could be deduced therefrom, which would react most favorably on the scholars.

The test cards could be procured at a nominal cost, not to exceed 25 cents for each school, and the printed cards of instruction for principals, and the cards to be sent the parents or guardians would cost but little. The expense, therefore, of the entire outfit would be so small as to be unobjectionable.

Then the test is so simple and easily accomplished, that any one of sufficient intelligence to be a principal of a school could soon master it and examine the pupils with such ease and rapidity that a large school could be tested in a very few days. An average of two or three minutes to each pupil would be more time than is necessary, if systematic arrangements were made.

The writer is well aware that such an examination is not ideal and is open to objections; but it is better than nothing, is fairly sufficient, can hardly antagonize interested parties, can not savor of medical favoritism, involves practically no expense, and is so sim-

ple and practical as to commend itself to all parties concerned. In large cities the scholars would unquestionably consult oculists instead of general practitioners, and where the latter were consulted the patient would probably be referred to the former. Those not financially situated so as to render it possible to consult an oculist in his office could procure equally good services at some dispensary.

If such a law were enacted in small towns, at least one or two resident physicians would find it profitable to become somewhat familiar with the subject; or children could be sent to a neighboring city for advice; or, if a fair number of cases were to be examined, an oculist could undoubtedly be procured who would be glad to make a trip into the country for a few days to examine defectives in a tier of towns.

The writer believes this to be the only plan for relief that can be procured at present, and as such trusts it may meet with the approbation of those interested in the subject.

## TWO EXAMPLES ILLUSTRATING POSSIBLE SOURCES OF ERROR IN THE DIPHTHERIA CULTURE TEST.

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The diphtheria culture test, valuable as it is in clinical diagnosis, is not infallible. Indeed it would be strange to find it an absolutely certain method, dealing as it does with forms of life confessedly prone to sudden, and at present, inexplicable variations. The following examples are cited because they illustrate some puzzling occurrences in routine bacteriologic work, and because they impress us with the necessity of due scientific conservatism in even so apparently simple an operation as the culture test for diphtheria.

The first case came to notice in Chicago, in February, 1894. A Prudden swab was kindly brought to the laboratory by Dr. J. B. Loring, of Valparaiso, Ind. The swab was obtained from a case which had all the clinical features of true faucial diphtheria, and the provisional diagnosis of diphtheria was strengthened by the fact that diphtheria was endemic at the time in Valparaiso, and that a clear history of exposure could be elicited.

An examination of several cover-glass preparations from the twenty-four hours' culture on Löffler's medium showed only micrococci from this case, and a diagnosis of pseudo-diphtheria was made; much to the surprise of Dr. Loring. Four days after the first examination I happened to take up the tube of Löffler's serum which had remained in the incubator since the first preparations were made. It was noted that the macroscopic appearances of the culture had changed, for while it had presented a yellowish color during the first two days, it now took on a dirty grayish tinge. Microscopic preparations from this four days' culture revealed bacilli in predominating numbers, resembling in every way the picture usually obtained in eighteen to twenty-four hours after the inoculation of Löffler's medium with the material from genuine diphtheria. No attempts were made to isolate the bacillus, so that, save for its strikingly characteristic morphologic resemblance, it is impossible to say that it was a true *Bacillus*

*diphtheriæ*. On this account this example was dismissed for want of corroboration until a second, and more peculiar experience again brought it to mind.

On Dec. 20, 1894, through the courtesy of Dr. L. B. Tuckerman, of Cleveland, I received a Prudden swab from the throat of a girl, a domestic, who exhibited certain suspicious symptoms of diphtheria. She had considerable fever, some pain and extensive redness in the throat, swollen tonsils, and a small, isolated patch of grayish membrane on the left tonsil. The patch of membrane did not increase much in extent; the patient was much improved on the second day; and was pronounced well after the third day. About a week later the girl again consulted Dr. Tuckerman for a debility and depression which had persisted since the acute illness.

A tube of Löffler's medium was inoculated as soon as the first swab was brought to the laboratory. After twenty hours in the incubator the surface of the medium was covered with an uneven grayish coat resembling an early culture from true diphtheria. The usual microscopic examination of stained preparations was made, and as great numbers of irregular bacilli with the morphologic features of the typical Klebs-Löffler bacillus presented themselves, together with a few micrococci, a diagnosis of true diphtheria was made. The next day another swab was obtained from the patient, and on subsequent examination only micrococci were obtained from it. This happened also with a swab obtained on the third day of the disease. Due care was taken in the use of disinfectants in the throat before the swabs were obtained; and there was nothing in the treatment which could account for the strange behavior of the bacteria in this case. The *Staphylococcus pyogenes aureus* was subsequently identified as the predominating coccus in the cultures obtained from the second and third days. The Löffler's medium employed in the course of these experiments was all of one batch, and was found by numerous control experiments to be above suspicion.

A scratch attenuation on a plate of Löffler's medium was made from the first culture tube of this case on December 9. Colonies of considerable size developed in twenty-four hours at the incubator temperature, and cover-glass specimens from several of these colonies showed only micrococci, notwithstanding the fact that the mother culture still showed the bacilli noted in the first examination, in great numbers. In thirty-six to forty-eight hours the colonies on the plate assumed a pronounced orange-yellow color, and transfers from these colonies to gelatin tubes gave a liquefying growth resembling the *staphylococcus aureus*. In fact, this species was subsequently isolated and identified in detail.

A second scratch attenuation on Löffler's medium from an isolated twenty-four hours colony on the first plate also gave micrococci that proved to be the *Staphylococcus aureus*, though the second plate did not exhibit the subsequent peculiar behavior observed on the first one.

After two or three days the plates were removed from the incubator and set aside at the room temperature. On December 24, fifteen days after the scratch attenuation, a striking change in color was noticed in the colonies on the first Löffler plate. The colonies were no longer orange-yellow, but grayish or white. These altered colonies were now examined microscopically and gave vast numbers of bacilli, closely resembling the bacilli seen in the original culture tube,

though staining more faintly. In order to watch the development of these bacilli, another scratch attenuation was made from the original tube culture on a plate of Löffler's serum. For six or seven days, at the room temperature, the growth on the plate, both the confluent lines of the first scratches, and the isolated colonies, exhibited the orange-yellow of the *Staphylococcus aureus*; and only micrococci could be discovered in stained preparations. Gradually, however, the white growth appeared, first at the edges of the confluent lines, and then at the periphery of the isolated colonies until, at the end of two weeks, the yellow color was entirely lost; and the grayish or white colonies gave hosts of bacilli and very few cocci, in stained preparations. Curiously enough, in both of the plates which underwent this transformation, every colony, either isolated or confluent, was overgrown by the bacilli.

After these failures to separate the cocci and bacilli by the scratch-plate method, several attempts were made to effect separation by the ordinary dilution-gelatin-plate method. This was impossible, however, on account of the rapid liquefaction induced by the *Staphylococcus aureus*, as the plate ran down before any other growth appeared. Agar plates have not been tried up to the present time.

An attempt to explain the results of these experiments presents many difficulties. At first sight it would seem easy to assume that, since the bacilli on the plates cropped out only at a late date, and at the room temperature, they must have belonged to some slow growing saprophytic species. But it must not be forgotten that in the mother culture from which the plates were prepared, bacilli, indistinguishable morphologically from *Bacillus diphtheriæ*, appeared promptly in twenty hours at the body temperature. Further than this, the remarkably close association of the *Staphylococcus aureus* with this bacillus which absolutely refused separation by the scratch-plate method, and by the gelatin-plate method, can not be readily explained, and if it does nothing else, this occurrence forcibly impresses upon us the inadequacy of the plate method of separating bacteria. Then there remains for explanation the fact that in three swabs on three successive days from the same patch of membrane in a sore throat, diphtheria-like bacilli appeared only in the first culture, and micrococci, consisting principally of the *Staphylococcus aureus*, appeared in the other two cultures. The most probable assumption that suggests itself to me is that this bacillus, which was morphologically identical with the *B. diphtheriæ*, was forced to undergo these peculiar changes, both in the throat of the patient, and on the culture media, as a penalty for its symbiosis with the *Staphylococcus aureus*.

## TOXICS.

BY WM. F. BARCLAY, M.D.  
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A poison is a substance, which when taken into the system is either absorbed or by its thermal action on the parts with which it is in contact produces deleterious effects. It may seem strange that almost all toxics are innocent, until they reach the circulation of the blood. Their slow or rapid absorption largely determines their deleterious effects upon the system. In our observations we are reminded from time to time of the idiosyncrasies of individuals and we sel-

dom inquire into the causes of these peculiar conditions. It is generally attributed to a perversion of the nervous system, but in truth is caused by a rapid absorption of the poison and is modified by the power of resistance inherent in the individual. Hereditary predispositions and peculiar cachexias in persons are dissimilar conditions, and are in no sense identical. Heredity has not been defined satisfactorily, but the conditions of progenitors are transmitted in an attenuated form, which underlies their maladies.

When disease is engrafted into the organism it destroys the equilibrium of the entire physical life, and there is a want of coördination and harmony that is essential to perfect development and health. The continued multiplication of these distorted and diseased germs can in no way be more advantageously studied than by the observance of the results that follow. The non-observance of this law enfeebles and annihilates entire families and races. As to cachexias, it is a law of nature throughout the animal and vegetable kingdoms that the multiplication of likes tends to weaken organic life and, on the other hand, that the aggregation of dissimilars strengthens the protoplasmic results of differential unions. The non-observance of this truth produces results to which we apply the word cachexia. In its application to animal life, it is so well understood and applied in the union of the sexes, that the consequent results are most advantageous. The same principles are applicable to man in his protoplasmic development, and if properly studied and understood are of the most benign character as to perfect physical development. The vulgar opinion prevails that hereditary diseases are innate and that they lie dormant for a time and then, as it were, explode and destroy their victims. This doctrine is as false as a general rule, as it is ridiculous, as simply a predisposition is transmitted. Were it true, all such weaklings would die in infancy. It would be infinitely better for all such to die in babyhood than to live and suffer from inherited disease. The great desideratum for the educated and enlightened part of the human race is to consider this truth and put it into practical use, so far as the health, intellect, strength and well being are concerned in the multiplication of the race.

It is not difficult for the acute and careful observer to indicate the affiliations that will in a general way insure the best results. Divine as well as human laws condemn consanguineous marriages on account of their painful results. This great truth has been taught by the most careful, aggressive and learned physicians and surgeons, down through the decades, that syphilis and scrofula are identical. The views of the immortal Dr. Samuel D. Gross have been constantly with me, in an experience of over twenty-eight years in the practice of medicine, and have been verified in my observations to my entire satisfaction. That the toxic germs of syphilis are transmissible in the various stages of the disease is incontrovertible and undeniable. It is probable that there is a living germ for all diseases, and as our knowledge increases upon this subject we will be enabled to prevent and cure many diseases that are now believed to be beyond prevention and remedial influences. When hereditary disease conditions appear and toxic causes are present, they find an easy access into the system and suitable influences for their propagation. The blood is the life of the body and constitutes about one-fifth of its entire weight, which enables us to

understand how deleterious must be the entrance of toxics into the circulation, and their effects upon the economy of life.

The germ theory of intoxication is so well established that there are few members of the medical profession who deny or question its correctness. Toxics enter the circulation of the blood and their action on the normal cells produce toxins and the multiplication of these products bring on pathologic conditions. Nothing is more easily demonstrated than that the emunctories throw off toxics. All excrementitious matter when re-introduced into the circulation is poisonous; urine, bile, feces are poisonous and become more so after exposure to the air. In diseases many things have to be taken into consideration—the individual, age, sex and other conditions, as well as his environments. We observe at once upon the entrance of a toxic into the circulation of the blood that all the functions of the body are impaired to a greater or less degree, and that definite poisons are quickly formed such as ptomaines, leucomaines and others which are nothing more or less than an altered nutrition. The vital forces are at once disturbed or arrested. Primarily the circulation, and secondarily the nervous system are impaired, and a condition termed shock is superinduced. This state is a most interesting study to the pathologic student, difficult of comprehension and explanation. It may be remarked that all the vital forces are similarly affected at the same time. The *vis medicatrix natura* can at no time be more carefully studied and understood than when the vital forces struggle for an equalization, and restoration of the normal conditions.

In the state of shock, nature seems intent upon relieving herself of all effete matter, by the discharge of the contents of each viscus of the body. All such efforts should be assisted by artificial means in restoring a healthy condition. Vigorous health and strength are maintained by proper food, perfect digestion with healthful environment. In the germs of organic life, disease takes its beginning by the introduction of toxics; thereby the blood is changed and disease set up. Certain predispositions are inherited and the subject rendered more easily affected by specific toxic influences. That all persons exposed to the same influences are not affected is because of a weakened vital condition thereby rendering them more easily poisoned. All are impressed by the same specific toxic influence under similar circumstances. Molecular and cell life are great mysteries of which we know very little. When the physiologic laws of cell life are properly considered it is evident that the mineral and animal constituents are alike being prepared for the building up of the different tissues that constitute the body.

We begin life by the blending of cells that are healthy or diseased which determine the ultimate result. Farther on we are taught that the blood corpuscles are formed in the spleen and long bones, but I would inquire how they are formed, when neither spleen or bones are present in embryonic development?

In organic growth the circulation is first established, the nervous system follows on, and seems to regulate the entire development of the body. The truth I would establish is that disease begins in the cells and that all treatment employed must be directed and applied to the circulation of the blood, that while we may differ as to the utility and impor-

tance of remedies, we can not gainsay their benign influences when wisely and judiciously administered in diseased conditions. That a physician can practice medicine and deny the value of scientific medicines is the surest evidence of that want of knowledge to prosecute the work of the sacred art of healing. Toxics are poisons that produce conditions peculiar and distinct in their final results. We are fully aware of many different forms of toxic life, but at a great loss to know by what means they obtain entrance into the body and circulation. We know that food, drink, and the air we breathe are vehicles through which the germs reach the circulation. Contact is necessary; that most infectious toxic germs may be deposited in various stages of incubation, but are the same in each disease. Toxics may be classified as contagious, infectious, malarial and thermal. The vitality of disease germs is variable and in general terms can not be specified. The germs of many contagious diseases have been known to retain their vitality for long periods of time, and to readily prove toxic under favorable conditions. Smallpox, phthisis pulmonalis, scarlet fever, diphtheria, measles and many other diseases may be cited as illustrations of the viability of toxic germs.

It is true that in the organism there is a continual tendency toward toxemia from the normal physiologic processes, which is counter-balanced by the excretions of the body. If for a short time you modify or arrest the eliminations by emunctories of the body, the whole economy of life is disturbed, pathologic conditions are set up and disease established. Elimination must take place through five excretory offices; a disturbance or disarrangement of one or more destroys the vital equilibrium of life. The non- or partial elimination of the effete products of nutrition and disintegration generates toxics. The vital forces are a constant barrier through their tendency to equalization of the constituents of the protoplasm of the blood against the deleterious effects of toxics. The abnormal albumens escape by the kidneys, and destroy the renal epithelium; thereby inflammatory diseases of these organs are set up. It may be stated that leucin tyrosis, and many other toxic products of the liver are the results of imperfect excretion.

The body in a normal and pathologic state is a receptacle and laboratory of toxics. I am impressed, while considering this subject, that by the cravings of the appetite, nature in this way points out that which she in a general way needs for her sustenance. It has been a rule of practice with me to permit the sick to eat and drink that which the appetite craves. I have as yet to see good reasons for changing this course of practice.

There must be a perverted nutrition in order that infection can take place in man, with a single exception, and that disease is syphilis. In order that disease can attack and harm the human body it must first be prepared for it by pathogenic influences. If it were not for this necessity the human family would have perished from off the earth before this time in the world's history. Nutrition is life, and all influences that tend to destroy must first impair it. We must study nutrition in all that pertains to it in its equilibrium; any disproportion in its constituents impairs and unfits it for its normal use. Perverted nutrition leads to the formation of new substances which become toxic. That much can be done to prevent and cure disease by change of location is

well established. Many lives are saved and much suffering averted by careful and accurate knowledge of climatic influences. Therapy is too general in its tendencies. A few remedies properly prepared and wisely administered give the best general results.

It is to be lamented that venesection is almost forgotten and neglected in the treatment of diseases. We are taught that our civilization has brought about systemic conditions that forbid the use of the lancet. Is it true that we can bring about the same results by our modern therapeutics? We may enumerate a few therapeutic agents, mineral and vegetable, that aid nature in overcoming the pathologic results superinduced by the introduction of toxics into the circulation of the blood. Gold, arsenic, mercury and iodine with their compounds, and opium, Peruvian bark and their alkaloids, with digitalis, aconite and veratrum virid.

That the practice of medicine is becoming more empirical in the age in which we live, is not true but, on the contrary, is broad and general in research as to causation and treatment. Research as to the origin and effects of diseases is becoming more general and characteristic. Lesions of the body are more carefully and scientifically studied each year, as we bring to our aid helps in the investigations now going on in our laboratories that simplify and determine the causes of disease, as well as the changes it brings about. We now definitely know the causes of many of the most fatal maladies, and apply prevention and cures that modify their ravages, to a large extent, and annually save thousands of lives and prevent much suffering. *Contagium vivum* of the contagious germs is beyond all doubt established. The implantation of vegetable organisms in healthy man, their multiplication in the individual infected and their transmissibility to others producing a disease similar to the original, is the final termination of theories on the subject of contagion.

Parasiticism is established in a number of diseases in man, for instance, charbon, glanders, phthisis pulmonalis, gaseous, gangrene, blenorragia, erysipelas, septicemias, as well as in animals and fowls, swine fevers, symptomatic pustule and cholera. Each disease is produced by a microbe, and we must wait for the discoveries yet to be made in microbiologic research for those not already discovered. The dissemination of microbes is universal, and that all are not alike affected is not so easily explained. To a healthy man, the microbe is less likely to be dangerous than to one not in good health, as the individual circumstances are less favorable for development. A modification antecedent in nutrition, renders infection more probable. Fatigue, exposure to cold and wet, severe excitation, bad food and air and many other influences are disease developing causes. Hygienic causes such as excesses in eating, drinking and venery, with loss of rest and bad air develop nutritive disorders in which the cells are perverted, a tainted nutrition set up and among these cells the generative elements of ovule and spermatozoon are formed and by their union will cause the beginning of a new creature whose cells must partake of the disorders of its antecedents. In the entire domain of pathologic research, we know the least about the toxalbumens. As yet our knowledge of the normal physiologic albumen, in health, one of the most important constituents of the blood, is very limited. It is accurately known when there is a disproportion of the



red and white corpuscles, as well as the normal fibrinization of the vital fluid, the toxalbumens prevent the formation of the red and white corpuscles. It may be here observed that in certain pathologic conditions there seems to be a third corpuscle or something that very closely resembles it. In the field of antitoxic treatment, there has been in the past fifteen years a large amount of investigation and laborious work in laboratory research, and while we can but deplore the futility of results, so far as toxin treatment has advanced, we must very highly appreciate the advances so far as causation of diseases is concerned. While it is perhaps too early to draw positive conclusions as to the method of treatment, it may be fairly stated that thus far permanent results are disappointing. Remedies thus far highly beneficial have been obtained from the mineral kingdom, so far as prevention and cure have prevailed.

Prevention is better than cure, and each year the profession of medicine is accomplishing more in this direction. We are enabled by quarantine to circumscribe plague districts, and by cleanliness and disinfection to prevent the spread of disease. The good accomplished in this way is inestimable, and the number of lives annually saved can not be conjectured. The pestilences transmitted from foreign countries under our present immigration laws are a constant menace and danger to our people. I am unable to recall a single instance of the transmission of pestilential diseases from our country to foreign countries.

The constant vigilance on the part of physicians as to the prevention of the spreading of disease in different ways is not estimated or appreciated by the people. We seldom hear it referred to but, on the other hand, the profession is frequently charged with carelessness in carrying diseased germs to their patients. Great care should be exercised in treating patients suffering from contagious and infectious diseases lest the germs might be carried in this manner. From these considerations it appears that when the toxic causes are present, their ready transmissibility and easy access to others, under suitable influences for their propagation, can not be overestimated. It is probable that there is a living germ for all diseases, and as our knowledge increases we will be enabled to prevent and cure many diseases that are now believed to be beyond prevention and remedial influences.

The profession of medicine is now tending toward specialism, perhaps not in some branches to its best interests, but it certainly is true that the bacteriologist is entitled to a more prominent place than he has yet attained. The sciences of bacteriology and therapeutics keep pace with each other and annually many thousands of lives are saved and much suffering averted. The causation of many diseases is beyond our present comprehension, yet the processes following primary elementary dystrophies, nerve reaction disturbances are antecedent to nutrition and infection. Diathesis is a permanent disturbance brought about by the blending of germs that provoke and maintain pathologic processes. It is generally considered a morbid temperament dwarfing all the powers of animal life.

In conclusion, the laboratory research and scientific investigation of toxics as to their propagation in cultures and their introduction into the bodies of man and animals for scientific results are the labors of the bacteriologist. We do not present you the labor of a volume but rather a short review of the

scientific work that has been done in this most interesting field of thought, and its application in the practice of medicine at the present time.

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## FREE HYDROCHLORIC ACID—IS ITS ABSENCE FROM THE STOMACH A SIGN OF CANCER?

BY RICHARD B. FAULKNER, M.D.

ALLEGHENY, PA.

It is important to know whether free hydrochloric acid is secreted by the stomach. It is important to know whether its absence from the stomach is an indication of cancer of that organ. Prof. Wm. Osler, of the Johns Hopkins University, in his excellent work on "The Practice of Medicine," published in 1892, states that, "great stress has been laid of late years upon the absence of free hydrochloric acid in the secretions. As an outcome of the enormous number of observations which have recently been made, it may be said that free hydrochloric acid is absent in a majority of cases of cancer of the stomach. This defect is associated with impairment of the secreting function of the organs. The examination should be made repeatedly by the methods already referred to, and with our present knowledge the persistent absence of HCl in the stomach contents, taken in conjunction with other symptoms, may be regarded as highly suggestive of cancer. As Kinnicutt expresses it, 'the presence of HCl in the stomach in repeated examinations in doubtful cases is of the greatest diagnostic value, and points very certainly to absence of cancer.' Rosenheim has very recently shown that in cases in which cancer develops in the base of an old ulcer HCl may be present throughout the course."

Kinnicutt's statement can not be proved.

Rosenheim contradicts Osler. If "the absence of free HCl is associated with impairment of the secreting function of the organ," then why should a cancer situated at the base of an old ulcer form an exception to the rule when, as a matter of fact, the ulcers themselves impair and often destroy the secreting function? If Rosenheim is right, then free HCl is absent in cancers not seated at the base of old ulcers. If cylindrical-celled epithelioma and encephaloid cancers constitute a major portion of all cancers affecting the stomach, as is stated by Osler, and if they have always a particular tendency to develop at the site of ulcers, scars and injuries, according to Paget, Holmes, Erichsen and others, then, if Rosenheim is any authority, are we not to conclude that free HCl must be present in the majority of cases of cancer of the stomach?

To obtain the gastric fluid for chemic examination, Ewald's test-breakfast is advised by the leading text-books. This consists in giving a roll of white bread and one glass of water or a cup of tea. One hour later, the contents of the stomach are removed with a rubber tube. No rule, no instruction of any kind, is given in any text-book whereby we may positively know that the stomach is actually empty at the time the test is applied. And in cases of stenosis of the pylorus it is not only possible, but probable, that the stomach is not entirely empty. However, as a result of Ewald's test, "free HCl should be present, but lactic acid absent." (Prof. Wm. Pepper, "An American Text-book of the Theory and Practice of Medicine," published in 1894, vol. II, page 735). "Should con-

tain free hydrochloric acid; should not contain sufficient lactic acid to be recognized by the ordinary tests." (Osler, page 345). Does it not forestall the judgment to proclaim what *should be* present? The usual object of a test is to ascertain what *is* present.

Physiologic chemistry contains no problem more difficult than the determination of free hydrochloric acid in the gastric juice. Many authors assert its presence as a normal constituent, and of the analyses *quoted*, in Foster's "Physiology" for example, no two agree; they vary in the proportion of free acid all the way from .05 to .5 per cent.

The method of chemic analysis commended and relied upon by two of America's foremost teachers let us critically and briefly examine. "The best and simplest test," says Osler, "is that of Gunzburger: phloroglucin, 2; vanillin, 1; absolute alcohol, 30. To a drop of the gastric contents (better filtered) add a similar quantity of the reagent on a porcelain plate. On evaporation gradually to dryness over a flame, a beautiful rose-red color begins to appear at the edges if HCl is present. This is merely a test for a free mineral acid, but HCl is the only one present in the gastric juice. This test is extremely delicate, and is not interfered with by albuminates, acid salts, or organic acids." (Pepper, vol. II, page 735). The simplicity of Gunzburger's proceeding would be valuable if the test were reliable. But color tests as a rule are unreliable; and this of Gunzburger forms no exception.

*Gunzburger's test is not a test for free hydrochloric acid.* It will show the presence of free HCl where none existed previous to its application. Sodium chlorid is a constituent of the gastric juice. If lactic acid is present in the stomach contents, evaporation of a drop over a flame will concentrate the acid, which will then attack the sodium chlorid and form free HCl. Other concentrated acids will do the same.

*Gunzburger's test is not a test for a free mineral acid.* The identical rose-red tint will be obtained when no free mineral acid is present. Many foods that contain no acid, mineral or other, taken into the stomach will produce precisely the same rose-red tint of the supposed test. Again, there are acids formed in the body, not mineral acids, that will produce the same brilliant rose-red tint of the so-called test. For example, in those who possess the oxalic diathesis, oxalic acid is formed in the living body by oxidation.

Oxalic acid decomposes dry sodium chlorid when heated, with evolution of hydrochloric acid (Fownes' "Chemistry," page 658; Brande and Taylor, page 384).

Oxalic acid responds perfectly to the Gunzburger test in the presence of sodium chlorid. Oxalic acid exists in many of our food plants, as a salt of potash, and is widely distributed in vegetation. Bin-oxalate of potash is found in common sorrel, wood sorrel, and in garden rhubarb associated with malic acid (Fownes, page 659). It exists in great abundance in tomatoes and in many other acid fruits.

*Gunzburger's test is utterly, absolutely worthless*, as proved by the following experimentation:

Experiment 1. With a minute quantity of bin-oxalate of potash, sodium chlorid and lactic acid, Gunzburger's test yields on evaporation over a flame a rose-red tint identical with that produced in the presence of free hydrochloric acid.

Experiment 2. With a minute quantity of bin-oxalate of potash, sodium chlorid and tartaric acid,

the same brilliant rose-red tint is obtained when evaporated over a flame in the presence of the Gunzburger test solution. Baking powders contain tartaric acid. A biscuit or a roll of bread, as in the Ewald test-breakfast raised with baking powder, contains tartaric acid. And wines contain tartaric acid.

Experiment 3. Bin-oxalate of potash and sodium chlorid, dissolved in water, and Gunzburger's test added, yield when heated over a flame a rose-red tint identical with that produced by free hydrochloric acid.

Experiment 4. Tartaric acid and sodium chlorid, dissolved in water, and Gunzburger's test added, yield when heated over a flame a rose-red tint identical with that produced by free hydrochloric acid.

Therefore, if a patient suffering from a cancer of the stomach were to eat a little rhubarb or tomato or take a drink of wine and Gunzburger's test were to be applied to his gastric contents, it would be conclusively proved that he had no cancer!!

Uncombined hydrochloric acid is not found in nature, except as an occasional volcanic product (Brande and Taylor, page 216). No mineral acid is necessary in the process of digestion. Pavy ("Food and Dietetics") states that HCl has no particular property in rendering the digestive power of the gastric juice more energetic. The presence of free hydrochloric acid as a normal constituent of the gastric secretion has never been demonstrated. The only way to *positively prove* its presence is to separate the acid; just the same as you would be required to separate arsenic from the contents of the stomach in a supposed case of poisoning by that mineral.

The absence of free hydrochloric acid as a normal constituent of the gastric secretion has been repeatedly proved by the most competent authorities, including such original investigators as M. Claude Bernard, the profound French physiologist, Robin, Verdeil, and Professor Rogers, the able chemist of the University of Pennsylvania. Our illustrious American physiologist, John C. Dalton, taught that lactic acid is the normal acid constituent of the gastric secretion. He neither taught nor acknowledged the presence of free HCl.

Prof. Carl Seiler records a series of highly interesting experiments in the *Philadelphia Medical Times*, Feb. 6, 1875, which go far to prove that no hydrochloric acid is present in the gastric secretions.

The most remarkable line of experimentation ever conducted upon the gastric secretion remains unnoticed by any author, compiler, or text-book, within our knowledge. These extraordinary experiments seem to have been forgotten. These experiments, unquestionably the most exhaustive, as well as the most authoritative upon this subject, were conducted under circumstances both exceptional and fortuitous, in the physiologic laboratory of the University of Pennsylvania. The gastric contents were those of a criminal (Heidenblutt). He was of strong physique, and was executed two hours after partaking of a hearty breakfast. Immediately after the execution, his stomach with its contents were removed to the laboratory of the University. The lining of the stomach was carefully scraped, and this with the contents of the stomach were macerated, filtered and distilled. The examination was made by Robert M. Smith, and to quote from an article in the *Philadelphia Medical Times*, Feb. 13, 1875: "The following deductions confirm entirely those obtained by Profs. F. G. Smith

and Rogers of the University, from the analysis of the gastric juice of Alexis St. Martin:

"1. The gastric juice presents an acid reaction both before and after filtration and distillation.

"2. The acidity in this instance was not due to the presence of hydrochloric acid.

"3. Lactic acid did exist.

"4. Acid phosphate of lime showed no evidence of its presence.

"5. Neutral phosphate of lime did exist, and was held in solution by the lactic acid.

"I would take this opportunity of expressing thanks to Mr. Geo. Hay, a member of the class, and a gentleman of great experience as an analytical chemist, under whose careful supervision these experiments were conducted." Hay states that "free HCl is never present in the human stomach, unless introduced from without; that it would seriously damage it if present; and that it is impossible for it to be found in the stomach, for the reason that its liberation from a salt of any kind requires the presence of a concentrated acid, and any concentrated acid in the stomach would quickly destroy the organ. Concentrated acids are not secreted by the stomach. Free mineral acid is not a product of the stomach of man or animal. Its absence is not a sign of cancer." The researches of Bernard, Robin, Verdeil, Dalton, Smith, Rogers, and Hay, all original investigators, entirely agree.

## THE EARLY DIAGNOSIS OF CARCINOMA OF THE STOMACH, WITH THE BACTERIOLOGY OF THE STOMACH CONTENTS.

BY FENTON B. TURCK, M.D.

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The product formed in the growth of carcinoma of the stomach—whatever it may be—seems early to alter the gastric, secretory and motor functions.

The mucous membrane is markedly affected by this product, so that even before the complete suppression of HCl and other secretory changes have occurred a soil is rendered fertile for the growth of microorganisms, especially the bacterium lacticus and in many cases investigated, seemed the predominating microorganisms.

In the Chicago Post-Graduate Medical School, clinic (on diseases of the stomach and intestines), the Cook County Hospital clinic and in private practice, it is my routine custom to make microscopic slides in almost every case stained for the detection of bacteria. In selected cases of various gastric diseases, pure cultures are made to determine as far as possible the predominant germs.

The various cultures are secured from the mucous membrane, by using a revolving sponge introduced into the empty stomach. This instrument is named the gyromele (revolving sound) which for bacteriologic purposes is inclosed in a sheath until it reaches the stomach, to prevent contamination from the mouth and esophagus. Revolutions are produced by an apparatus not unlike a surgical drill, while the sponge in the stomach revolves and removes the adherent material from the mucous membrane for bacteriologic investigations. The description of this instrument with methods of bacteriologic study and investigation will be published in the *Wiener Medical Wochenschrift*. (See note.)

In all cases of carcinoma of the stomach, numerous colonies of a large variety of germs are found. They seem to revel in this superb culture bed. It is one thing to find stray germs in the lumen of the stomach which may occur in health (as is often the case in removal of stomach contents through a tube) and another to find the colonization of germs adherent to the mucous membrane of the walls of the stomach. The whole mucous membrane of the stomach under the changed conditions, is transformed into a large plate culture, so to speak, with a most perfect nutrient media, and unless other evidence is presented to contradict, we shall be forced to consider the infection a powerful and prominent causal factor in producing the rapid alteration of function—the disappearance of HCl, the ferments and final atrophy.

This question is further considered in the results of my bacteriologic studies (which will soon be published) of gastritis chronica produced artificially in dogs by first treating the mucous membrane with tannic acid and other irritants, then infecting it with material derived from the mucous walls of the stomach of patients suffering from gastritis glandular in the various stages. In cases of simple dilatation and cases of stagnation, when carcinoma was absent, lactic acid bacilli could also be found but were not the predominating germs. In these cases, socius ventriculi and other yeast germs appeared more numerous in the cultures.

Between carcinoma of the stomach and simple gastritis there is this difference: In carcinoma, the carcinoma alone may be sufficient to produce poison or other products which render the mucous membrane a fertile soil and permit germs to develop on the walls. In gastritis, the predisposing cause may not be so constant and so powerful as carcinoma, but errors of diet and diseases of other organs also render the stomach a fertile soil for the constant colonization of microorganisms that produce the inflammatory process of a chronic nature. In the cultures, the lactic acid producing bacilli are present in most cases, and frequently almost pure cultures appeared in making the ordinary bacteriologic preparations.

The method of growing germs in the gastric juice mixed with the mucous and food remnant answers well in some cases. In growing the germs upon the mucous membrane of the stomach of pigs, previously sterilized (by fractional sterilization at 50 to 55 cc.) it was found an advantage to sponge the surface of the membrane with sterilized starch water. Many of the lactic acid bacilli formed colonies more rapidly, and adding starch to a tube culture seemed to increase the formation of lactic acid.

There are a large variety of germs capable of producing lactic acid, depending upon the soil and other conditions of heat and moisture. All varieties of lactic acid bacilli do not form gas; in fact, the lactic acid bacilli derived from cases of carcinoma of the stomach did not produce gas to a great extent in tube cultures. The following cases are selected from a large number for comparison. In these cases analyses were made for the presence of lactic acid by the Boas method, carried out with strict precautions; also tests were made with Uffelmann's magnet. The bacteriologic

NOTE.—Since this work has been completed it has appeared in the *Wiener Medical Wochenschrift*, Nos. 1 and 2, 1895. *Eine neue Methode der Diagnose und Therapie gewisser Magenkrankheiten und bakteriologische Studien bei denselben.*

An error occurred in this article, in stating that I use the stomach of birds. It should read, the stomach of dogs and pigs.

investigation consisted in cultures upon various nutrient media and we noted in each case the presence of lactic acid of fermentation; according to Boas' method by introducing oatmeal soup at night, the stomach previously cleaned with sterilized water and the contents removed next morning, filtered and analyzed quantitatively. It was found in many cases that the mucous membrane and motor functions showed marked changes. In carcinoma of the stomach it was often markedly increased, and the bacteriologic investigation seemed conclusive, that a large colonization of lactic acid bacilli occurs.

In carcinoma it often occurs that there is no stenosis—no retention of food—especially early in the disease, and after a test meal given according to Boas' method but little of the stomach juice can be procured, and hence little, if any, lactic acid demonstrated. In using the gyromele and removal of adherent mucous from wall, cultures were found which proved to be the lactic acid bacteria. Upon this and other suspicious evidence an exploratory laparotomy was advised.

Mrs. Jennie L., age 51; German, appeared at the Post-Graduate clinic Nov. 6, 1893, complaining of a diffuse pain in the epigastrium, radiating to the xiphoid appendix, vertical headache, anorexia, constipation. Family history negative. No symptoms up to two years before, when there appeared a slight uneasiness after eating; gradual anorexia; symptoms gradually increased. Emaciation and pallor followed occasional nausea, until her condition presented marked and rapid degenerative changes. She was under constant medical care. Her case was finally diagnosed as a probable carcinoma of the stomach, and referred to my clinic. Examination revealed anemia; cachectic appearance of skin; absence of panniculus adiposus; hair dry and brittle; absence of all but three decayed molars; gingivitis universal; chest organs with liver slightly enlarged. Abdomen retracted, palpation of the prolapsed pylorus slightly enlarged; no palpitation. Coloptosis and dilated sigmoid; rectum large hemorrhoids; genito-urinary organs negative; blood 3,200,000 corpuscles, hemoglobin 45 per cent. No albumen or sugar in urine; indican with aromatic sulphates increased.

Clinical examination of stomach contents, Ewald's test made; withdrew 50 cc., reddish yellow color, pungent odor. Litmus +, HCl +. Total acidity 40; Uffelmann's for lactic acid after extracting with Squibbs' ether ++, Rennet action delayed, pepton +.

Bacteriologic examination, empty stomach, material removed from the walls with the revolving sponge, four slides, crowded with colonies—bacilli long and short, macro- and micrococci.

Cultures. On the mucous membrane of the stomach of pigs by stroke cultures ten varieties, six produced lactic acid in bouillon made from the mucous membrane of the stomach of the pig, with sterilized starch water added. Along the line of the needle, especially the second line, most of the colonies proved to be lactic acid forming bacilli.

Aug. 20, 1894, had not seen the patient for six months. She was under treatment by assistants. Physical examination showed evidence of carcinoma. Analysis of stomach contents after Boas' method. But a small quantity of stomach contents could be procured; stomach contents washed out, wash water examined, found lactic acid bacilli in colonies.

Nov. 10, 1894, patient appeared much emaciated; cachectic, operation refused.

Dec. 5, 1893. J. J. O'C., age 44, fireman; referred to clinic as a case of carcinoma of the pylorus; complains of slight pain in the epigastrium—a distressed feeling after eating—anorexia, constipation. Family history negative. Previous history negative up to three years ago, began to have digestive disturbances. Lost thirty-five pounds in weight; was disturbed with acid eructations for four or five hours after meals. Great mental depression. Physical examination, rhinopharyngitis, hypertrophic mouth; caries of teeth; gingivitis; tongue coated and depressions of teeth; chest organs negative; liver and splenic area normal; abdomen retracted. Palpation revealed slight thickening of the pyloric region which by the aid of revolving sponge in stomach proved to

be the pylorus. With the revolving sound in the stomach, the great curvature palpated two seconds below umbilicus: transverse colon prolapsed; rectum negative; genito-urinary organs, slight prostatic hypertrophy, otherwise negative.

December 8, blood counts 3,940,000; hemoglobin 55. Urine, no sugar or albumen; indican in excess; stomach contents, test meal Ewald's, light watery fluid, 50 c.c. filtered HCl+ (Uffelmann's). Extracted with ether, lactic acid reaction. Dec. 14, 1893, bacteriologic slides show a large number of colonizing rods and micrococci. December 21, no lactic acid forming colonies appeared.

Diagnosis, after complete examination of history, physical, chemic and bacteriologic investigation. Gastritis glandularis with hypertrophy of pylorus, drainage and dilatation of stomach. Treatment carried out. September, 1894, patient showed a probable compensatory hypertrophy of the dilated stomach, for it emptied itself perfectly within five hours. All symptoms disappeared and gain of twenty-five pounds.

History and examination by the house physicians, Drs. Walker and McGrew. The following is a short extract: A. M. C. entered Cook County Hospital July 2, 1894, age 45; married. Complained of pain in abdomen. Mother died of consumption; had digestive disturbances all her life. Present illness began six months ago and within last three months noticed tumor in abdomen. Emaciating for last three months. Examination. Abdomen hard mass palpated horizontally with umbilical line, smooth surface, extending to median line; on upper and outer corner of left side of tumor was felt a detached nodule about the size of a dollar, did not move on respiration. Appeared in my hospital clinic August 2, 1894, after Ewald's test meal. Litmus +, no HCl, total acidity 21; Uffelmann's + (extract ether). August 3, removed material from the walls with the revolving sponge (gyromele) for cultures. At the same time could palpate the sound in the stomach, showing the tumor to be connected with the anterior wall of the stomach, extending below the umbilicus. August 4, stomach contents for lactic acid after Boas' method, which gave positive results, but no complete quantitative estimation was made further than the iodoform emulsion. The bacteriologic examination showed few colonies of the lactic acid forming bacilli. Positive diagnosis could not be made. Carcinoma of the anterior wall was considered. Patient died August 9, 1894.

Extract from morgue record posted August 11, 1894: Stomach low down in peritoneal cavity; gastropnoia, white raised nodular areas; adherent with omentum and transverse colon. Anterior wall of the stomach thickened and adherent to abdominal wall, forming a thickened mass; the peritoneum studded with miliary tubercles.

Diagnosis: 1, tuberculosis of peritoneum; 2, surgical kidney; 3, ascites; 4, perisplenitis.

(Signed)

E. R. LECOUNT, M.D.

J. W. WALKER, M.D.

H. W. RICHTER, M.D.

Maggie L., admitted to Cook County Hospital, July 29, 1894. Complained of pain in epigastric region and vomiting; family history negative; suffered for five months with heavy feeling in region of stomach, until acute pain with vomiting ensued. Physical examination, patient considerably emaciated; did weigh 136 pounds, reduced to 100 pounds. Chest organs negative; abdomen retracted; half way between the xiphoid and umbilicus was heard a peculiar blowing sound—a bruit—no palpable tumor. July 3, examination of the stomach contents after Ewald's test meal; HCl—; Uffelmann's reagent after extracting with ether—+; only the stomach tube was passed, but from the mucus present cultures were made and lactic acid demonstrated in the culture media. August 2, 1894. Boas' test meal; lactic acid .15 per cent; patient died August 3, 1894.

Extract from post-mortem record: August 6, 1894. Stomach contained 635 grams dark clotted blood; on posterior wall of the stomach was a large irregular fungating mass, reaching from the greater to the lesser curvature, not involving the cardiac or pyloric end. This involved the tail of the pancreas which was bound closely to the stomach wall. Pancreas only a portion normal tissue; the tail made up entirely of a grayish mass which was adherent to the posterior wall and a part of the tumor mass.

Diagnosis: 1, carcinoma of the stomach and pancreas;



2, retroperitoneal glandular involvement; 3, compression of the abdominal aorta.

(Signed)

E. R. LeCOUNT, M.D.  
T. A. McGREW, M.D.  
E. H. OCHSNER, M.D.  
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J. W. WALKER, M.D., Recorder.

(To be continued.)

# ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Continued from page 272.)

## CHAPTER VI.

### RELATIONS OF YELLOW FEVER TO SUNSTROKE.

The severer grades of yellow fever, attended with high temperature, reaching 108 degrees F., and over, and running a rapid course in two or three days to a fatal termination, present some symptoms in common with those cases of sunstroke in which the muscular and nervous prostration is accompanied with rapid and decided elevation of temperature. In cases of sunstroke, which occurred during the month of July, 1873, the temperature reached from 110 to 112 degrees F. in the axilla, at the time of death, and probably reached 115 degrees F. in the heart and internal organs. Similar elevations of temperature in sunstroke have been recorded by Dr. Bennet Dowler and others.

The phenomena of sunstroke appear to be dependent mainly upon the complex and unstable chemic constitution of the blood, and the dependence of the development of the physico-vital phenomena of the nervous and muscular forces, upon a definite degree of temperature. In common with other complex and highly elaborated organic fluids, which are continuously supplied with oxygen, the definite physical and chemical constitution of the blood can be maintained only within certain degrees of temperature. Unless a definite physical and chemical constitution of the blood be maintained, the necessary nutritive elements will not be supplied to the organs and tissues, and alterations in the secretions, and aberration of the muscular and nervous forces are inevitable. When the temperature of the blood rises above a certain point it is probable that a new series of chemic actions are developed; and compounds are generated which act as poisons to the nervous system. The rise of the temperature in the blood must also be attended with disturbances in the normal electric currents of the nerves and muscles. The great increase in the amount of carbonic acid, and the corresponding rapid consumption of oxygen in the blood must also be considered as important factors in the production of that state known as sunstroke. It is probable also, that as in certain cases of yellow fever, the center of the cerebro-spinal system which regulates animal temperature, as well as the vasomotor centers are involved. The derangement of these nervous centers is probably secondary to the chemical and physical alterations of the blood. It appears also, that the sudden failure of the heart, when the temperature of the blood rises above 110 degrees F., is due to the physical and chemical alteration and coagulation of the contractile constituents of the muscular fiber of the heart.

The remarkable phenomena of "sunstroke," "heat stroke" or "thermic fever," are most generally manifested in individuals working in intensely hot weather in ill ventilated apartments and cellars, in rooms artificially heated as in laundries, bar-rooms, wine cellars, and densely crowded tenement houses; in those addicted to the intemperate use of ardent spirits, in whom the capillaries of the brain are dilated and degenerated and the constitution of the blood deranged by the impairment of the functions of certain organs, as the liver and kidneys; and in teething children, exhausted by diarrheal discharges, and by the deranged reflex nervous actions, excited by the continuous irritation of the gums and dental nerves.

The foul air, loaded with the exhalations from the skin and lungs, and with carbonic acid, of the crowded houses of the poor, in narrow filthy streets, without doubt depresses the nervous and muscular forces, and prevents the proper maintenance of a definite temperature, by a free transpiration from the cutaneous and pulmonary surfaces.

The phenomena of sunstroke furnish conclusive evidence that mere elevation of temperature, apart from the action of any distinct febrile poison, may be the source of important changes in the blood, and fatal depression in the muscular and nervous systems. The phenomena of yellow fever and of other febrile diseases are rendered more complicated by reason of the disturbing agencies of the heat developed, and it is important that a thorough analysis of the blood, excretions and secretions in sunstroke be made, as forming a basis for the correct appreciation of the mere effects of temperature upon the blood and upon the nervous and muscular systems in yellow fever, independent altogether of the direct action of the febrile poison. Unfortunately, medical science is as yet without the necessary data for the institution of such an inquiry.

### RESPIRATION IN YELLOW FEVER.

In many cases of yellow fever, the respiration is accelerated to a comparatively small extent; in cases of great severity, however, the respiration may be greatly increased in frequency, while the pulse may be even below the normal standard, and far below what is usual in other diseases with a similar elevation of temperature. The following cases present striking illustrations of the want of correspondence between the respiration, pulse and temperature in severe and fatal cases of yellow fever:

*Case 1.*—Yellow fever, black vomit, urinary suppression and death. G. H., age 33, laborer; native of Germany. Came on steamboat from St. Louis and had been in New Orleans one week before he was attacked. Entered hospital Oct. 11, 1873, at 4 P.M. Was vomiting black vomit when he entered. Sick five days before he entered the hospital, and in a state of nervous and muscular prostration and great capillary congestion. Black vomit abundant; gulps it up apparently without effort and squirts it on the wall and over the bed clothes. At 6 P.M. pulse 81, respiration 48, temperature of axilla 102.8. Complete suppression of urine, pain in epigastrium, delirious. Died next morning at 6 o'clock, fourteen hours after entering the hospital.

*Case 2.*—Yellow fever, jaundice, suppression of urine, black vomit, slow pulse, rapid respiration, death. J. A. H., age 30, native of United States, actor. Came down the Mississippi River on steamboat from St. Louis two weeks before his attack of yellow fever. Entered Charity Hospital Oct. 15, 1873, 5 P.M. Comatose; entire surface of a deep golden color; great congestion of peripheral blood vessels and capillaries; face of a purplish mottled hue; conjunctiva yellow and congested; pupils greatly dilated and incapable of responding to the stimulus of light; pulse small and

thready. Threw up black vomit in the wagon before entering the hospital; mustache and side of face smeared with black vomit. Oct. 16, 1873, 8 A.M., pulse 110; respiration 22; temperature of axilla, 102 degrees. 8 P.M., pulse 68; respiration 68; temperature 105.5 degrees F. Has passed no urine since entrance into the hospital. With the catheter, I drew off about one fluid drachm of yellow urine, loaded with albumen, bile and granular casts of tubuli uriniferi and excretory cells of kidney. Upon standing, the urine let fall a heavy deposit of urates. The patient died three hours after this observation, at 11 P.M.

It is worthy of note that in this case with a temperature of 105.5 degrees and respiration 68 to the minute, the pulse was only 68 beats to the minute.

I have observed a similar condition, viz., the pulse and respiration of equal rapidity in no case of acute disease; and in fact while the pulse may be greatly reduced in frequency when jaundice supervenes in malarial fever and in pneumonia, and while in many diseases there is no absolute correspondence between the temperature and rapidity of the heart's action within narrow limits; at the same time yellow fever is distinguished from other acute diseases by the frequency with which the pulse diminishes in rapidity after the establishment of the febrile excitement. This proposition will be established by a comparison of the pulse, respiration and temperature in various diseases with the observations already recorded with reference to yellow fever.

In addition to the large number of cases of various diseases, recorded in the first volume of my "Medical and Surgical Memoirs," the following cases are presented for immediate comparison and definite conclusions:

*Case 1.*—Erysipelas of head and face engrafted on malarial fever. Patrick O'Hern; native of Ireland; weight 160 pounds; height five feet eight inches; has been in the United States three years; admitted into Charity Hospital, Nov. 22, 1876, with intermittent fever, contracted several months before, in the swamps of Arkansas. The intermittent fever was arrested by the usual remedies. On December 8, the patient was seized with a chill followed by high fever, which continued without remission and on the 9th erysipelatous inflammation of the face appeared. The features became rapidly swollen and the inflammation which began on the left cheek rapidly invaded the integuments of the face and head. The bowels were freely opened by a mercurial purgative and quinin administered.

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1876						
Dec. 10		116		28		104
" 11	100	114	24	22	103.5°	104.°
" 12	104	112	28	24	104	105
" 13	100	108	24	36	103	103.5
" 14	112	112	28	33	103	104
" 15	104	92	28	32	101.5	103
" 16	92	96	28	32	101	102
" 17	90	108	24	34	100	101
" 18	96	100	28	36	99	102.5
" 19	80	96	24	26	98	101
" 20	84	80	27	32	99	99
" 21	80	80	24	28	98	98
" 22	88	80	27	24	99.5	98
" 23	80	68	28	28	98	99
" 24	68	76	24	28	98.5	100
" 25	68	80	28	24	98.5	99
" 26	88	80	24	24	99	98.5
" 27	76		24		99	
" 28	63	66	24	20	99	99.5
" 29	72	80	24	28	99	98.5
" 30	80	96	28	28	99	
" 31	76		20		97.5	

On the 12th, the patient was placed upon the following:

R Quinia sulph . . . . . 3i  
 Potassa chloratis . . . . . 3ij  
 Acidi hydrochlorici dil. . . . . 3iij  
 Zinc ferri murates . . . . . 3iv  
 Aquæ menth. pip. . . . . f.3iij  
 Mix.

Sig.: 30 drops in a wineglassful of water every four hours.

The local treatment consisted in painting the skin of the face and head, in advance of the line of inflammation

with tincture of iodine. These measures finally arrested the progress of the inflammation and on December 20 the temperature of the axilla had fallen to 99 degrees F. The following table presents the relations of the pulse, respiration and temperature:

The recovery of this patient was satisfactory and complete and he was discharged in good health, capable of performing manual labor.

*Case 2.*—Erysipelas of face and head. John Toole; laborer; age 50 years; weight 180 pounds; height five feet ten inches; dark hair, dark eyes, dark complexion; admitted to Charity Hospital Dec. 23, 1876. Integuments of face bright red and greatly swollen. The swelling is so great as to completely close the eyes and to obliterate the features. Previous to coming to New Orleans had worked on the levees, near Donaldsonville. Has a scar on the left side of the head caused by a blow about three weeks before. This injury appeared to be the exciting cause of the erysipelatous inflammation. The treatment of this case was similar to that instituted in the preceding case, and with like favorable results. The inflammation gradually subsided and after the complete restoration of health the patient was discharged. The following is the record of the pulse, respiration and temperature:

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1870						
Dec. 23	80	76	16	24	98 °	100.5°
" 24	80	80	20	24	98.5	100
" 25	72	72	16	16	96	95
" 26	56	68	16	16	94	96
" 27	58		16		96.5	
" 28	65	54	16	16	98.5	98.5
" 29	64	60	13	12	99	97

*Case 3.*—Rubeola, dark purple eruption, high temperature, death. John Chilton; native of New Orleans; age 17; laborer; height five feet; weight 100 pounds; dark brown hair, gray eyes, dark complexion, sharp features; entered Charity Hospital Dec. 20, 1876. Patient states that he had been seized on the morning of the 9th inst. with a severe rigor, followed by intense fever, accompanied by pain in the head and back. December 11, 8 A.M., I saw the patient for the first time; face and surface generally greatly congested, presenting a purplish mottled appearance. Pulse 155; respiration 40; temperature of axilla 105 degrees F. Left lung congested; dull upon percussion, with physical signs of pleuro-pneumonia. Painful cough and respiration. Evening, rash over entire surface of a deeper color and of more distinct appearance; left lung and lower lobe of right lung congested. Pain, cough and jerking labored respiration. 8 P.M., pulse 156; respiration 47; temperature 106 degrees. Alcoholic stimulants, quinin and nutritious diet were ordered, but appeared to produce no beneficial results; neither was the local application of turpentine in the form of stupes attended with any diminution in the severity of the pulmonary symptoms.

December 12, A.M., pulse 142, respiration 39, temperature 104.5 degrees F.; December 12, P.M., pulse 129, respiration 42, temperature 105 degrees F.; December 13, A.M., pulse 124; respiration 35; temperature 104.5 degrees F.; December 13, P.M., pulse 136, respiration 36, temperature 105 degrees F.; December 14, A.M., pulse 144, respiration 36, temperature 104.5 degrees F.

On the morning of December 14, the patient presented a livid appearance; great difficulty in breathing, dark blotches on his body running together, but more defined on arms; legs and feet. Tongue, which had been heavily coated, peeling off, leaving a raw surface. Intense thirst, feeble fluttering pulse. Died at 10 P.M.

*Case 4.*—Intermittent fever, congestion of right lung. K. Orbison; age 26 years; height five feet eight inches; light hair and blue eyes; native of Chicago. During the past summer was exposed to malaria in Mississippi and entered the Vicksburg hospital with chills and fever. Entered Charity Hospital on December 27, with high fever, furred tongue and congestion of lower lobe of right lung. The internal administration of quinin and Dover's powder (2 grains of each every three hours) and of the tincture of yellow jessamine (10 drops every three hours) and the local application of turpentine over affected lung, were attended by the resolution and disappearance of the pulmonary congestion. On January 5, the patient suffered with another paroxysm of fever which yielded readily to quinin. The following observations were recorded:

December 27, pulse 120, respiration 30, temperature 104

degrees F.; December 28, pulse 112, respiration 28, temperature 98 degrees F.; December 29, pulse 94, respiration 28, temperature 100 degrees F.; December 30, pulse 78, respiration 27, temperature 99 degrees F.; December 31, pulse 80, respiration 24, temperature 98 degrees F.; January 1, 1877, pulse 72, respiration 22, temperature 98 degrees F.; January 2, pulse 70, respiration 24, temperature 98; January 3, pulse 90, respiration 30, temperature 99 degrees F.; January 4, pulse 72, respiration 24, temperature 99 degrees F.; January 5, pulse 130, respiration 28, temperature 105.5 F.

*Case 5.*—Chronic malarial poisoning, general anasarca, ascites. Edwin Toll; age 39; admitted to Charity Hospital March 3, 1877. Native of Philadelphia; mechanic. Has been in Louisiana twelve months and has been living in the swamps of Quehito Parish. With the exception of syphilis twelve years ago, has enjoyed good health, up to August 1, 1876, when he was attacked with chills and fever, "swamp fever." The chills have continued at intervals up to present time. Pale, anemic, with greenish-yellow tinge of surface. Spleen enlarged and painful upon pressure. Abdomen distended with liquid. Extremities, especially the legs and thighs greatly swollen and pitting deeply upon pressure. Urine high colored, moderately abundant, but free from albumen. It is probable that the liver has been deranged by the action of malaria, as well as by alcoholic stimulants, which he is said to have used in excess. Much benefit was derived from the following combination:

℞ Quinia sulph. . . . . ℥i  
Pulv. digitalis. . . . .  
Pulv. scilla. . . . . āā grs. v  
Extract rhei. . . . .  
Extract aloes . . . . .  
Extract colocynth comp. . . . .  
Gamboge . . . . . āā grs. x  
Mix.

Divide into ten pills; one pill every six hours.

The action of the kidneys was promoted by cream of tartar in drachm doses, three times a day. After the bowels were freely moved by the preceding measures, the tincture of bark and quassia, together with quinin and iron were freely used and with marked benefit. Under these measures the dropsical effusion disappeared and the complexion assumed a healthy appearance. The following observations were recorded:

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1877						
March 5	92	93	20	22	98 °	100 °
" 6	78	90	18	24	99	99
" 7	80	86	22	22	98	99.2
" 8	86	85	22	22	98.2	99
" 9	84	86	22	23	98.2	99
" 10	85	86	23	24	101	100
" 11	76	78	22	22	99	99
" 12	80		23		98.2	
" 13	82		23		98.2	

*Case 6.*—Acute mania; general paralysis of lower extremities. Patrick J. Fitzpatrick; age 40; native of Ireland. Has resided in New Orleans thirty years. Admitted to Charity Hospital, Feb. 20, 1877. Can give no coherent account of himself. Laughs, cries, screams, crows like a cock, preaches and talks wildly and incoherently. Religion and military affairs appear to occupy his mind chiefly. Ofttimes repeats the prescriptions, as I give them to the student, passing from bed to bed; hearing appears to be very acute. Does not rest at night; can not stand on feet but falls forward. Blisters to back of neck and bromid of potassium and hydrate of chloral, as well as minute attention to the condition of the bowels appeared to afford some relief and to moderate the ravings to some extent. The case, however, appeared to be but little improved when I gave up the case on March 15.

The following observations were recorded: March 8, pulse 100, respiration 24, temperature 99 degrees; March 9, pulse 100, respiration 25, temperature 99 degrees; March 10, pulse 98, respiration 24, temperature 99 degrees; March 11, pulse 80, respiration 24, temperature 99 degrees; March 12, pulse 85, temperature 98.2 degrees; March 13, pulse 85, respiration 24, temperature 98.2; March 14, pulse 88, respiration 24, temperature 99 degrees.

*Case 7.*—Double pneumonia supervening in malarial fever. James Rooney; native of Ireland; age 30 years; light complexion; weight in health 165 pounds; height five feet eight inches. Stone cutter by trade; has been in America four years, but has not worked at his trade during this time. In

November, 1876, he obtained work on the Jackson railroad, and labored in mud and water up to his knees. Two weeks after beginning work in the swamps, was seized with chills and fever, and returned to New Orleans. Was sick one week before entering the hospital and during this period had little or no attention. Admitted to Charity Hospital, Jan. 24, 1877. I saw him for the first time on the 25th; found upon examination that the entire right lung and the lower portion of the left lung were completely solidified. All respiratory sounds with the exception of the tubular breathing were absent from the right lung. Expectoration very scant; respiration hurried; great congestion of face, with purple lips and tongue; rapid pulse and high temperature; absence of chlorids from the urine.

Notwithstanding the unfavorable and almost hopeless aspects of this case, the persistent use of quinin, Dover's powder, and alcoholic stimulants, carbonate of ammonia and nutritious diets and the local application of turpentine, were attended with marked improvement of the symptoms. The chlorids returned to the urine, the left lung was restored and portions of the right lung manifested crepitant, subcrepitant and mucous râles. A large cavity found in the superior and middle lobes of the right lung. During the breaking down of the lung tissue, the patient suffered from hectic fever, profuse sweats and great exhaustion. Convalescence although slow was finally and completely established.

The following observations will illustrate the relations of the pulse, respiration and temperature in this grave case:

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1877						
Jan. 25	120	105	36	28	104 °	103.5°
" 26	112	108	28	32	101	101.5
" 27	104	108	28	32	101	102
" 28	100	100	28	32	100	103
" 29	96	100	32	28	100	101
" 30	96	100	28	32	100.5	102
" 31	84	92	28	24	100	100
Feb. 1	84	80	28	28	100.5	100.5
" 2	96	92	28	28	99.5	101
" 3	76	92	28	32	100	101
" 4	84		36		100	
" 5	84	96	24	28	100	101
" 6	96	108	28	28	100.5	101.5
" 7	104	108	28	32	100	101.5
" 8	104	112	28	36	100	101
" 9	104	104	24	28	100	101
" 10	92		28		99	
" 11		120		28		102
" 12	108	112	28	24	100	101.5
" 13	100		32		100	
" 14	112	120	28	24	99.5	101.5
" 15	120	116	28	25	100	101
" 16	100	100	28	32	100	99
" 17	100		26		99.5	

(To be continued.)

# NERVOUS DISEASE IN EARLY SYPHILIS.

Read before the Chicago Academy of Medicine, October, 1894.

BY G. FRANK LYDSTON, M.D.

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(Concluded from page 276.)

Wille, several years ago, made an exceedingly valuable analysis of the psychoses due to syphilis, which he found were divisible into the following classes: 1, irritative psychoses based on cerebral anemia following syphilitic infection even from its very beginning; 2, simple inflammatory psychoses due to meningitis and cerebral softening; 3, neoplastic psychoses proceeding from cerebral meningeal gummata. Griesinger states that when acute mental disease affects patients during the secondary stage of syph-

ilis, it will be chiefly those whose brain is organically affected, who have previously presented symptoms of abnormal cerebral activity or who come from neurotic families.

Wille says that mental symptoms may appear two months, or even two weeks after infection, certainly with the onset of the secondary symptoms. Hildebrand has had very similar experience.

Leubuscher was the first to establish the existence of mental symptoms during the secondary period. Prior to his article these had been regarded as tertiary accidents.

Berthier, some twenty-seven years ago reported several acute cases of insanity occurring during the secondary period. Fournier has described several cases of insanity, due to secondary syphilis, varying in type from confusional insanity to cataleptoid states.

Mickle has observed several cases of insanity due to secondary syphilis in which the psychic effect of syphilis was similar to that of alcohol. Clouston substantially agrees with Wille. He says the psychoses occur in the secondary stage of the disease, coincidentally with the eruption, and are curable and rare.

Cadell reports a case characterized by mental excitement and restlessness which reached its height seven months after the initial lesion, and five months after the appearance of the secondary symptoms, with the onset of which the mental symptoms began. This case consisted of a confusional delirium. The patient slept but little, but rode recklessly about at night. A year later melancholia has set in, accompanied with paralysis of energy, so that the patient scarcely left his bed. He at length made a good recovery.

Savage states that constitutional syphilis acts by causing gummata, by producing arterial disease, by producing local degenerations, or by causing a cachetic state. Regis states that the psychoses of secondary syphilis occur on the appearance of secondary accidents accompanied with fever, principally at the time of the eruption. The onset is more or less brusque, and takes the form of acute or subacute mania or melancholia, preferably mania; it is sometimes of a circular type. It is usually of short duration, disappears with the febrile manifestations to which it is due and readily yields to mercurial inunction.

Luys, admitting that mania, melancholia, and hallucinatory confusion can occur, asserts that these are but the epiphenomena of a morbid process in evolution.

Kiernan's own cases are of great interest:

*Case 1*, was that of a 35-year-old Canadian, a periodically drinking tailor, of criminal antecedents and parentage. A sister and aunt are prostitutes. One brother is idiotic and one a professional burglar. Four weeks before admission he had contracted the initial lesion, which healed up without any treatment. Two weeks before coming under care he was very morose and irritable, felt chilly sensations all over the body, and was very languid. Six days before coming under care he was attacked by a very intense fever, and on the following day complained of insects crawling beneath his flesh, and of men being at the window with guns to shoot him. He was markedly terrified. When he came under observation he had a temperature of 104.9. He was markedly agitated, constantly in motion, and had an expression of extreme terror. He was ordered:

R Ex. conii. . . . . fl  
Ex. hyoscyami . . . . . fl  
Chloral hydratis . . . . . aa.2.00

M.S. At a dose, in water thrice daily.

Quinin was given in 10 grain doses thrice daily, but neither this or the sedative had any effect on the mental symptoms of the fever. On the third day the history already narrated was obtained, whereupon the attendant was ordered to rub 30 grains of mercurial ointment into the armpits and clefts of the thighs. During the following night the patient slept with relative comfort; his temperature fell to 98.3. He was less agitated, but retained his delusions, and was very little inclined to remain alone. This treatment continued two days, the temperature and mental state remaining the same. The third day after this a roseolaceous eruption appeared on the forehead and neck. This was at first a simple roseola, but in twenty-four hours became pustular and gradually melted down into dark brown crusts, flattened and depressed which, when removed, showed a grayish film bathed in pus underneath. The attendant, soon after the appearance of the last, neglected to rub in the mercurial ointment, whereupon the patient's temperature rose to 103.6, and he became violently excited, rushing wildly from one room to another, saying that he was about to be shot, and that spiders were eating his brain. His countenance expressed terror and he was always in motion. As a means of restraint to secure treatment, a sheet was smeared in mercurial ointment, the patient was wrapped in this and then confined in a camisole. The next day his temperature fell to 101.7. Although still retaining his delusions he was much more at ease and less agitated than he had been since his admission. Treatment was continued three weeks. The mental disturbance became less and less marked. The eruption began to cicatrize, and finally healed up in places, leaving thin red lines radiating from the center. The delusions grew less and less vivid until they seemed to the patient but dreams of an unpleasant nature through which he had passed. He retained some gruffness and irascibility, but this was evidently natural to him and not insanity of manner. He made a good recovery and remained in good health.

*Case 2*.—A baker, 25 years old, a moderate drinker, had a brother who died insane, and a sister under treatment in an insane hospital. When he came under observation he was very much agitated and had well marked auditory and visual hallucinations. He saw spiders crawling over him, and guns protruded from holes in the wall to shoot him. He heard wolves and lions howling and roaring at him. He kept always in motion, but by dint of great effort could control himself and give a few relatively rational answers to questions. After recovery he gave the following history: Four weeks before coming under treatment he had contracted a chancre. About the beginning of the fourth week after this he had a distinct chill followed by a high fever. Believing this to be the onset of malaria, but feeling unaccountably depressed, he took 10 grains of quinin and visited Central Park. While there he was so frightened at the howling of the wolves that his companion was obliged to draw him away to avoid attracting attention. This scene was repeated before the lion's cage. He was not afraid of the animals, but of their howling. On his return home he became exceedingly delirious and cried out about wolves and lions. In two days hospital treatment became necessary. On admission he had a temperature of 104 degrees. He was fairly nourished. He was rather loquacious, which loquacity was at times broken in upon by his hallucinations. He was ordered the same treatment as in the previous case, which was without effect. The fourth day of treatment a roseolaceous eruption made its appearance on his forehead around the roots of his hair. The patient was ordered a mercurial ointment applied as in the other case. In twenty-four hours his temperature fell to 99.8 degrees. He was much quieter, but retained his delusions and hallucinations. The next day a similar eruption to that described appeared on the arms and trunk, which gradually formed flat pustules. These became covered with greenish-brown crusts, which when removed, showed a grayish-red ulceration beneath, and were surrounded by a copper-colored areola. The delusions and hallucinations grew less vivid for the next two weeks. By the time of the total disappearance of the eruption (at the beginning of third week) they disappeared also, leaving the patient in a dazed condition. He remained relatively stationary for about two weeks, when he gradually brightened up, and recovered, four months after admission.

*Case 3*.—An Irish American, 32 years old, came under my care with a decided corona veneris and temperature of 103½ degrees. He was in a state of hallucinatory confusion similar to those cases already described and he was wrapped up in a mercurial ointment sheet. The eruption pursued the usual course. With its gradual fading the vividness of the patient's



hallucinations—which chiefly related to locomotives behind him—grew fainter, and his motor agitation grew less. Two months later he had passed into a cataleptoid state; from this he emerged into a state of maniacal exultation with a verberation resembling that of katatonia. This passed into a state of depression lasting a month. From this the patient recovered and has since remained well.

Kiernan comments upon these cases as follows:

"These cases resemble those of Cadell and Mickle. Their symptoms do not agree with those found by Leubuscher, Albers, Englested, and Gros, in that in none was to be found any evidences of hypochondria or of syphilophobia, but certainly these are present in other psychoses and may be produced, as Leidesdorf and Savage have shown, by moral causes alone in luetic cases. I do not believe that these cases should have a place otherwise than with the confusional insanities, and this view is also held by Regis. They are simply the result of a systemic exhaustion which, as I have elsewhere shown, is produced by many causes."

To the mind of the author of the present paper, the toxin view of such cases is the most logical one. An instability of cerebral structure and function, moral and mental influences, alcohol and previous cerebral irritation from any cause whatever, may act as the factors which determine the toxic process to the brain, but the intoxication of the brain by syphilitic toxins, is probably the essential factor.

My friend Dr. Norbury, late of the Central Hospital for the Insane at Jacksonville, Ill., has reported two cases occurring during secondary syphilis, one of which was associated with a primary sore which had not yet disappeared. As both cases are complementary to the series which I have to report I take the liberty of presenting them in full:

*Case 1.*—A man, aged 21 years, who contracted syphilis three months previously. A phagedenic ulcer had formed, and was not quite healed when first examined. There was general enlargement of the gland, mucous patches in the mouth, and a pustular inflammation of the forehead. He was then under treatment for syphilis, and had been for some time, so that the manifestations of the disease were modified by the mercury he was taking. The cerebral symptoms were, briefly: insomnia, headache, followed by somnolence, and later by a somnambulistic state. The last condition was first noticed while attending a party. He had a severe attack of headache, with vertigo, asked permission to lie down, was shown a bedroom, and his recollection ends with his lying upon the bed. He reappeared in the dining room after a short absence, and much to the astonishment of all, was quite devoted to a young lady with whom it was known he had previously quarreled. She could not account for his devotion, excepting by the belief that he had been drinking. His friends, fearing that such was the case, invited him to remain all night. In the morning, when told of his reappearance on the floor, and his attention to the young lady, he denied all recollection of it whatever, and accused his friends of joking. He further denied taking liquor of any kind.

Ten days later a similar attack, with the same prodromes occurred. On this occasion he left home, and when he regained consciousness found himself in a hotel in a city forty miles distant. How he came there, how long he had been away from home, or what he had been doing he knew not. He returned home, and in a few days later renewed the trip. This time it was forty-eight hours before he regained consciousness. As before, he had no recollection of what had occurred. A third time he started for the neighboring city, but was overtaken by his brother at the railroad station. When accosted by his brother he appeared natural in his behavior, but was not subject to external influences, was seemingly in deep thought, was more or less automatic in his movements, and would not converse. When he regained consciousness he was greatly surprised to learn what he had done.

When Dr. Norbury saw him on the next day, he was worried, melancholic, and self-accusative. After satisfying him-

self that it was undoubtedly a case of syphilis, the Doctor put him upon the iodid of potassium, and also directed him to continue the mercury. About three weeks later he reported again, saying that he had not been troubled since he first saw me, excepting with headache, lasting for a short time. He stated that he contemplated going to Hot Springs, Ark., and this was the last time the doctor saw him. It has since transpired that he returned home in due time, very much benefited, and is now in a normal mental condition.

Dr. Norbury's remarks upon this case are of interest. It is worthy of comment that he entertains essentially the same views as myself regarding the possible importance of vasomotor disturbance in early cerebral syphilis.

"The strangeness of the symptoms, the departure from the ordinary type of organic disease, and the somnambulistic manifestations, all point to some perversion of the circulation, or an abnormal condition of the blood itself, affecting the supreme cerebral centers. If the cause was perverted circulation, we do not know the actual condition of the brain under these circumstances. It is reasonable to conjecture that alteration in the cerebral circulation was the cause, when we consider the distribution of the arteries and the physiology of sleep.

"The arteries which supply certain areas of the convolutions may be affected, causing activity of the circulation in these vascular areas, and as a result, somnambulistic dreams. The affection of the arteries may be either vasomotor disturbance, or cell proliferation within the walls of the vessel of the pia, causing diminution of the circulation, and consequently, malnutrition and lessening, or perversion of the functional activity of the ganglionic cells in the underlying brain substance. If such is the case, the observation of, and comparison with, other cases might lead to localization of the mental faculties."

*Case 2.*—Late secondary phenomena. A man, aged 23 years, single (history defective.) For six months prior to his admission to the Illinois Central Hospital for the Insane he was confined to his bed at home. When admitted he was feeble and emaciated, his circulation was poor, and bowels constipated. The mental symptoms were those of acute primary dementia. He had not spoken for several months, stared vacantly, and apparently was not conscious of his surroundings. He was filthy in his habits, had an inordinate appetite, and would eat anything, including his own feces. No history of syphilis was given by his friends, but evidences of primary lesions were marked. Secondary manifestations, such as thinning of the hair of the scalp and skin eruptions, resembling psoriasis on the posterior surfaces of the lower extremities and on the anterior surface of his arms were present. No marked superficial symptoms were shown.

Acting on the supposition that the case was one of syphilis, I immediately put him on anti-syphilitic treatment. No marked change occurred for several weeks, except a gradual improvement in his general health. At the end of three months he had improved so much that he was able to dress himself and attend to his wants, and was interested in his surroundings. Ataxic aphasia soon took the place of the complete aphasia which had prevailed for six months. This gradually faded away with the improvement in his general mental condition, and he was able to converse rationally, his articulation becoming perfect. He then gave me a history of syphilis contracted two years before. The primary lesions were slight, and he had no recollection regarding the appearance of the secondary phenomena. He was discharged cured, so far as his insanity was concerned, six months after admission. He has gained forty-five pounds in weight, and has all the indications of good health. He is now married, and follows his trade, that of a painter and decorator in Chicago. One and one-half years have elapsed since he was discharged, and yet he has had no evidence of a return of the disease.

Regarding this case Dr. Norbury says: "The case is interesting because of the long duration of functional disorder of the brain, and the subsequent com-

plete recovery, with no evidence whatever of organic change. The pathology of the case can probably be explained by conditions similar in nature to those in the preceding case, namely, an arteritis not sufficient to produce organic changes, but so far advanced as to affect the nutrition of that part of the brain presiding over the intellectual faculties. The co-existing aphasia locates the disturbance in the vicinity of the Sylvian artery, for we all know that impairment of speech is due to the involvement of the terminal branches of that artery."

Although the date of the appearance of brain symptoms in Dr. Norbury's second case was two years after the chancre, it still must be classed as an early lesion of syphilis, inasmuch as it was associated with typical secondary lesions. It must be remembered in this connection, that the duration of the disease is not always a criterion of the period at which the evolution of syphilis has arrived.

Eruptions characteristic of the secondary period may appear very early, or they may be retarded until long after their usual period of evolution. The point to which the evolutionary progression of syphilis has arrived, is often a better criterion of the pathologic age of the disease, than the period of time since infection.

#### TREATMENT OF NERVE DISEASE IN EARLY SYPHILIS.

The treatment of nerve disease in early syphilis is well understood to be that of the specific affection upon which it depends, hence a discussion of the therapeutics of the subject may seem to be a work of supererogation. There are, nevertheless, numerous highly practical points which are quite generally overlooked.

Prophylaxis of nerve disorder is an important feature in all cases of syphilis. It is to be remembered that the nerve disturbances of the early period are not only important *per se*, but they may constitute the point of departure for later and more serious disease. It is well also to bear in mind that certain factors may produce nervous disturbances which do not at the time produce symptoms, but which none the less lay the groundwork for serious organic nervous disease at a later period.

Inasmuch as vasomotor neurosis is probably an important factor in syphilitic nerve phenomena, avoidance of all causes of disturbances of the sympathetic is a prime indication. Instability of vasomotor equilibrium may often be avoided. Most surgeons are aware that tobacco and liquor are injurious to syphilitics, but comparatively few could give other than empirical reasons therefore. The toxic effect of these drugs upon nerve protoplasm and upon the sympathetic ganglia is a very powerful predisposing factor in brain and nerve disease in syphilis. By them the foundation is often laid for subsequent disease of a very serious or even fatal character. Mental worry or overstrain, mental excitement and sexual excesses constitute powerful predisposing factors,—especially to cord disease. If the patient be given a clear understanding of the true reasons for abstinence from these injurious factors he is likely to be much more tractable. In cases with a distinct neuropathic taint, hereditary or otherwise, the points which have been made are of special importance.

The curative treatment is in the majority of cases mercurial, first, last and all the time, but there are

certain special therapeutic features which are of greater importance than in other phenomena of syphilis. In the ordinary forms of syphilitic phenomena, a moderately active course of treatment usually suffices and a few days delay in getting the disease well in hand, is of no consequence. When nerve involvement exists, the treatment must be very energetic indeed, if we would avoid irreparable damage to delicate and important nerve and brain structures. The problem in such cases is, how to get the patient under the full physiologic effects of mercury most speedily. As a rule, internal medication alone can not be relied on; some patients and especially those with nerve phenomena can not tolerate the internal use of the drug at all. The hypodermic method is much quicker and more reliable, but not all patients will submit to it. Taken all in all, the inunction method usually proves the most satisfactory. Where practicable, the internal use of the protiodid is combined with it. A point of practical value is the fact that the drug acts best when applied as nearly as possible to the location of the nerve implication. Inunction of the neck and scalp are most efficacious in cerebral disturbance, while inunction of the region of the spine is quite effective in cord symptoms. It is necessary to practice inunction elsewhere, in order that a sufficient quantity may be absorbed.

Cases are met with in which mercury seems to be ineffectual and we are compelled to use the iodids. Such cases are rare, so rare that I suspect some of them to be instances in which the fault lies, not with mercury, but with the manner of its use. While the mainstay of treatment is mercury, there are certain adjuvants which are of great value. It very often happens that a case which appears resistant to mercury, yields quite readily when some one or more of the adjuvant methods are used.

As regards the general treatment, hot baths and laxatives constitute the most valuable accessory measures. The hot bath is especially useful, and is too often forgotten. Measures of counter-irritation and derivation are often of value in early nerve syphilis. Local or even general depletion may be justifiable. If I were to treat several of my cases over again, I should certainly apply leeches to the neck and possibly even perform venesection. Depletion certainly seems logical enough to warrant a trial. Electricity, massage and counter-irritation are often of service in bringing under subjection stubborn symptoms with a tendency to chronicity.

It has occurred to me that we have specialized too much in our management of syphilis. We are so imbued with the view that mercury is the only remedy for the disease, that our treatment is likely to consist of mercury throughout. A remedy which appears to me to be of great service in syphilis is gold. It has been my custom until recently, to prescribe the double chlorid of gold and sodium from time to time in nearly all my cases of syphilis. It has seemed of special value as a tonic and alterative in cases with a tendency to nerve involvement. Gold is a remedy which has been greatly neglected, and it is a matter of surprise that so few good preparations of the metal are on the market.

Within the past few months I have been using the bromid of gold and arsenic and bromid of gold and mercury—(Barclay's formulæ) instead of the sodium salt, and with gratifying results. The gold seems to have a special effect preventing sclerotic changes in

the tissues affected by the syphilitic neoplasm. The bromid in the combination may be of service in correcting vasomotor perturbations which probably exist in early nerve syphilis.

It is not my custom to advocate special preparations or formulas, but there is another preparation which I do not hesitate to recommend as a tonic and alterative in syphilis, especially where nerve disturbance exists. The preparation known as the three chlorids of mercury, iron and arsenic, (Renz and Henry's formula) has in my hands proved a reliable addition to the therapy of syphilis. It has the merit of elegance and definite dosage.

The question now arises, How long shall this treatment be continued? As a matter of principle, I believe that any course of treatment of less than three years duration is open to criticism. I am especially inclined to be dogmatic in regard to cases presenting early nerve or brain symptoms.

I have been much impressed by some of Mr. Hutchinson's cases of nerve syphilis. It appeared to me that some of them might have been avoided by proper management. Hutchinson's treatment is largely symptomatic. If at the end of a six months' course the symptoms have disappeared, treatment is stopped, to be resumed only on the recurrence of symptoms. Steady systematic treatment by mercury, iodids and gold, is the sole assurance of safety for the syphilitic.

As for the results of this plan I have only this to say: After some years of experience with syphilis, I have rarely seen of late, visceral, bone, nerve, or brain involvement in cases in which my instructions have been carried out to the letter. Cases occasionally arise in which a tonic stimulant becomes necessary. Under such circumstances, I have found the wine and fluid extract of coca of great service.

Anemia is sometimes a very important factor in early nerve syphilis. Such cases demand iron and strychnia. The iron may sometimes be combined with the mercury in the form of the pil. duo (mercurial pill with exiccated sulphate of iron). Some cases may require alcoholic stimulants in small amount.

Great care should be exhibited in the management of debilitated syphilitics, else harm may be done by our specifics.

## A SET OF UTERINE DILATORS.

BY HENRY T. BYFORD, M.D.

[From the Transactions of the Chicago Gynecological Society, Jan 18, 1895.]

I have here a set of uterine dilators, designed for the purpose of keeping the cervix moderately dilated



and thus maintaining uterine drainage in cases of endometritis with imperfectly developed or contracted cervixes. These are stiff in the center, but will bend quite easily on the end. They can be used in a retroverted or an anteverted uterus. In my office practice

I use the two smaller sizes, and the larger ones after curettage to keep a poorly developed cervix dilated until the tendency to contract passes off. It is passed through the internal os twice a week, for a few times, and later once a week until the dilatation has been maintained for three or four months. The vaginal fornices should be cleansed with a 5 per cent. solution of carbolic acid before they are introduced and an intra-uterine application of a 25 per cent. solution of ichthyol in glycerin be made after their withdrawal.

## SOCIETY PROCEEDINGS.

### Proceedings of the First Meeting of the American Academy of Railway Surgeons.

Held at the Grand Pacific Hotel, Chicago, Ill., Nov. 9 and 10, 1894.

(Continued from page 212.)

FIFTH SESSION, SATURDAY, NOVEMBER 10, 2 P.M.

CHAIRMAN DR. H. J. MAYNARD read a letter from Dr. M. Cavana, Surgeon N. Y. P. & O. R'y, Oneida, N. Y., expressing his regrets that on account of serious sickness in his family he was unable to be present but wished the Academy Godspeed.

The Academy then went into executive session to consider the applications of Drs. C. B. Parker, Surgeon, L. S. & M. S. R'y, Cleveland, Ohio; R. H. Taylor, Surgeon, Central R'y of Georgia, Griffin, Ga.; Geo. W. Crile, Surgeon, C. C. C. & St. L. R'y, Cleveland, Ohio; J. G. Davis, Chief Surgeon L. N. A. & C. R'y, Chicago, Ill.; A. D. Bevan, Chief Surgeon, Iowa Central R'y, Chicago, Ill.

The ballot having been cast it was found that all of the gentlemen named had been elected to fellowship.

### THE USE OF HORSE HAIR IN SURGERY.

BY C. M. DANIELS, M.D.

CHIEF SURGEON W. N. Y. & P. R'y, BUFFALO, N. Y.

In presenting this subject I lay no claim to originality in the use of horse hair in surgical practice as it was suggested to me ten years ago; but having used it extensively during the period mentioned, and not having seen the subject referred to but once in surgical literature, I venture to present this paper which will certainly be commended for its brevity.

For many years, surgeons have been faithfully searching for the ideal suture, one that would be non-irritating, small in caliber, easily adjusted and afford the closest approximation of the skin layers, and this with especial reference to wounds of the face or exposed parts where the avoidance of scars, more or less unsightly, is a great desideratum.

Catgut, silk and silkworm gut have long been used, but in the first we have a rapidity of softening and relaxation that will not infrequently result in a gaping wound. In the second, the resulting "stitch marks" which are frequently long in disappearing added to the occasional irritation, and in the silkworm gut the rigidity of the suture itself makes each undesirable in superficial wounds and all usually require dressings or coverings held by bandages which are both disagreeable and cumbersome, especially when the patient is able to be about or upon the street. I speak with special reference to those wounds which in themselves are not serious enough to confine the patient, this being the class of cases where I feel free to recommend horse hair sutures and upon which I note the following points:

1. Instead of a large or medium sized needle as required with even small strands of catgut, silk or silkworm gut, with the horse hair a small eye needle, curved or straight, according to the preference of the surgeon, can be used and thus minimize the size of each puncture of the skin.

2. Horse hair, when prepared as I will suggest later, has a firmness that will give support to the skin and very materially aid in keeping in approximation the edges of the same, and more nearly resemble silkworm gut in its action in the tissue.

3. Where wounds are both lacerated and contused, with

the fine needle, we can pick up many small but valuable parts which may be saved by gentle adjustment, and I will mention here that success, in any case, depends upon the care used in the introduction on one side, and exit on the other, of the needle near the margin of the cut or torn surface which should always be at right angles to the incision or skin margin, so that when the tie is made the strand will be of the same length upon the under as upon the upper side, and at a little to one side of the wound line.

4. Horse hair sutures can be placed much closer together than other suture material, with less danger of strangulation of the skin margins, this in itself better assuring perfection of adjustment and more satisfactory results and a "reef" or "granny" knot only is required being smaller than the ordinary surgical tie.

5. Horse hair *will not* bear any great amount of tension and could hardly be recommended for use in the flaps after a major amputation, except to place between other sutures for the purpose of more carefully approximating the skin margins.

6. After the introduction of horse hair, the skin being accurately adjusted and operation having been performed under the aseptic surgical procedures of to-day, except in extensive injuries, no dressing is required other than carefully drying the parts and brushing over with a layer of aseptic flexible collodion which, as it dries, will aid the horse hair in holding the skin in position.

With special reference to facial wounds, the field for the fastidious surgeon is here a great one, as horse hair at almost any hue of fast colors can be obtained, and he can place almost invisible stitches, from the color of the skin of the albino to that of the darkest African.

And now a word relative to the preparation of horse hair for surgical use: The convenience of the stable places it in every surgeon's hands and the hair needs only a thorough washing with soap and water, then for two or three days in 1 to 1,000 hydrarg. bichlor. solution and transferred to 95 per cent. alcohol until used. I believe that when this material is more generally used and appreciated that surgical supply houses will place it upon the market, and I have already made such a suggestion to one of them and without hope of future reward.

#### DISCUSSION.

DR. R. S. HARNDEN, Waverly, N. Y.—The use of horse hair as a suture is to me a recent thing, and only by the advice of Dr. Daniels did I begin its use, something like a year ago. The Doctor gave me sutures at a meeting of the Academy of Medicine in New York. I tried it, and while I feel like praising the suture, I would at the same time speak of its disadvantages. While it has many admirable qualities mentioned by the Doctor, the only objection to it that I could find is, that if you are not careful in using it in a wound that is likely to be attended with any tension, you will be disappointed in it as a suture. Bearing that point in mind, it is a valuable adjunct to our sutures.

DR. J. F. REGER, Littleton, W. Va.—A year or two ago I picked up a copy of the *British Medical Journal* and saw something in reference to the use of sterilized horse hair for injuries of the face, and I have had an opportunity of using it three times. I have found one thing, that whatever degree of tension you give the sutures in placing them you will retain that same degree of tension throughout the healing of the wound, as it never relaxes a particle that I have ever found, and it makes absolutely no stitch scar. While there may be some disadvantages in connection with its use, I have not as yet encountered them. I have found it excellent material for face wounds where we desire to avoid an unsightly cicatrix.

DR. A. C. SCOTT, Temple, Texas—When I was asked to discuss this paper, my first thought was to refuse to do it, inasmuch as knew so little about the subject. But I concluded that it would not be right to back down on an invitation of this kind, because I do not believe in backing down. I have never backed down but once in my life, and I do not want to do so in connection with the work of this Academy. I concluded that it would be better in attempting to discuss a paper of this kind to know very little about it in the be-

ginning. One could receive the points in this paper as they were put forth with an unbiassed mind. However, as soon as I came to Chicago I went to one of the public libraries and tried to find something on the subject, but found it was exceedingly difficult to do so in order to get anything satisfactory out of it. I find that horse hair ligatures are mentioned as a sort of side issue whenever the subject of ligatures is under discussion. It is mentioned in one of our works as a sort of drain, but it seems to be very unsatisfactory as a drain. I do not believe the essayist mentioned it as a drain at all.

DR. DANIELS—I intentionally left that out.

DR. SCOTT—For the purpose of drainage, I tried it some time ago, and it disappointed me in two respects: 1, I thought washing it with soap, and then boiling it for a while and dipping it into a solution of bichlorid of mercury would be sufficient to disinfect it. I was doing a Syme's amputation. To my surprise, I had more pus formation than I have had in a wound for many a day, and because of that fact the rest of the operation was watched very closely, everything rendered as aseptic as possible, and I can not help but think that the sepsis was due to imperfection in the horse hair.

2. That brought to my mind this thought, that when considering the use of horse hair we should take notice of the fact that it is subject to certain diseases, and if we are going to use horse hair extensively we will have to pay some attention to that one feature. It no doubt has some advantages. It is non-irritating when aseptic, and it leaves no scars. On that account it certainly has some advantages. Another advantage is that for surgeons who do a great deal of emergency work it is always easily obtained. In the case I speak of, where I used it for drainage in a Syme's amputation, in this instance, I had a beautiful result. I had no drainage tubes with me, and used the hair from my horse's tail which had been properly prepared before I had the operation completed. If the preparation I gave that was uncertain and the cause of suppuration in that case, I do not think it will do to prepare it so hastily as a rule. I have used horse hair in quite a number of circumcisions, and prepared it in those cases very much as the Doctor has suggested by washing it with soap first, then using the other disinfectants. I think the use of it is very limited, and should be, if it is used at all, confined to superficial wounds, particularly wounds of the face. Then we have to look very carefully for the tension which is apt to follow. I believe that one thing is the main bar to its use. The fact is that we have a certain amount of swelling in many of our wounds, and even if we have no swelling at all there is apt to be cutting of the tissues from it.

DR. REGER—Just one word in reference to the preparation of horse hair. I have never depended upon simply washing the hair, but I have sterilized it by superheated steam prior to using it, and I have never found it produce any sepsis whatever.

DR. DANIELS—I am very much gratified at the discussion that my paper has elicited. Dr. Harnden mentioned the point regarding tension. I also mentioned it in the paper. With reference to the preparation of horse hair, I will say that if it is properly and carefully prepared, thoroughly asepticized, the surgeon need not have any fear of sepsis following its use. In superficial wounds, where we can not place as many sutures of silk, catgut or silkworm gut in holding our flaps, we can use horse hair to excellent advantage.

On motion of DR. R. HARVEY REED, the chair appointed Dr. F. H. Peck, Clinton, N. Y., as sergeant-at-arms.

The election of officers having been made the special order of business at this session, on motion of Dr. F. H. Peck, the chairman appointed Dr. F. H. Caldwell, Sanford,



Fla.; Dr. W. H. Meyers, Meyersdale, Pa.; Dr. C. B. Kibler, Corry, Pa., tellers.

On motion of Dr. W. H. ELLIOTT, the Academy proceeded to ballot for officers without nomination.

The ballots for President resulted as follows: C. K. Cole, Helena, Mont, 18; H. J. Maynard, Cheyenne, Wyo., 3; C. M. Daniels, Buffalo, N. Y., 1; C. B. Parker, Cleveland, Ohio, 2; Scattering, 2.

On motion of Dr. F. H. CALDWELL, the election of Dr. C. K. Cole was made unanimous.

First ballot for Vice-President: W. H. Elliott, Savannah, Ga., 5; C. B. Parker, Cleveland, Ohio, 1; J. H. Maynard, Cheyenne, Wyo., 1; F. H. Caldwell, Sanford, Fla., 1; R. S. Harnden, Waverly, N. Y., 2; John E. Owens, Chicago, Ill., 4; C. M. Daniels, Buffalo, N. Y., 12; L. E. Lemen, Denver, Colo., 3; F. H. Peck, Clinton, N. Y., 1; R. Harvey Reed, Columbus, Ohio, 1.

There having been no choice, a second ballot was cast which resulted as follows: Dr. W. H. Elliott, Savannah, Ga., 13; Dr. C. M. Daniels, Buffalo, N. Y., 16.

On motion of Dr. W. H. ELLIOTT, the Secretary was instructed to cast the ballot of the Academy for Dr. C. M. Daniels for First Vice-President.

On motion of Dr. L. E. LEMEN, the Secretary was instructed to cast the ballot of the Academy for Dr. W. H. Elliott for second Vice-President.

Secretary: The ballot for Secretary resulted as follows: Webb J. Kelly, Galion, Ohio, 21; L. E. Lemen, Denver, Colo., 1; R. Harvey Reed, Columbus, Ohio, 6; A. C. Scott, Temple, Texas, 2. Dr. Webb J. Kelly was declared elected Secretary.

Treasurer: The ballot for Treasurer resulted as follows: F. H. Caldwell, Sanford, Fla., 1; R. Harvey Reed, Columbus, Ohio, 8; John E. Owens, Chicago, Ill., 7; F. H. Peck, Clinton, N. Y., 1; A. C. Scott, Temple, Texas, 1; C. B. Parker, Cleveland, Ohio, 1; C. B. Kibler, Corry, Pa., 9; W. H. Meyers, Meyersdale, Pa., 1.

On motion of Dr. F. H. CALDWELL, the Secretary was instructed to cast the ballot of the Academy for Dr. C. B. Kibler for Treasurer.

On motion of Dr. F. H. CALDWELL, Dr. R. Harvey Reed, Columbus, Ohio, was elected Editor.

Executive Board: On motion of Dr. MILTON JAY, Chief Surgeon, C. & E. I. R'y, Chicago, Ill., the candidate receiving the greatest number of votes would serve for four (4) years, the next highest for three (3) years, the next highest for two (2) years, and the next highest for one (1) year.

The ballot resulted as follows: John E. Owens, Chicago, Ill., 26; L. E. Lemen, Denver, Colo., 17; C. D. Evans, Columbus, Neb., 4; H. J. Maynard, Cheyenne, Wyo., 5; F. H. Caldwell, Sanford, Fla., 9; W. R. Blakeslee, Forest City, Pa., 1; F. H. Peck, Clinton, N. Y., 2; Geo. W. Crile, Cleveland, Ohio, 2; W. L. Buechner, Youngstown, Ohio, 2; C. B. Parker, Cleveland, Ohio, 17; R. S. Harnden, Waverly, N. Y., 14; A. C. Scott, Temple, Texas, 5; Chas. B. Fry, Mattoon, Ill., 1; D. C. Bryant, Omaha, Neb., 1; A. D. Bevan, Chicago, Ill., 1; S. G. Worley, St. Augustine, Fla., 1; J. G. Davis, Chicago, Ill., 1.

[In this ballot each Fellow had the right, if he so desired, to cast a ballot for four different Fellows to serve on the Executive Board.—ED.]

On motion of Dr. C. K. COLE, Dr. L. E. Lemen and Dr. C. B. Parker decided by lot who should serve as three years, Dr. Lemen being fortunate, secured the three-year term.

On motion of Dr. R. S. HARNDEN, seconded by Dr. R. Harvey Reed, Chicago was selected as the next place of meeting.

On motion of Dr. CHAS. B. FRY, the Executive Board was instructed to name the date for the next meeting which they did by selecting the second Thursday, Friday and Saturday of September, 1895.

Dr. GEORGE CHAFFEE, Surgeon, L. I. R'y, Brooklyn, N. Y., being unable to be present and his paper being in the hands of the Secretary, on motion of Dr. R. S. Harnden it was read and referred to the Committee on Publication.

(To be continued.)

## Louisville Surgical Society.

This society was the guest of Dr. Jos. M. Mathews at his residence on Monday evening February 11, Dr. H. H. Grant in the chair. In the business meeting Dr. L. S. McMurtry was elected a member of the society, and Dr. J. M. Ray nominated as a candidate for membership to be voted on at the next meeting.

Dr. A. M. VANCE showed some incarcerated fat removed from a case of strangulated femoral hernia upon which he had operated an hour previously. The patient was a female 50 years of age, and twenty years previously, when hernia first appeared, Dr. Turner Anderson had tried to persuade the patient to submit to an operation. Two of the patient's sisters also have femoral hernia. The hernia contained omentum and gut; the omentum was adherent, and was removed; gut had been strangulated for sixteen hours, and a great deal of unskillful taxis had been employed by the patient and her friends.

Dr. A. M. CARTLEDGE showed several specimens. One a large multinodular fibroid tumor removed from a negro woman, on February 2. The patient was 46 years of age with the appearance of being 60. Tumor had been noticed for six years. Indications for operation were the severe hemorrhages and the frequent attacks of peritonitis. This case had illustrated how difficult it is to follow hard and fast lines in hysterectomy; it is impossible to follow one operation. There were extensive adhesions on the posterior surface, and owing to the very short neck, there had to be almost a complete extirpation, leaving only a small ring of the cervix. The drainage was through the vagina, the two lower ligatures being drawn down into vagina, the others clipped close. The posterior drainage did admirably in this case, patient making an uninterrupted recovery.

Case 2.—This was the most wretched case of pelvic surgery the speaker had ever seen. History of an abortion two years ago. A septic fever following. Since that time she has fallen from 166 pounds to 130. In January she was seen by Dr. Cecil in an attack of peritonitis, and after treatment symptoms subsided and patient was up one day. She then had a set back, temperature rose to 104 degrees and there was considerable tympany. On January 29 the whole pelvis was one mass, the enlargement feeling like an extra-uterine pregnancy, the tumor rising to the umbilicus and to the right side. The condition was extreme. Immediate operation was decided upon. The peritoneum when cavity was opened looked like an extra-uterine pregnancy because of the black look and venous congestion present. Opaque lymph collections, three to four inches long, looking like a twisted ovarian tumor. The whole mass proved to be an enormous abscess extending over the uterus, and a left side pyosalpinx. The abscess on the right side contained fully a pint of pus. The intestines were cleaned as much as possible but left covered with organized lymph. Cavity was irrigated with many gallons of water, and dependent and upper drainage used. The specimens exhibited showed the adnexa removed. Patient made a good recovery.

Case 3—Illustrates a similar condition to the previous one. It dates from an abortion and tubular disease followed. Last of January during menstrual epoch had severe pain; a chill followed with an intense tension fever, and she had a feeling as if something gave way in her side, this giving some ease; general tympany followed. February 3 she was operated on, a general peritonitis existed, temperature of 103 degrees. The left tube was found resting on the fundus, as large as a wrist. The relief experienced as reported above, was due to the rupture of the tube in the broad ligament. The right tube was the subject of salpingitis. This case was treated with anterior drainage. No trouble followed. In such cases it is impossible to remove the tube without losing pus, after it has ruptured into the broad ligament.

Case 4—Was one of recurrent appendicitis. Operated on in the fifth attack. Each previous one was typical. The temperature was 102 degrees. The appendix had ruptured and the abscess, which was capped down by omentum, contained one ounce of pus. There was pus also in the appendix. On the third day after the operation, the patient had a catarrhal jaundice, but made a good recovery.

Dr. J. S. CHENOWETH showed appendix removed from a boy 14 years of age, in the third distinct attack. The last attack there was rigidity of recti muscles; in the twenty-four hours the bowels moved three times, but the tender-

ness and pain increased. The operation was done; two inch incision; appendix was black from pressure and apparently gangrenous to base, and at two points the wall was as thin as paper. There were no adhesions, the appendix lying free in the cavity and stretching up in the incision in the peritoneum. Double ligatures were used, the stump inverted and sewed. On the eighth day there was an intercurrent attack of rheumatism, but in other respects the recovery was uneventful.

*Case 2.*—Patient 32 years old. No trouble till four months ago. There was vomiting and pain, but these were somewhat relieved when the bowels moved. The temperature was normal; abdomen distended; vomiting; pain over left side, but tenderness only on the right side. Abdomen was thick; a five inch incision was made and adhesions found toward the center of the abdomen, and the appendix was adherent to the ilium by its tip. It contained fifteen or twenty drops of pus. Gauze drain was used; abdomen closed with difficulty owing to tension from tympany. The pain, he explained, was due to the position of the appendix, situated as it was across the abdomen.

*Case 3.*—Was diagnosed as intestinal obstruction. On the sixth day a mass developed on the right side; pulse 130; temperature 102 degrees following a cold sweat. Pushing through the thin adhesions forward, about one pint of thin pus escaped. The omentum and appendix were tied off. There was an enterolith and two perforations. In this case there was fecal vomiting, and patient was delirious from sepsis. The next day after the operation the patient got out of bed despite the close watching given him. In twenty-four hours the patient's bowels moved and a good recovery was made.

#### DISCUSSION.

DR. TURNER ANDERSON said that the operation for multiple fibroids was very interesting. It is true that no special technique can be followed. The question of appendicitis is one of the greatest importance. His personal experience he acknowledged was queer. His opinion based on his knowledge of appendicitis in late years amounted to this, that the operation is justified only when it amounts to the opening of an abscess, when pus can be detected by external evidence. In the last four months he has seen three cases in which a tumor presented, and which would have been operated on by others, and all have recovered without cutting.

DR. W. C. DUGAN—The multiple fibroid is a beautiful specimen. The pedicle is difficult to deal with oftentimes and it is impossible to tell which operation is to be done before the abdomen is opened. In a case of his own, with a long pedicle, the tumor was easily removed and patient was up on the tenth day. In contrast, in another case the operation as done by Dr. Cartledge was performed, only the posterior drainage was not used, and the patient died from concealed hemorrhage. As to the cause of pain being referred to left side in appendicitis, he believes it is due to pressure on the lumbar plexus and not to the location of the appendix.

#### Louisville Academy of Medicine.

The regular meeting of the Academy was held Feb. 18, 1895, Dr. T. L. McDERMOTT, President, in the chair.

DR. W. C. DUGAN presented a case of a young man in whom he done Bassini's operation for the radical cure of hernia two years ago. The patient at that time could not wear a truss, there being an undescended testicle. The testicle which was undeveloped was removed, the cord was cut off and the canal sewed up high up. The disposition of the cord is the great question, and if we could do away with the operation on the cord it would be a radical procedure. The only feasible plan is the return of the testicle to the abdominal cavity, and if the testicle is returned and placed in the sub-peritoneal space there would be no trouble in any case, unless there occurs a gonorrheal epididymitis as in a case by Dr. Palmer, and if this procedure is adopted, there will be a radical cure.

DR. E. R. PALMER wished to offer himself as a case of cure of hernia without operative interference. Through youth and early manhood he had been the subject of a right inguinal hernia, and always when laughing or at stool would place his hand so as to retain this hernia; in fact, his hand was on the internal ring nearly constantly, and a cure resulted. As regards the case mentioned by Dr. Dugan, he had a patient who was a monorchid; the left testicle was in the groin, and there was a gonorrheal epididymitis in the

retained testicle. It was swollen, and painful, and presented all the radical symptoms of an epididymitis in a descended testicle. Dr. Roberts in consultation advised waiting for subsidence of the acute inflammatory symptoms before recovering the testicle, but symptoms became aggravated and a castration was done. The testicle was the size of a small olive, the globus major and minor were the seat of a severe inflammation. At present the specimen is being prepared for a microscopic examination. In thirty years' experience this was the first case of gonorrheal epididymitis in a monorchid seen by Dr. Palmer.

DR. W. L. RODMAN stated that one of the drawbacks to the removal of an undescended testicle was the probability of having a hernia. He had a case, a cryptorchid; one testicle being in the left inguinal canal, the other in the right external abdominal ring, and on account of the irritation resulting from constant pressure the patient applied for relief. The last case he had operated on for an undescended testicle was promptly followed by a hernia, the cause most likely being on account of the removal of the testicle which acts as a plug, and when removed the canal is larger than usual, and a hernia results.

DR. DUGAN in closing the discussion upon the exhibited case, stated that he always closes up the ring; he slits up the canal to the internal abdominal ring, ties the cord off within the space behind the muscle, and does a Bassini operation.

DR. L. S. McMURTRY exhibited a specimen of a large uterine fibro-myoma. The patient was 37 years of age. The tumor had been present for three years, and had recently grown rapidly. The indications for operative interference were pressure symptoms and metrorrhagia. She was vomiting daily owing to pressure upon the stomach; there was very frequent urination owing to pressure on the bladder, and there was partial obstruction of the bowel necessitating a daily enema. An interesting point in the operation was the carrying upward of the bladder as the tumor grew, and unless care had been observed it might readily have been cut into. The peritoneum was slipped off, the bladder in this way was let down, the broad ligaments were tied off, and the tumor removed; the pedicle being treated extra-peritoneally with the nœud. There were extensive omental adhesions which had to be tied off separately. The operation lasted forty-two minutes and the patient left the table with a pulse of 78. The tumor, as shown, had grown in the direction of least resistance, the larger nodule had grown in the hollow of the sacrum, conforming to it in shape; the growth filled the pelvic cavity and the greater part of the abdominal cavity. This tumor belongs to that class of uterine fibroids which can only be cured by hysterectomy.

DR. DUGAN stated that the specimen was a beautiful one. He spoke of the attachments to the bladder and the rectum, and emphasized the fact that there is danger of cutting into the bladder, citing an instance of an operator who thought he was observing all precautions and still cut into the bladder, and he had seen in New York in the same operating room two cases in which the bladders had been cut into. It is so easy to let away the bladder and the rectum by making an incision and stripping off the peritoneum as was done by Dr. McMurtry.

DR. McMURTRY, in closing, said that in an exhaustive study of fibroids of the uterus, he had thought it strange how universally the profession was misled about fibroids disappearing at the menopause. He can not recall a half dozen in which the tumor had disappeared at the menopause. The most difficult case he had ever operated on the tumor rose to the diaphragm, and the body of the tumor had undergone cystic and purulent degeneration. The patient was obliged to lie on her side constantly, and weighed only ninety pounds when the tumor was removed, yet this patient was 52 years old and the growth first appeared a year before the menopause, and grew most rapidly after that period. It is rare that the menopause brings the desired relief by shrinkage of the tumor; it perhaps does not grow so rapidly, but the idea that they disappear rapidly is an error.

DR. LOUIS FRANK stated that in these cases of fibroids the danger of ligating the uterus is a point to be considered. As a rule, if the tumor is situated in the upper part of the uterus they usually do decrease in size at the menopause but do not disappear. If adhesions are present a more rapid growth can be expected, owing to the blood supply through these adhesions.

The paper of the evening by Dr. E. R. PALMER, on "The Vaginal Douche in its Relations to Blennorrhœa in the Female," was then read. [It will be published in this Journal later.]

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,  
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.  
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, MARCH 2, 1895.

THE REGULATION OF DOCTORS' FEES.

Be cunning in the working this, and thy fee is a thousand ducats.—*Much Ado About Nothing*.

A member of the Illinois State Senate whom we may term O'DWYER, has introduced a bill into the Senate regulating the fees of physicians and surgeons. The JOURNAL has not been favored with a copy of this bill, but we learn by the daily press that the bill proposes to fix the maximum fee for any surgical operation at \$100. SENATOR O'DWYER is given credit by the veracious chronicler of the press for being the first to bring this subject to the attention of the law.

As usual, however, this statement was evidently made by some one who had not looked into the records on this subject. Professional fees have been regulated by law from perhaps the earliest times.

By the Cincian law, passed in the palmy days of the Roman Republic, lawyers were prohibited from taking fees or presents from those who consulted them; this, in effect, restricted the practice of law to those wealthy citizens who practiced solely from a desire to benefit their fellow men or the State. AUGUSTUS enforced the law by enacting as a penalty for its violation, that such violators should restore fourfold.

Under later Emperors, lawyers were permitted to take fees, and we are told by JUVENAL that pleadings had become venal, that persons of the lowest rank had become lawyers, and that they fomented lawsuits. According to PLINY, all subsequent edicts to restrain the rapacity of the lawyers were artfully eluded.

The precedent thus being set to control "the rapacity of the lawyers," it would be strange if there were not equal restrictions placed upon the doctors. But our profession had always been liberal and

indulgent, with a notable exception to be hereafter mentioned, and it was not until the eighth century that we find any laws concerning their fees. In that century a law was passed in Naples giving certain privileges to the universities of the kingdom, and the Salernian and Neapolitan physicians were compelled to make a visit in the city for a *demi-tarenus*, and if called without the city they were not allowed more than three *tareni*. The *tarenus* had a value of about thirty cents.

This was a distinct retrograde from that historic fee of MELAMPUS who flourished 1,380 years B. C. MELAMPUS having cured of insanity, the two daughters of the king, asked for and received a share of the kingdom for himself and his brother BIAS, and "they espoused the two daughters." But low as the fees were in the days of the SCHOOL OF SALERNUM, that faculty would seem to have had difficulty in collecting what they earned, for in a famous exhortation appropriately written in Leonine verse, "On the Ingratitude of Patients," they inveigh against the innate tendency of mankind to neglect the payment of any sum, either large or small, and they urge the physician to demand the fee "while yet the smart remains," or else the ungrateful patient will exclaim that he has paid, "twice paid, the costly bill." But there has never been any fixed price for special and peculiar services, according to ARBUTHNOT. Even in the first century the physician to a prince received about 250 sesteria (\$10,090). STERTENIUS complained that he had only a salary of 500 sesteria, when he at the same time had by his private practice alone, 600 sesteria.

But there can not even now be placed a limit to the actual value of services any more than a maximum limitation can be placed on individual knowledge, and we presume even SENATOR O'DWYER would wish the average physician to exceed the knowledge of the ancient surgeons of Scotland, for we are informed that when the surgeons of Edinburgh were incorporated in 1805, it was required of them that they should "rede and rite, know anatomie, nature and complexion of humanis bodie, and lykawayes to know all vaynes of the samyn, that he may make flew-bothemie in dew time," and also know the shaving of beards.

Fees will always vary according to the attainments, skill and characteristics of the practitioner and no legislative enactment can change the common custom of centuries. Nor is it possible, like the harlequin of the French comedy, to return the service of the physician. Harlequin having refused to pay the doctor, that worthy brought suit, whereupon being brought before the judge the quondam patient declares that he does not desire the health he had received and proposed to return it, and offered to deliver it into the hands of the judge, provided the doctor

would do the same with the disease, so that each might have his own. This time it was the judge who objected.

If the learned Senator will devote more time to the study of the real abuses from which the people suffer at the hands of monopolies, fostered by the lawyers, he will have less time to give to a profession that already gives nearly or quite one-half of its time to the service of the poor.

Whoever heard of a lawyer who gave any considerable time to the service of impecunious clients with not even a speculative fee in sight? The two law dispensaries, one by the University of Pennsylvania, and one by the Northwestern University, are said to be principally managed by students. The great surgeons, those who command the highest fees from patients able to pay, operate without fee or hope of reward on every person who asks them, provided only that they frankly state their inability to pay. That they are frequently imposed upon, there is no doubt. The same rule exists in the case of the specialists in the various branches of general medicine and surgery. We have thought, therefore, that the best thing about the bill of SENATOR O'DWYER was the impossibility of its passage, by any assemblage outside of a lunatic asylum.

#### THE KILLING OF DR. DYAS, AND ITS LESSON.

Nowhere in any civilized country is human life so insecure as in the city of Chicago. This assertion, prompted by the recent tragic death of the venerable DR. DYAS, is made advisedly. It is not only in the matter of homicide with criminal intent—of which the JOURNAL may have something to say hereafter—that it is the most blood-guilty city on earth, but in the matter of purposeless and wholly unnecessary homicide by common carriers Chicago has for years maintained a murderous preëminence.

Last year, 1894, no less than 308 human lives were crushed out by the railroads within the city limits, in addition to which there were 46 others killed by the street cars. This frightful total—which, it should be noted, is below the average—takes no account of the maimed and mangled survivors, who, it is estimated from the meager newspaper reports and the police and hospital records, number at least ten to every one killed outright. And of these survivors many are more to be commiserated than those to whom death came mercifully because swiftly.

In the previous year, 462 persons were killed by these common carriers, or nearly one-third the total number of deaths from all forms of violence. Under the caption, "Railroad Slaughter," the Commissioner of Health in his Annual Report, points out that this sacrifice of human life is due to the fact that there are over two thousand miles of railroad tracks within the corporate limits of the city, with more than three

thousand street-crossings at grade, over which nearly one thousand, four hundred trains run daily; and adds: "These accidents and the resulting slaughter and disabilities can not, probably, wholly or in any large measure, be obviated without an abandonment of the surface crossings; but it may be noted that one of the main lines east from Chicago, using the block system of signals, claims to have carried 428,000 passengers during the World's Fair period without injury to a single individual." And yet not only does the municipality neglect to enforce the use of the block-signal system on the railroads within the city limits, but it does not even compel the companies to maintain gates or other safeguards at these crossings, nor to employ signal men to warn of the approach of these rapidly-moving engines of death and destruction.

DR. DYAS'S murder differs not one whit from hundreds of others, save in his distinguished personality. Returning to his home in the six-o'clock gloom of a winter evening, after a day spent in philanthropic labors, he stepped from his train, unimpeded by bar or gate, unwarned by voice or signal; was struck down by the engine of a fast express train, and was found some time after, mangled and unconscious, his face crushed into the cinders and ballast of the road-bed, his neck broken, his skull fractured, his left hand ground to pulp by the flying wheels. At the inquest it was shown that there was neither gate, nor signal light, nor alarm bell, nor watchman to warn him or other passengers that a through express train was whirling down the tracks they must cross to reach their homes.

And neither coroner's jury, nor the daily press, nor the civic authority finds anything to do or say in the premises beyond a mild censure of the railroad company for "running the train, which killed the deceased, at a rate of speed entirely too fast to be consistent with the safety of passengers alighting at this station," and for not providing proper platforms at the station.

It should be recorded, however, in justice to the present municipal administration and to the memory of its predecessor, and as well to the railroad companies themselves, that progress is being made toward track elevation—a feat which may, possibly, be accomplished some time in the next century, certainly not much before. Is it too much to ask that, meantime, efficient guards, both mechanical and human, be placed at these surface crossings? Or, in the language of one of the leading dailies of the city, "Shall the grade-crossing slaughter go on, day in and day out, to the utter confusion of the claim that this is a civilized community?"

Blank Applications for membership in the Association at the JOURNAL office.



### THE FRENCH CABINET.

Our esteemed contemporary, the *British Medical Journal*, in a recent issue points out that "the new French cabinet includes two members of the medical profession, DR. CHAUMPS, Minister for the Colonies, and DR. GADAD, Minister of Agriculture. The *Journal* further states that there were "also two members of the medical profession in M. DUPUY's cabinet, namely, DRs. LOURTIES and VIGER."

In the United States we recall but a single instance of a medical man serving as a cabinet officer, that of DR. OLIVER WOLCOTT, of Connecticut, who was appointed Secretary of the Treasury next succeeding ALEXANDER HAMILTON, Feb. 3, 1795, GENERAL WASHINGTON then being President. PRESIDENT JEFFERSON continued DR. WOLCOTT in office and he held it until May, 1800. It is thus seen that unlike some of his successors, the Father of his Country had no objection to placing important public interests in the hands of a medical man, although it is only fair to mention that our DR. WOLCOTT had served with great distinction in the War of the Revolution and rose to the rank of Brigadier General.

In the Judiciary, one of its ablest members was the late MR. JUSTICE MILLER, of the Supreme Court, who was graduated in medicine at the Transylvania University, and who practiced medicine for nearly twenty years, before studying law and being admitted to the bar.

The legislative branch of the Government shows a great many who were medical men, but not very many who had risen to distinction in the medical profession. DR. SAMUEL LATHAM MITCHELL, editor of the *Medical Repository*, was a notable exception, for he not only made a phenomenally great record in his profession, but also in the Senate, being a Senator from the State of New York from 1804 to 1809. He also served in the House of Representatives from 1801 to 1804, and again from 1810 to 1813.

### THE JOURNAL OF THE ASSOCIATION.

We have cause for rejoicing that amid all the dullness of the great financial depression, the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION is still gaining new members for the ASSOCIATION, and friends for itself. One enthusiastic friend has paid his subscription in full without discount, to the year 1900. Another member has exerted himself to the extent of securing a number of new members, and all the old members have remained steadfast. The enlargement made last year has allowed the publication of more medical news, and items of general interest to the profession than ever before, and the present outlook is very favorable for a still greater enlargement from and after July next. There is no longer any question of the ability of the ASSOCIATION to own, maintain and publish one of the greatest of weekly medical

journals, and its capacity for putting forth creditable medical literature is prodigious.

With these facts before them, it is clearly a patriotic duty of the membership to use every means in their power, to push the good work of organization, in season and out of season, until their journal shall become the greatest medical journal on the habitable globe. We urge every individual member to say a word to his medical friends, in favor of the necessity of standing shoulder to shoulder in the proud and patriotic work of enlisting every worthy member of the American medical profession in the cause of medical organization. Organize! brethren, in solid phalanx for the advancement of American medicine and fall into line under the broad banner of fellowship in the AMERICAN MEDICAL ASSOCIATION! Do not rest until you have secured the adhesion and membership application of every medical man in America.

### THE SEMI-CENTENNIAL OF THE AMERICAN MEDICAL ASSOCIATION.

The excellent suggestion of DR. SAMUEL C. BUSEY, quoted in our last issue (page 296), that preparations should be made for a proper celebration of the semi-centennial anniversary of our ASSOCIATION should not be allowed to pass unheeded.

The long and eventful life of the ASSOCIATION, the great wisdom and foresight of its founders, the great advances in professional organization and work due to the persistent efforts of the ASSOCIATION, the solid and material gains to the profession itself, and the foundation of the JOURNAL, afford abundant material for glorification and a jubilee occasion.

It will be therefore in every way fitting that a strong committee be appointed at Baltimore to carry out DR. BUSEY's suggestion in a manner at once creditable to the ASSOCIATION and gratifying to the whole profession.

### CORRESPONDENCE.

#### Inebriety.

ORAN, Mo., Feb. 25, 1895.

To the Editor:—Is a man who has been confined in prison ten or twelve years and who has not drank a drop of liquor in all these years an inebriate? Thousands of drunkards have been imprisoned, and not allowed to drink, and after a number of years released well, so far as physical appearances would indicate. The extreme scientists may assert that such men are diseased because many, so soon as they are released get drunk. If carelessness for public opinion is indicative of disease, then drunkenness is possibly a disease too. The remedy is rather curious but it is very effective. It "almost hardly ever fails." Prisoners are rarely troubled with this malady after the first day in jail. The remedy that cures this malady in so short a time is rarely used in other diseases.

Moral suasion is another effective remedy in drunkenness, but does no good in pneumonia. I used to say that religion

cured more bad cases of inebriety than any other remedy, but my ultra scientific friend scared me off the track, by telling me I was "dogmatic" (whatever that may mean). They tell me that the cases I report as cured are only *apparently* well. I ask them now, how is it with the men who have been *scientifically* cured; are they well or only *apparently* well? There are relapses in both cases; does the relapse prove that no one has been cured? If such a theory is true, there is no way to tell when a case has been cured. If drunkenness is a *disease* and the inebriate is like the patient with typhoid fever, entirely irresponsible for his acts, it is high time that it should be known. There is no earthly use for courts of justice fooling away their time with business that belongs exclusively to the medical profession. There has been a great wrong done to drunkards and doctors too. The drunkard has been punished and the doctor has lost his legitimate fees. Lawyers are responsible for this. They knew all the time that the drunkard was only sick! And instead of sending for the doctor they send for a policeman, have the poor drunkard imprisoned and get a fee for having him released, when the proper thing was to send for a doctor who obtains a fee for his call and prescription and sends the man where he belongs (*to a hospital*) where he can be cured and the hospital doctor gets his proper fee.

I think the editor is striking out in the proper direction. If we can convince the people that the inebriate belongs exclusively to us we will soon have plenty of practice and money too. The inebriate has paid the legal profession and courts good wages all the time, and if we can turn this great source of wealth into its proper channel it will be a blessing to the profession. Start a petition to Congress, and have all physicians sign it. We have been imposed upon long enough and will fight for our rights.

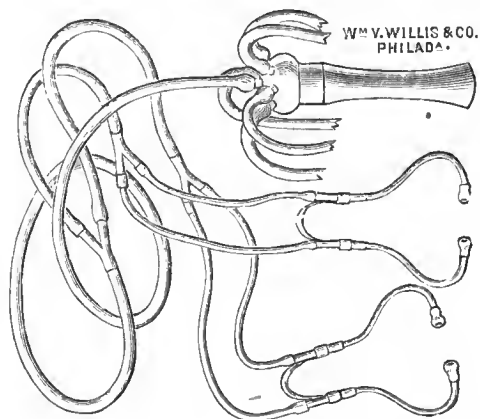
Hurriedly submitted by

W. P. HOWLE, M.D.

### A Multiplex Stethoscope.

PHILADELPHIA, Feb. 17, 1895.

To the Editor:—The interesting communication of Dr. A. M. Corwin, in the JOURNAL for Feb. 16, 1895, upon a double binaural stethoscope prompts me to send you the accompanying cut of a multiplex binaural stethoscope, which I have been using with much satisfaction to the class and myself, at the Jefferson Medical College Hospital for some



months. By means of this instrument, which was made at my request by Mr. William Willis, a well-known instrument maker of Philadelphia, sixteen students can listen to the heart sounds or any other physical signs demonstrable by auscultation, if these sounds are not so indistinct as to be heard with difficulty even when using a single instrument. With large classes the difficulty is that only two or three men can listen to the heart sounds, while the description of the

case is fresh in their memories, but with this multiplex instrument a large number can listen at once with little inconvenience to the patient. If two instruments are employed, thirty-two men can hear the sounds without interfering with one another; the chest pieces taking up but little room and the tubes being made long enough to extend a considerable distance from the patient. These instruments work satisfactorily in direct proportion to the quality of the materials used in their construction and the care exercised in making the wooden chest piece. Very truly yours,

H. A. HARE, M.D.

### Lister's Method.

MILWAUKEE, WIS., Feb. 14, 1895.

To the Editor:—Will you kindly inform me what Lister's method of chromicizing catgut is and oblige

Yours, etc.,

D. T. SHIMONEK, M.D.

307 Grand Avenue.

ANSWER: Lucas-Championierre, in his work on the "Radical Cure of Hernia," thus gives the original formula of Lister, which Lucas-Championierre still adhered to in 1892:

Olive oil . . . . .	100
Acid carbolici cryst. . . . .	20
Water. . . . .	2

M.

Catgut should be immersed in this emulsion not less than six months. Before using the catgut it is soaked for a quarter of an hour in a carbolic acid solution 20 to 100.

### Correction—Diagnosis of Leprosy.

PHILADELPHIA, Feb. 25, 1895.

To the Editor:—I beg you will correct two typographical errors in my letter, published in the JOURNAL of February 23, concerning "Leprosy and its Diagnosis." The words "and the analgia" should read erythromelalgia, and "ainhumides" should read ainhumoides. The first error as it stands now, makes the reading incomprehensible and senseless.

Respectfully,

LOUIS A. DUHRING, M.D.

MORAL: Write so that it can be read. Had our esteemed correspondent written the original as plainly as he has written this one, he would have had no cause for complaint.—ED.

## ASSOCIATION NEWS.

### American Medical Association.

{ OFFICE OF THE PERMANENT SECRETARY.  
1400 Pine Street, PHILADELPHIA.

The forty-sixth annual session will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday, and Friday, June 7, 8, 9, 9, and 10, commencing on Tuesday, at 10 A.M.

"The delegates shall receive their appointment from permanently organized State medical societies, and such county and district medical societies as are recognized by representation in their respective State societies, and from the medical department of the Army and Navy, and the Marine-Hospital Service of the United States.

"Each State, county, and district medical society entitled to representation shall have the privilege of sending to the ASSOCIATION one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number: *Provided*, however, that the number of delegates for any particular State, Territory, county, city, or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the ASSOCIATION."

Members by Application.—Members by application shall consist of such members of the State, county, and district medical societies entitled to representation in this ASSOCIATION as shall make application in writing to the Treasurer, and accompany said application with a certificate of good standing, signed by the president and secretary of the society of which they are members, and the amount of the annual subscription fee, \$5. They shall have their names upon the

roll, and have all the rights and privileges accorded to permanent members, and shall retain their membership upon the same terms.

The following resolution was adopted at the Session of 1888:

*That in future, each delegate or permanent member shall, when he registers, also record the name of the Section, if any, that he will attend, and in which he will cast his vote for Section officers.*

Secretaries of medical societies, as above designated, are earnestly requested to forward, at once, lists of their delegates.

#### AMENDMENTS TO THE CONSTITUTION AND BY LAWS.

[Offered in 1892, and laid over from 1893 and 1894.]

Offered by Dr. C. A. L. REED—Amend Article II, Section 1, of the Regulations, by inserting after the words "United States," "the Dominion of Canada, Labrador, and Newfoundland," and that such other changes be made in the phraseology of the Regulations and By-Laws as to make the same conform to this contemplated enlarged jurisdiction of the Association.

By Dr. I. N. QUIMBY—"That Thursday morning's general session be omitted, and the time be devoted to sectional work."

By Drs. JOHN MORRIS and J. G. KIERNAN—Amend Section 7 of the Constitution, entitled, "the General Business Committee," as follows: "It shall be the future duty of the General Business Committee to make and present the nominations for the officers of the Association and its standing committees, and recommend the time and place for the meeting of the Association."

"The General Business Committee of the Association shall perform all duties hitherto performed by the Committee on Nominations, which is hereby abolished. All sections of the Constitution and By-Laws, or parts thereof, inconsistent with the amendment, are hereby repealed."

By Dr. F. F. DOW—Amendment to the Constitution, to be known as Article VIII, entitled: "The Code of Ethics:" "The relations of the physician to the patient, to the public, and to the profession require that he shall be of good moral character, and in his personal and professional conduct without reproach; that he shall avoid pretense and notoriety; that he shall properly qualify himself for professional duty by broad and liberal studies in letters, sciences and arts; that he shall employ reasonable and reputable methods of practice; that he shall respect the laws of the State; that he shall encourage efficient means for the enlightenment of public opinion regarding the responsibilities of medical men and the relation of the citizen to public health, for the cultivation of medical education, for the promotion of the interests, usefulness, and honor of the profession, for the emulation, concerted action, and friendly intercourse among those engaged in it."

"Substituting the Roman numerals IX for VIII."

"All articles, By-Laws, and Codes inconsistent with this amendment are hereby repealed."

By Dr. J. H. RAUCH—"That on and after July 1, 1897, no one will be admitted to membership in the AMERICAN MEDICAL ASSOCIATION who has not studied medicine for four years, and attended four annual courses of lectures of at least six months' duration."

By Dr. F. F. DOW—Amend By-Law No. XI, relating to the Judicial Council. The second clause of paragraph 3 shall be amended to read as follows: "The decisions of said Council on all matters referred to it by the Association shall be reported at the earliest practicable moment, and shall be final unless revised by the Association."

By Dr. A. B. HOSMER—"WHEREAS, The constantly increasing number of papers on general surgical subjects presented each year at the Surgical Section of this Association, the reading and even restricted discussion of which prohibit the introduction of any considerable number of papers on strictly orthopedic subjects, which might not prove of universal interest to the general surgeon; and

WHEREAS, There are already a sufficient and rapidly increasing number of members of the Surgical Section of this Association especially interested in this branch of surgery to warrant it; therefore be it

"Resolved, To amend Article II of the By-Laws by the addition, under the heading Sections, and after 12, Physiology and Dietetics, the following: 13, Orthopedic Surgery."

By Dr. J. T. PRIESTLEY—"The entire report on Constitution etc., as offered in the report of Dr. Holton at San Francisco."

#### ADDRESSES.

On General Medicine, by Dr. William E. Quine, Chicago, Ill.; on General Surgery, by Dr. C. A. Wheaton, St. Paul,

Minn.; on State Medicine, by Dr. H. D. Holton, Brattleboro, Vt. Committee of Arrangements, Dr. J. J. Chisolm, Chairman, Hotel Stafford, Baltimore, Md.

WILLIAM B. ATKINSON, M.D., Permanent Secretary.

#### EXTRACTS FROM BY-LAWS.

"The Chairman of each Section shall prepare an address on the recent advancements in the branches belonging to his Section, including suggestions in regard to improvements in methods of work, and present the same to the Section over which he presides, on the first day of the annual meeting. The reading of such address not to occupy more than forty minutes."—By-Laws.

"It shall be the duty of every member of the Association who proposes to present a paper or report to any one of the Sections, to forward either the paper, or a title indicative of its contents and length (not to exceed twenty minutes in reading), to the Secretary of said Section at least one month before the annual meeting at which the paper or report is to be read."—By-Laws.

4.—The Publication of Papers and Reports.—"Every paper received by this Association and ordered to be published, and all plates or other means of illustration, shall be considered the exclusive property of the Association, and shall be published and sold for the exclusive benefit of the Association."—By-Laws.

#### OFFICERS OF SECTIONS.

*Practice of Medicine.*—E. W. Kellogg, corner Mitchell Street and First Avenue, Milwaukee, Wis.; Wm. E. Quine, Secretary, 103 State Street, Chicago, Ill.

*Obstetrics and Diseases of Women.*—F. H. Martin, Chairman, 34 East Washington Street, Chicago, Ill.; X. O. Werder, Secretary, 514 Penn Avenue, Pittsburg, Pa.

*Surgery and Anatomy.*—Joseph Ransohoff, Chairman, 296 Walnut Street, Cincinnati, Ohio; Reginald H. Sayre, Secretary, 285 Fifth Avenue, New York.

*State Medicine.*—Liston H. Montgomery, Chairman, 70 State Street, Chicago, Ill.; Chas. H. Shepard, Secretary, 81 Columbia Heights, Brooklyn, N. Y.

*Ophthalmology.*—Edward Jackson, Chairman, Denver, Colo.; H. V. Wurdemann, Secretary, 805 Grand Avenue, Milwaukee, Wis.

*Laryngology and Otology.*—J. F. Fulton, Chairman, 326 Wabasha Street, St. Paul, Minn.; T. J. Gallaher, Secretary, 129 Collins Street, Pittsburg, Pa.

*Diseases of Children.*—Edward H. Small, Chairman, Penn and Negley Avenues, Pittsburg, Pa.; G. W. McNeil, Secretary, 280 Frankston Avenue, Pittsburg, Pa.

*Oral and Dental Surgery.*—M. H. Fletcher, Chairman, 65 West Seventh Street, Cincinnati, Ohio; E. S. Talbot, Secretary, 125 State Street, Chicago, Ill.

*Neurology and Medical Jurisprudence.*—Daniel R. Brower, Chairman, 34 East Washington Street, Chicago, Ill.; T. D. Crothers, Secretary, Walnut Hills Sanitarium, Hartford, Conn.

*Dermatology and Syphilography.*—A. E. Regensburger, Chairman, San Francisco, Cal.; D. H. Rand, Secretary, Portland, Ore.

*Materia Medica and Pharmacy.*—W. Helpsey, St. Louis, Chairman; G. F. Hanson, Secretary, 715 Clay Street, San Francisco, Cal.

*Physiology and Dietetics.*—M. H. Woolsey, Chairman, Oakland, Cal.; C. G. Chaddock, Secretary, 2900 Washington Avenue, St. Louis, Mo.

**Section on Gynecology.**—Dr. Charles Jacobs, the distinguished gynecologist of Brussels, will attend the meeting of the AMERICAN MEDICAL ASSOCIATION in Baltimore, and, if opportunity offers, will perform his operation of vaginal total extirpation of the uterus and appendages, before such of the members as desire to witness it.

**The Baltimore Meeting—Notice to Exhibitors.**—The Committee of Arrangements has rented the Cyclorama Building, for the pharmaceutical exhibit in connection with the meeting of the AMERICAN MEDICAL ASSOCIATION. This building is directly across the street from the new Music Hall, in which the meetings of the Association will be held. Intending exhibitors are requested to forward their applications for space at their earliest convenience. Diagrams, rates, etc., will be forwarded upon request. It is desired to make the exhibit of pharmaceutical products, instruments, etc., a special feature of the meeting. The Committee on Exhibits will do

all in its power to satisfy exhibitors, both as regards space conveniences for storage, and rates. At the same time it must be evident to every one that the first applicants will have first choice of position. The diagram of spaces will also show the location of the exhibition building in relation to the meeting hall, and the principal railroad stations.

All correspondence in reference to the exhibits should be addressed to the undersigned.

GEORGE H. ROHÉ, M.D.,  
Chairman Committee on Exhibits.

Hotel Stafford, Baltimore, Md.

**Section on Dermatology and Syphilography.**—List of papers to be read at the next meeting in Baltimore, in June: Chairman's address, and papers on "The Identity of Lupus Vulgaris Erythematous," by Alfred E. Regensburger, San Francisco, Cal.; "Keloid," by A. Ravogli, Cincinnati, Ohio; "The Human Epitrichium and its Relations to some Congenital Skin Diseases," (also Specimens), by A. H. Ohmann-Dumesnil, St. Louis, Mo.; "Adenoma Sebaceum," by W. E. Maxwell, Portland, Ore.; "Syphilis—the Dangers of and how to avoid Them," by A. S. Garnett, Hot Springs, Ark.; "Syphilis of the Pharynx," by A. Ravogli, Cincinnati, Ohio; "Syphilis and Gonorrhea as an Etiologic Factor in Diseases of Women," by H. R. Holmes, Portland, Ore.; "Syphilitic Specific Ulceration of the Rectum," by James P. Tuttle, New York City; "Conceptional Syphilis," by David H. Rand, Portland, Ore.; "Cerebral Syphilis," by Frank P. Norbury, Jacksonville, Ill.; "Hereditary Syphilis," by G. S. Stein, Columbus, Ohio; Edward Martin, Philadelphia, Pa., subject not stated; Jas. Nevins Hyde, Chicago, Ill., (promised) subject not stated; James E. White, Boston, Mass., (promised) subject not stated; W. A. Hardaway, St. Louis, Mo., subject not stated; Louis Franks, Milwaukee, Wis., subject not stated; W. F. Breakey, Ann Arbor, Mich., subject not stated; W. T. Corlett, Cleveland, Ohio, subject not stated; "Exhibition of Protozoa in three cases of Skin Disease," and "Some late and interesting points on the Pathology of Herpes Zoster," by T. E. Gilchrist, Baltimore, Md.; L. Duncan Bulkley, New York City, subject not stated, unless it be "Signs, Diagnosis and Treatment of Sycosis—Differential Diagnosis, Pathology, Local and Internal Treatment."

## BOOK NOTICES.

**Dose-Book and Manual of Prescription-Writing**, with a list of the official drugs and preparations, and also many of the newer remedies now frequently used, with their doses. By E. I. THORNTON, M.D., Ph.G. Philadelphia: W. B. Saunders. Chicago: The W. T. Keener Co. Price \$1.25.

The author says on page 21 concerning the metric system: "This system of weight, length and capacity has largely come into general use, and its adoption into the United States Pharmacopœia of 1890 makes it obligatory upon the physician to understand and *to be able to translate it into the ordinary apothecaries weights and measures, that he may be able to use it in prescribing.*" (Italics ours.) Such statements are absurd. Why should anybody wish to translate the metric dose into the obsolete British form? There is only one way to use the metric system of dosage, and that is to learn the single dose. One can, if he desire, carry a little dose slip in his visiting list or call book, on which is printed the dose of each drug in metric terms; let him consult it a few times and he will soon become familiar with the dosage of the more common drugs. Rules for conversion are tiresome and frequently lead into making fractional doses that are ridiculous and unnecessary.

The author very properly remarks that the decimal system is easy to learn, as it is as simple as our monetary system, but he might have said that it adds to the confusion to undertake to work out a complicated mathematical problem whenever one wishes to write a prescription. The space

devoted to these translations is therefore worse than useless. There is but one thing to remember, that is the single dose, then *multiply the single dose by the number of doses wanted*, point the decimal, by using a line instead of a point, to emphasize it, and the thing is done.

The directions for prescription writing are excellent and the excursion into Latin construction entirely proper, but the examples of prescriptions are all in the old dosage, with a solitary exception on page 147. A large part of the book is devoted to a dose list of the official drugs; both systems are used.

This book has a field, and with alterations in the directions indicated, will be well adapted to meet the necessities of the time.

**Doctor Judas; a Portrayal of the Opium Habit.** By WILLIAM ROSSER COBBE. Cl., pp. 320. Chicago: S. C. Griggs & Co. 1895.

The author has named opium, Doctor Judas, because while it cures or saves it betrays, and the whole of the book is devoted to setting forth the evils that the opium habit entails.

"Contention has been made," says the author, "that in the hands of physicians there is safety in its use. This is contrary to the evidence of numbers of former habitués, all of whom save two, had the habit fastened on them by their family doctors. Confirmation of the danger that comes from medical carelessness is had in a trustworthy record of more than twelve hundred cases, upward of 70 per centum of whom owed their serfdom to the same agent. It should be explained that many of those personally known, are themselves physicians who prescribed the drug that fastened the habit upon their souls."

Whether prepared to indorse *in toto* the author's faith, there can be no harm in obeying the mandate of Mr. Cobbe that "the opiate should never be given for a longer period than a week at the most, and the patient should be kept in absolute ignorance of the nature of the prescription. It is absurd to insist that the physician can shut off the use of it merely by refusing to give it any longer. What does the sick one care for the doctor's interdict, when he can buy enough at the nearest drug store to fix the habit upon a score of persons?"

The book seems to well portray the sad experiences of the unfortunate opium victim, and it is written with much power. The suggestion that there is a concealed advertisement for the one solitary doctor who alone can cure this disease, does not militate against the literary merit of the book. That it holds out a hope to the sufferer is true, but the author and his readers may as well put this thought "in their pipe and smoke it." That is, that in the present enlightened age, no one has a monopoly of knowledge of the means of cure, or of the method of its application.

**Charaka Samhita.**—The eleventh fasciculus of this ancient Hindu book lies on our table. It is fully as curious, and not less interesting than its predecessors. Much space is given to the dietary in this fasciculus. Fish is not to be eaten with milk, and "the meat of domesticated animals, of those that live in marshy regions, and of those that are aquatic, should never be taken in conjunction with such things as honey, sesame oil, molasses, milk, masha (*Phascolus radiatus*), mulaka (*Raphanus sativus*), tolu stalks, and such paddy as have put forth sprouts."

We shall find, if we strip the matter of its verbiage, that the ancient Hindus possessed a fair idea of digestion, and that they well grouped the different varieties of esculents according to their qualities. The code of health of Salernum, written during the Crusades, is not much nearer modern modes of expression than this most ancient of all medical books known to mankind. The learned Avinash Chandra Kaviratna has conferred great pleasure on medical scholars everywhere by making the Charaka Samhita accessible.



## PUBLIC HEALTH.

**High Death Rate in Chili.**—The heavy rate of mortality in Chili has led the Equitable Life Assurance Society to discontinue a further issue of policies in that republic.

**Bovine Tuberculosis in France.**—M. Alexandre in a report on the subject of tuberculosis in stables in the Department of the Seine, gives some interesting figures. He found the disease in seventy herds. Of 20,000 cows, only 68 were recognized as tuberculous, a proportion of 3.4 per 1,000. M. Alexandre therefore holds to his opinion that the consumption of the flesh and milk of our domestic animals is not the cause of the terrible mortality from tuberculosis among mankind. It is important, he says, that this once accepted belief be thoroughly rooted out of our minds. He urges, nevertheless, that modifications of the existing laws ought to be made at once, so as to make compulsory the employment of the tuberculin test on all animals of a herd in which a case of tuberculosis has been proved to exist.

**Tuberculosis in Germany.**—It is generally admitted that the mortality from pulmonary tuberculosis increases yearly, especially in large cities; but recent statistics collected by Professor Hollinger, of Munich (*Semaine Medicale*) seem to demolish this theory—at least so far as the principal German cities are concerned. For example, the mortality from tuberculosis in Munich, which was 40.8 per 10,000 inhabitants in 1883, had decreased to 30.8 in 1893; in Berlin the diminution has been 9 per 10,000 (25.7 in 1893 against 34.7 in 1883). A corresponding diminution has been shown for Frankfort, Dresden, Stuttgart and other cities. It is probable that there has been a similar reduction in other countries, for in Vienna during the same space of time the mortality from tuberculosis has been lowered from 69.29 to 47 per 10,000. This lowered mortality is undoubtedly due to the hygienic measures, individual and general, taken in regard to tuberculous patients. This is not the sole reason, however, for the deaths began to decrease before any vigorous prophylactic measures were instituted. Part of this decrease, then, should be attributed to the cleansing of the cities.

**An Antitoxin Plant at Brooklyn.**—By authority of the Mayor, a grant of \$10,000 has been given to the Brooklyn Department of Health for the establishment of a serum plant. This sum, it is believed will enable the bacteriologists of the Department to continue for one year with a twenty-horse stable. The authorities of the city were induced to take this action largely by reason of the representation of the medical societies and profession. The motive leading to this outlay has been the high prices that are still ruling and must, for a considerable period, continue to rule in the market for foreign serum; these prices being practically prohibitive to the poor and to institutions that have no funds for extraordinary remedial expenditures. At \$3.50 per bottle for the imported serum, the impecunious must do without, unless there are created local plants for the gratuitous distribution of the remedy. At Brooklyn a beginning has already been made with three horses. One of these latter is soon to be tested. It is reported that some few of the horses owned by the New York City Board of Health have already yielded a product fully equal to the strongest of the imported serums. The clinical results from the same quarter are reported as continuing favorable. There is now being constructed a chart for the purpose of graphically setting forth the decreased mortality by diphtheria that has followed the increased use of the antitoxin. There is no longer any doubt in the minds of the experts that the ratio of mortality has progressively fallen in proportion as the quantity of serum has become more and more accessible.

**Mortality of New York State in 1894.**—The Empire State had a total loss of 118,195 lives in the year 1894. This reported loss, plus an estimated deferred return of about 3,800 deaths, yields a death rate of 18.75 per 1,000 living. This is the lowest rate that has been recorded since 1889. There was a daily average of 324 deaths, as against 340 in 1893. The mortality under five years was 35.1 per cent. of the total; a point that had not been reached before in five years. Zymotic mortality was 18.6 per cent. of the total, or slightly above the average of the last five years. Diphtheria and croup caused 6,592 deaths or 96 per 100,000 population—the highest rate since 1889. This heightened prevalence and mortality was limited to the maritime district of the State, in which is included the cities of New York and Brooklyn. Typhoid fever caused 1,640 deaths; scarlet fever 1,227; measles 900; whooping cough 1,020. Smallpox caused only 27 deaths in the State at large; but 281 deaths occurred in the metropolitan center, total 308; only 60 deaths by that cause occurred in the last six months. Diarrheal diseases presented a high mortality, 8,956 deaths; malarial diseases 422; and cancer 3,305. Consumption caused 12,824 deaths, while acute respiratory affections were charged with 15,885. The mortality from consumption was equivalent to 108.46 out of every 1,000 deaths, an increase as compared with the totals for 1892 and 1893; a decrease as compared with the preceding years of that quinquennium. There were 3,000 deaths charged against epidemic influenza, or la grippe; which manifested its fifth recurrence, beginning in December, 1893, and lasting about four months. The epidemic was less widespread and less fatal than in certain former years, when as many as 5,000 and 8,000 deaths were referred thereto. The total of deaths cited as "unclassified," 15,310, is an enormously high unknown quantity, when a comparison of causes is in question. Old age is credited with 5,500 deaths, nearly; deaths by violence and accidents nearly the same total. The estimated population for the State is not given in the printed "Summary" recently distributed, but from the Fourteenth Annual Report of the Board of Health, we learn that the population was held to be 6,689,000, of which 3,350,600 dwelt in the maritime district.

**Sero-therapy and Sero-prophylaxis.**—MM. Le Breton and Magdelaine give an account in *Le Bulletin Medical* of their experiences with the diphtheria antitoxin in the Paris Hospital for Sick Children. The diphtheria pavilion is divided into two rooms, one for boys and one for girls, each of which has a small room for isolation. As all the children were placed before diagnosis in the same contaminated atmosphere the following routine was adopted: Every child admitted to the pavilion was given an injection of 10 to 20 c.c. of serum according to its condition or the probability of its having diphtheria; this was done as soon as the child was seen either by the authors or by one of the attachés of the Pasteur Institute. The injection was thus made before any bacteriologic diagnosis. If the tube, sown immediately, showed cultures of the Löffler bacillus on the second day, the injection marked the beginning of the curative treatment. In the contrary case, it was purely prophylactic and children thus protected were allowed to remain the length of time necessary for their cure and no case of contagion occurred in the hospital. No local treatment was used with the serum save irrigation with a weak Labarraque's solution (50 c.c. to 1,000), which has no therapeutic value and only served to detach the loosened membrane. General tonic treatment was instituted, both for the disease and for complications. There were 330 children admitted, 258 of whom had diphtheria. Of these 258 only 31 died—12 per 100, and if we omit eight cases dying in the first twenty-four hours the mortality is only 10.8 per cent. Tracheotomy was performed twenty-four times with nine deaths—37.5 per cent. Intubation was performed in fifty-one cases of diphtheria with fourteen deaths—27.45 per cent. Among these fourteen.

cases seven deaths occurred in less than twenty-four hours, so that there results, for serum-therapy and intubation, a mortality of only 18.1 per cent. This death rate is very low especially when the period covered is considered—the months of October, November and December—and the further fact that many of the cases were very grave, 147 out of the 258 having mixed infections and these furnished 19 out of the 31 deaths. The untoward effects of the serum were those previously noticed; in the 1,200 injections a slight redness developed at the site, but only one suppurated; some were followed by eruptions, (70 cases); in 140 cases albuminuria developed. The authors however, conclude that on account of the elevation in temperature and possible renal complications, that the serum should no longer be used as a preventive in children exposed to diphtheria.

**Epidemic Diseases.**—Notwithstanding an increasing prevalence of influenza, the general death rate is not materially affected by this disease, except as it occurs as a complication of pneumonia. Its incidence seems to be chiefly along the North Atlantic—New York and Washington being especially afflicted; but nowhere in this country has it attained the proportions which cable dispatches report in Great Britain, where it is estimated that about 15 per cent. of the population are sufferers from the malady. The well-informed London correspondent of the New York *Sun* reports that among those who are laid up with the distemper are Lord Roseberry, Mr. Balfour, Mr. Henry Irving, Lord Dunraven, forty-five members of the House of Commons, 20 to 40 per cent. of the staffs of the principal banks, and one-third of the judges of the high courts. The postal and telegraph services are seriously affected by the prostration of hundreds of employes by the disease. He adds that, "Mr. Walter Besant yesterday told of a golden wedding reception which was attended by one hundred guests a week ago. Ninety of these are now in bed with influenza. The number was increased to-day (February 24) to ninety-one, for Mr. Besant himself has been stricken." Dr. Andrew H. Smith, in the *Medical Record*, notes the changes of type that have occurred in the disease from year to year since 1889. At first, the respiratory conditions prevailed almost exclusively, but presently an abdominal form became frequent, and then cases were observed in which the nervous system seemed to bear the brunt of the attack. Before the close of the second epidemic these several types—respiratory, abdominal and nervous—were pretty generally recognized, and were sufficiently distinct to serve roughly as a basis of classification. By the third year the severity of the disease had greatly abated and the types became less characteristic. During the latter part of last year's epidemic, a purely tracheal cough became a leading feature. This year the same cough is present, but, in addition to it, there is a positive sense of soreness and discomfort in the trachea. Another peculiarity, more marked this year than before, is the occurrence of subnormal temperature after the subsidence of the febrile stage, suggesting the possibility of a production of secondary toxic material, having an action upon the heat centers directly opposite to that of the poison which was present at the beginning of the attack. This subnormal temperature may persist for a week or more, during which time there is no other evidence of disease, unless it be a feeling of lassitude, with more or less mental depression, and perhaps an excessive amount of phosphates in the urine. Dr. Smith urges that "the importance of avoiding exposure during convalescence can not be too strenuously enforced. In every case in which serious complications have arisen under my observation, they were due to lack of care in this respect. Too great haste to resume business or pleasure-seeking is responsible for most of the fatality of the gripe."

The recent severe weather has enormously increased the death rate from pneumonia and bronchitis, and among the aged. Diphtheria is declining in frequency and many observers note a lessening grade of severity. So marked has been the decline in some localities—New York for example—that the Boston *Medical and Surgical Journal* suggests a causal relation between this phenomenon and the increasing use of the antitoxin. Such relation is more than doubtful, however, at least in this country.

The smallpox wave appears to be moving southward; in St. Louis and other localities in the Mississippi valley, although official reports are wholly wanting, there is, un-

doubtedly, a serious increase in the prevalence of the disease. It is declining in Chicago, Milwaukee and Detroit; in the former city there were 20 new cases reported during the week ended February 27, making a total of 85 new cases during the month up to that date—total treated 202; discharged recovered 96, died 24, death rate 11.6 per cent. In Milwaukee on the 25th ult., there were thirty cases remaining—ten in hospital and twenty in homes; eight new cases reported during the week.

**Prevention of Blindness.**—In New Jersey the following law has been favorably considered by the committees in both Houses, and it is hoped it will become a law:

SENATE NO. 91, STATE OF NEW JERSEY.

Introduced Feb. 4, 1895, by Mr. Williams. Referred to the Committee on Miscellaneous Business.

An act for the prevention of blindness in the State of New Jersey.

SECTION 1.—Be it enacted by the Senate and General Assembly of the State of New Jersey, That should one or both eyes of an infant become inflamed, swollen or reddened, or show any unnatural discharge at any time within two weeks after its birth, and no legally qualified practitioner of medicine be in attendance upon the infant at the time, it shall be the duty of the midwife or nurse, attendant or relative having charge of such infant to report in writing, within six hours, to the local Board of Health of the city, township or other municipality in which the parents of the infant reside.

SEC. 2.—And be it enacted, That the said Board of Health shall direct the parents or persons having charge of such infant suffering from such inflammation, swelling, redness or unnatural discharge of the eye to immediately place it in charge of a legally qualified practitioner of medicine, or in charge of the physician of the city, township or other municipality if unable to pay for medical services.

SEC. 3.—And be it enacted, That every local Board of Health in the State of New Jersey shall furnish a copy of this act to every legally qualified practitioner of medicine, and to each person who is known to act as midwife or nurse, in the city, township or other municipality for which such Board of Health is appointed; and the Secretary of State shall cause a sufficient number of copies of this act to be printed, and to supply the same to such officers for distribution.

SEC. 4.—And be it enacted, That any failure to comply with the provisions of this act shall be punishable by a fine not to exceed two hundred dollars, or imprisonment not to exceed six months, or both, upon conviction under prosecution proceedings to be brought by any local Board of Health.

SEC. 5.—And be it enacted, That this act shall take effect and be in force on the first day of May, one thousand eight hundred and ninety-five.

The wording of this act is rather unusual, in that it imposes a penalty upon parents for the neglect of their children. This is apparently rather harsh, as it is naturally supposed that parents would do all in their power without the fear of any such law. The practical fact is, however, that this form of cruelty to children too often passes unnoticed and inasmuch as a large number of these individuals made blind by such neglect subsequently become charges upon the State, it is but right the State should recognize the danger and impose penalty upon parents, as well as nurses who are too ignorant or too negligent to take the precautions necessary. It is hoped that the bill will pass in its present form and it would be well if as strong a law could be enacted in other States.

## NECROLOGY.

LOUIS CONRAD, M.D., of Brooklyn, N. Y., died January 25, aged 37 years. He was a native of New Jersey, born of German parents, and had been in the practice of medicine since 1887, in which year he was graduated from the medical department of the New York University. His entire professional life had been passed in Brooklyn. His final illness was the result of an acute pulmonary tuberculosis that made its presence known about four months ago.

HENRY V. BYRNE, M.D., of Brooklyn, N.Y., February 17, the youngest son of Dr. John Byrne, the well-known gynecic surgeon of St. Mary's Hospital, has died at the early age of 24 years. He was graduated from the University of Vermont Medical Department in the class of 1892. He was a young physician of rare qualities and promise; his untimely death was due to pulmonary tuberculosis of about one year's duration.

FERDINAND WILLIAM OSTRANDER, M.D., the oldest physician of Brooklyn, died January 29, in consequence of an attack of influenza with certain of the complications incident to age. He was a native of New York City, born there over ninety years ago. He received, in 1828, his license to practice from the New York County Medical Society, which at that time had a legal status affording many rights and privileges not now possessed by the county organizations. He was for sixty-two years a resident of Brooklyn, with a very considerable practice among the old Long Island families. Not a few members of the Ostrander family have followed honorably the profession of medicine. The subject of this notice has surviving him a son who is a physician in the same city. Dr. Ostrander retired from active practice about ten years since. In 1835, when an epidemic of cholera afflicted the western end of Long Island, he was one of the staff of physicians officially engaged to care for the sick of the village of Brooklyn; it is recorded that there were ninety cases, with thirty-five deaths. He was a member of his county medical society over sixty years.

ROBERT GRAFTON NOLAN, M.D., of Bergen Point, New Jersey, died, aged 38 years, Jan. 23, 1895. He took his medical degree in 1877 at the University of Vermont. His fatal malady was pneumonia. He leaves a widow and one child.

J. R. LESTER, M.D., of Lebanon, Tenn., February 14.—James Nichols, M.D., of Bradford, Pa., February 16.—S. P. Phillips, M.D., of Ashland, Ohio, February 9, age 41.—A. L. Bronmессette, M.D., of Stafford Springs, Va., February 17.—W. H. Trigg, M.D., of Booneville, Mo., February 21.—C. H. Smith, M.D., of Nyack, N. Y., February 16.—G. S. Comine, M.D., Miller's Falls, Mass., February 19.—O. H. Menees, M.D., of Nashville, Tenn., February 17.—H. L. N. Dubois, M.D., of Portsmouth, N. H., February 24.—M. D. Gordon, M.D., of Huey, Ill., February 23.

## SELECTIONS.

**Etiology of Endometritis in Pregnancy.**—A writer in the *Weiner Klinische Rundschau* had previously at Berlin reported two cases of endometritis of the decidua, in which he had succeeded in demonstrating in the decidua numerous diplococci, at times plainly intracellular, but at that time no cultures were attempted. Recently one of these two patients again came under his observation at the Policlinic of Professor Veit. The decidua area was thickened to two and one-half to three cm., intensely yellow and still remained *in situ*. Histologically the process appeared chiefly as a small-celled infiltration. Among these cells were found a multitude of bacilli, at times joined in longer strings, which were cultivated on agar-agar and gelatin. These bacilli are small rods, rounded at both ends, and of moderate thickness; they show a great similarity to the bacterium coli commune, but are distinguished from it by their behavior under Gram's method. On account of the circumstance that the demonstration of these microorganisms occurred twice in the same patient, the writer believes that he can ascribe to them a prominent rôle in the etiology of endometritis.

**Peri- and Para-Metritis.**—In the *Centralblatt für Gynäkologie* a compilation has been made from forty-four cases of all

those inflammatory processes of the uterus and its appendages which so frequently result from childbirth, abortion or gonorrhea. Several cases of salpingitis may have been included on account of difficulty of diagnosis. In old exudates a mere puncture was generally sufficient; in acute processes with rapid collection of pus a more extended incision, many times also drainage. Of the forty-four cases thirty-four recovered, nine were improved and one died of tuberculosis of uterus and peritonitis, twenty-three were incised, nineteen punctured, and twice there was spontaneous rupture into the vagina. The contents were generally pus, at times a bloody serum or clear serum. The quantity varied from one c.c. to one liter. Length of treatment four days to five months.

**Tuberculosis of Iris.**—Dr. Hans Adler has exhibited a case of tuberculosis of the right iris in a young woman. This affection, he states, is marked by a number of grayish-white nodules, from the size of a poppy seed to that of millet, which lie principally in the ligamentum pectinatum. This condition may be differentiated from gummata in that the nodules are grayish-red in the latter, while sarcoma is not multiple. The history will usually aid in diagnosis.—*Wein. Klin. Rundschau*.

## MISCELLANY.

**Seasonable.**—*Les Nouveaux Remèdes* offers the following seasonable suggestion of an application for chilblains: Tincture of digitalis, 6 grams; thymol, 3 grams; alcohol, 150 grams; glycerin, 150 grams. Mix. To be rubbed on the affected part.

**Bellevue Hospital College Alumni.**—A newly organized alumni association of the Bellevue Hospital Medical College, on February 20, held its first anniversary meeting and banquet, under the presidency of Dr. George A. Evans. At an election then held Dr. R. M. Wyckoff was chosen to succeed Dr. Evans as President for 1895-96.

**Requests for Portland Charities.**—The will of the late Ira Farrington, of Portland, Me., gives sums varying from \$2,000 to \$40,000 to certain named public charities. Of the residuary estate, the two-thirds part goes to the Maine Eye and Ear Infirmary at Portland, while the remaining third is devised to the Public Library.

**The Doctor in Fiction.**—The *Lancet* is fond of quoting the favorable views that writers of fiction are pleased, at times, to take concerning the profession of medicine. The following is one such view, appearing in an American serial publication recently: "Our doctors have to live, of course, but they are kind-hearted as a rule, and take more interest in setting their patients on their feet than in pursuing people for their pay."

**Hippopyrrhin.**—Dr. Badour, of Palaiseau, a retired French army surgeon, suggests "hippopyrrhin" as an appropriate name for the diphtheria antitoxin—compounding the word from ἵππος, a horse, and πυρρὸς red, in recognition of the equine and of Dr. Roux (*roux*, red). This may be, as the *British Medical Journal* says, a dainty device of philological ingenuity, in which "is enshrined a double-barreled compliment." But has Dr. Badour taken into the account one Behring of Berlin, who seems to have some claim to recognition in the distribution of prenominal compliments?

**New York Bacteriologic Bureau.**—One of the recent appointees at the New York Health Board's laboratory for the production of the antitoxin of diphtheria is Dr. Anna Williams. She is a medical graduate, and an assistant in the pathologic laboratory of the New York Medical College for Women. Having early taken a predilection for research in

pathology, she took special courses at Leipsic, and elsewhere in Germany, in lines that have fortunately fitted her for advanced bacterioscopic work. She was admitted to study in the bacteriologic bureau of the Board of Health after a careful examination, during which she readily demonstrated a marked ability in the identification of bacteria. Dr. Williams was one of the first of the eligible candidates to be proposed for a place in the Bureau of Dr. Biggs, when it was determined to increase the staff for the purposes of producing the new antitoxin. Her age is quoted at 25 years. The moderate salary of \$100 per month is allowed for her expert services.

**Malakin as an Antipyretic and Antirheumatic.**—Dr. Robert Abernethy is strongly impressed with the results of malakin in cases of pyrexia of rheumatic and other origin. He details (*Edinburgh Medical Journal* February, 1895) a striking instance of frequent, aggravated, pyrexial outbursts in a case of acute rheumatism, promptly relieved by 15 grain doses of malakin thrice daily, after more than three months of unsuccessful routine with salicin, sulphate of quinin, ice-packs, etc. He has since given it, after other antipyretics had failed, in a good many cases of pyrexia due to various causes; among others, a case of rheumatic fever, with advanced mitral disease, in which it controlled the symptoms admirably without apparently causing any considerable depression; also in two cases of croupous pneumonia in children of 9 and 11 respectively, in which it seemed to have a beneficial effect, both making remarkably good and speedy recoveries. [See also this JOURNAL for February 9.]

**Physical Degeneracy in Prostitutes.**—In his "Etiology of Osseous Deformities," Dr. E. S. Talbot traces the association of physical degeneration with the criminal classes and has made some interesting observations on the anomalies found in prostitutes, showing that these women are a class in themselves, presenting marks of arrest of development and physical and mental degeneracy. The cases examined were not selected, but were taken as they occurred in hospital from those not disfigured by syphilis. In 150 prostitutes thus examined the following abnormalities were noted:

Malformation of the head . . . . .	62
Development of occipital protuberance . . . . .	62
Very receding forehead . . . . .	18
Hydrocephalic . . . . .	15
Various anomalies of the face, prognathism, etc. . . . .	64
Ogival palatine vault . . . . .	38
Congenital division of palate . . . . .	14
Vicious implantation of teeth . . . . .	62
Hutchinson's and Parrott's teeth . . . . .	19
Absence of lateral incisors . . . . .	10
Badly margined ears (Morel) . . . . .	16
Defective ears, deformed, etc. . . . .	47
Anomalies of extremities . . . . .	8
Local asphyxia . . . . .	2

The comparison of these cases with educated women and illiterate peasants is interesting; 82 per cent. of the prostitutes present more than a single anomaly, while among educated women there is found only 2 per cent., and in the peasant class 14 per cent.

**Liquor Potassae in Chloral Poisoning.**—In a brief paper in the *Glasgow Medical Journal* (February, 1895), Dr. John Dougall points out that whatever facts or theories there may be regarding the *modus operandi* of the hypnotic and anesthetic action of chloral, there can be no doubt about its chemie composition and affinities, and, in particular, that it is almost at once decomposed, at and above 60 degrees F., outside the body, by an alcoholic solution of KHO, and, somewhat less quickly, by an aqueous solution of the alkali. Therefore, assuming that a person has swallowed a poisonous dose of chloral—say 80 grains, as was done inadvertently by the late lamented Professor Tyndall—and that there could with safety be given, as a chemie antidote, 27 grains of KHO—this amount being the quantity by weight required to decompose 80 grains of chloral, there are strong

*a priori* grounds for assuming that in about fifteen minutes the chloral in his system would be entirely changed into formate of potassium and chloroform, or at least, that so much of it would be decomposed that the residue would be harmless. As a matter of practice Dr. Dougall would give, in such a case as Professor Tyndall's, 220 minims of liquor potassae—equal to 14 grains of KHO—highly diluted in warm milk, gruel or barley water, in two doses, an hour apart. If this were given before the patient was too far gone the amount of chloral in the system would soon be reduced to a quantity quite within the bounds of safety for an adult, providing there is no heart trouble.

**The Army Medical School, Netley, England.**—The sixty-ninth session of this school was brought to a close on January 31, when twelve surgeons on probation were successful in passing the examination for the British, and fourteen for the Indian Medical Service. The address to the young officers was delivered by W. H. Russell, LL.D., the veteran war correspondent of the *London Times*, who achieved prominence in the literary world during the Crimean War and who has since accompanied troops in no fewer than nine campaigns. He referred at length to the difficulties experienced in the Crimea by the Medical Department of the Army, mentioning the names of many medical officers who were crushed under a weight of obloquy for what they could not help. They could not make bricks without straw. They could not save the lives of those who were perishing with hunger, cold, want of medicine, clothing and everything needful to keep them alive. At that time the Medical Department was not responsible for the arrangements for the cure of the sick and wounded. Now, all this is changed. He complimented the Director General, Sir William McKinnon, the Indian veteran, Sir Joseph Fayrer, and Sir Thomas Longmore, the only survivor of those present at the inauguration of the Army Medical School by Sidney Herbert in 1860. Surgeon-General Maclean also addressed the young officers wishing them a successful, happy, honorable and useful career.

**Observations on Tertiary Syphilis.**—In a paper read before the Fourth German Dermatological Congress, Ehlers, of Copenhagen, presented statistics of 6,816 cases of syphilis under treatment from 1864 to 1881 in the Communal Hospital of Copenhagen. In the résumé given in *Ann. de Derm. et Syph.* these statistics show that tertiary lesions are more common in the first four years. As regards the infectiousness of tertiary phenomena Ehlers thinks that we must revise our opinions. Gummata of the genital organs are especially suspicious, and he cites a case: Patient infected and treated for three years; married; two healthy children were born and his wife was not infected; eight years after the infection the patient had an ulcerating gumma on the penis, which healed badly; two weeks later his wife had a maculo-papular eruption. Ehlers makes the following summary of his observations: 1. Tertiary symptoms were observed in from 12.4 to 22 per cent. of all syphilitics treated in the hospital. 2. Tertiary as well as secondary symptoms are 10 per cent. more frequent in the male; females are not so subject to tertiary symptoms. 3. Tertiary lesions are observed principally on the skin—1,385 times on the skin alone, 139 times on skin and bone; next come ulcerative and destructive processes of the tongue, palate, nose, air-passages—390 cases; in the third place come the nervous lesions—261 cases—which are, in reality, by far the most frequent, but often escape the notice of the syphilographer; if there be added to this group, tabes dorsalis, general paralysis and syphilitic encephalopathy the number of nervous lesions will be increased to 463; lesions of connective tissue occupy the fourth place in point of frequency; the frequency of syphilis in the internal organs can not be determined. 4. The most common cause of tertiary manifestations



# The Journal of the American Medical Association

Vol. XXIV. CHICAGO, MARCH 9, 1895. No. 10.

## ORIGINAL ARTICLES.

### ANTI-TUBERCLE SERUM.

THE TREATMENT OF CONSUMPTION BY SEROTHERAPY—  
REPORT AND PRESENTATION OF CASES TREATED—  
EXHIBITION OF SERUM, ETC.

Read before the St. Louis Medical Society.

BY PAUL PAQUIN, M.D.  
ST. LOUIS, MO.

*Preliminary Remarks.*—It would seem superfluous to say a word here on the pathology of this affection. But the nature of the new treatment demands that we refresh our memory on some points of it before certain therapeutic questions to be dealt with presently may appear clear. The result of my observations and researches have convinced me beyond a doubt that tuberculosis, in the stage of lesions, particularly when pulmonary cavities, intestinal ulcers, etc., exist becomes a mixed infection, due to the introduction of various other pathogenic microbes besides the bacillus of tuberculosis in the specific wound. Myriads of germs of the air, water and food gain access to tuberculous lesions and complicate the primary disease to a very grave degree. The destruction of tissue by these germs, the production of new mixed poisons, perhaps more dangerous sometimes because of chemic combinations, are largely responsible for the irregular chills, fevers and some other pathognomonic phenomena to be seen in advanced tuberculosis. These complicated microbic disturbances which so greatly depress and harass the system are, perhaps, assisted in their nefarious work by the toxins generated in a weakened impaired digestive tube which, failing to digest the food properly, leaves it the prey of various toxic-ferment manufacturing microbes. It is well to bear these points in mind when considering the anti-tubercle serum as a therapeutic agent in tuberculosis, for it probably will not improve complicated cases.

On the other hand, in tuberculosis we should never lose sight of the natural vital resistance of the exposed or suffering individual. It is this *vital resistance* of nature that saves the minority who escape all the damaging influences of the disease, and the principles underlying it explain the serum therapy. To understand this vital resistance, its nature and its scope and increase it in medical practice, is to wield a powerful weapon against the foe. The cursory method of diagnosis, therefore, merely by the interpretation of physical signs is not sufficient to put the doctor in possession of all the important facts necessary for an accurate interpretation of tuberculous phenomena and the proper treatment. The microscope should be brought into play early and often, not only to discover the existence or absence of the bacillus of tuberculosis, but also to establish the differential nature and stage of the organic

lesions as far as possible and to realize the nature and extent of the mixed infection when it exists.

### SEROTHERAPY IN TUBERCULOSIS.

I began the serious study of tuberculosis and experimentation in 1888, at the University of the State of Missouri at Columbia. During my service at that institution I had unsurpassed opportunities for studies in comparative pathology and experimentation. Early in my researches on tuberculosis, I became convinced that the equine species is, to a certain degree at least, naturally immune to the disease, the ass being less susceptible, possibly, than the horse, although I am by no means convinced of this. Later, following step by step the work of Metschnikoff on the theory of phagocytosis, Kitasato and others on the antiseptic properties of blood serum, I formed the conclusion that the chief and direct basis of immunity was lodged in the blood. When the Japanese scientist just mentioned and others, published that properly immunized blood serum was efficacious in the treatment of tetanus, revealing by this momentous discovery the great secret of nature's force in resisting this disease, the light began to dawn in my mind, as in that of every medical man doubtless, to the effect that the prevention and cure of contagions by the use of nature's own remedy was only a question of time. Not many years after, came the welcome announcement that diphtheria was curable by the use of a specially immunized blood serum. The press also reports that investigators in Switzerland and France are testing the blood serum of the ass. Now, I beg to report that by the same principle which underlies the antitoxic serum of Kitasato for tetanus, of Behring and Roux for diphtheria, horse blood serum may be rendered more antagonistic to tuberculosis than it is naturally. This I have accomplished, in laboratory experiments and the result obtained in treating consumptives in the first and second stages, and some in the third stage, indicates quite pointedly that serotherapy will perhaps master this dreadful plague. Indeed, I dared not hope for such universal improvements as were obtained. While in advanced consumption with cavities or other serious lesions impairing important organs gravely, I have not yet arrived at a point where I may formulate reliable deductions, a large per cent. of such cases very seriously involved, increased in six to eight weeks from five to sixteen pounds in weight without any tonic, and without any specially reconstructive diet, only the regular city hospital or poor house fare being admitted, certainly not over nutritious, whereas every witness case in the same ward, suffering with the disease in practically the same stages, untreated by blood serum continued to decline steadily or failed of improvement. Furthermore, the treated

NOTE.—The scientific experiments carried on then and since, both in the laboratory and the field, will form the subject of a special paper. This will contain explanations and results as per records kept.

cases soon began to sleep better, to cough less, expectorate less, eat with relish and their night sweats diminished. In a couple of instances in the first and second stage, cough and expectoration ceased entirely in less than eight weeks, while all the general signs of good health reappeared. There is scarcely enough expectoration in these to make microscopic analyses, and the germs are no longer to be found. I have also several cases with large cavities which have improved remarkably. I have brought here to show you, some of the worst which we have under treatment, that you may judge for yourself of the nature of the affection and its lesions. These had cases with marked alterations of the lung tissue have gained in weight, a number of pounds in eight weeks and have improved in every way. Two of these were stretcher patients when brought to the city hospital. Both had been condemned as hopeless by several physicians. One of these weighs now more than he ever did at his best, when he was perfectly sound and healthy. We have not had any case of any kind under treatment longer than eight weeks, and obviously it is too early for me to express unqualified conclusions, particularly on the serious conditions which to be cured, demand that nature shall build new tissues to fill the gaps. But that serotherapy will prove eventually efficacious to arrest consumption, I feel almost assured.

None of the improvements can be ascribed to mental influences, as it was in nearly every case against the will of the patients that we injected them. For four weeks or more they fought and objected, and only after realizing themselves the benefits did they submit gracefully.

These results surely point to good grounds to hope for more success. Indeed, if in such a short time under such circumstances and in such surroundings one can put flesh and fat on a consumptive, while untreated witness cases under the same conditions continually fail, or at best hold their own, what may we not hope if consumptives in the first and second stages, at least, are placed in a modern sanitarium, or kept in their homes even and surrounded by all the cares and necessities for the rich reconstructive diet that should be granted such unfortunates? What may we not expect if we give them, furthermore, all the sanitary conditions that may aid nature to cure or arrest tuberculosis in any event?

#### RECORD OF CASES.<sup>2</sup>

Mike Morley, age 53, pulmonary tuberculosis in the second stage, has been ill seven years; family with history of tuberculosis. Left lung affected below the scapula at the back; dullness of the apex. Circumference of the chest in expiration 36, inspiration 37.5 inches. Coughed seriously and considerably. Expectoration was yellowish, blood tinged, sometimes pure blood. Bacilli of tuberculosis numerous. Began treatment Dec. 1, 1894. Weight 165 pounds. Lung vital capacity, 110 cubic inches of air. January 26, weight 170 pounds, an increase of 5 pounds in fifty-seven days. Lung vital capacity 110 cubic inches of air.

Charles Reck, age 48, began treatment Nov. 30, 1894; discharged January 3. Was brought to City Hospital on a stretcher; could barely rise on his chair to eat. During thirty-six days' treatment gained nineteen pounds. This man had tuberculosis of the lungs in the third stage;<sup>3</sup> duration two years. Bacilli of tuberculosis profuse; cavity in the left infra-clavicular space; expectorated a considerable amount of blood and sputum.

Phil Hye, age 35, pulmonary tuberculosis, second stage. Coughed six years; was very emaciated; had dullness and softening in one or both apices. Chest during expiration

thirty inches; inspiration thirty-one. Tubercle germs present in abundance. Coughed constantly night and day; mucopurulent expectoration. Began treatment December 1; weight eighty-one pounds; was sleepless. January 26, weight eighty-nine pounds, a gain of eight pounds in less than eight weeks. Cough disappeared almost entirely; sleeps well. This patient was very weak on entering the City Hospital. He had been sent here from Texas, having been given up as hopeless, he said, by Dr. Jestus, city physician of El Paso, Texas, and Dr. Menger, of San Antonio, Texas. He was sent home to die, being considered hopeless. He stated that he had also been condemned as hopeless by a physician of Alexian Brothers Hospital of Chicago, where he had been under Koch's treatment. This patient is now around and about. He walked several blocks from the street cars to come to the meeting of the medical association, in the raw evening atmosphere and in muddy snow. He coughs little or none.

George Dobson, age 28 years, seriously ill two months previous to treatment; pulmonary tuberculosis in the second stage; had had hemorrhages occasionally; had dullness in right apex in infra-clavicular region; expectoration scant. Began treatment December 1; weight at that time 107 pounds; weight January 26, 117.5 pounds, a gain of 10.5 pounds in eight weeks. Vital capacity at the beginning of treatment, 100 cubic inches; vital capacity January 26, 150 cubic inches, a gain of 50 cubic inches.

John Smith, age 23, pulmonary tuberculosis, third stage; duration two years; mother had died of consumption. Lost thirty pounds in two years; affection below the left apex; large cavity; coughed particularly in the morning. Weight December 1, 145 pounds; vital capacity 170 cubic inches. Weight January 26, 154 pounds, a gain of 9 pounds in eight weeks. Vital capacity 180 cubic inches, a gain of 10 cubic inches.

Otto Maye, age 58, pulmonary tuberculosis. Had been suffering for several years. Appetite very poor; coughed considerably; had had slight hemorrhages several times in the morning. Bacilli of tuberculosis present. Weight at the beginning of treatment December 1, 135 pounds; lost flesh gradually until he reached 131 pounds on January 1. Is now gaining and has gained two and one-half pounds between January 1 and January 26. Vital capacity at the beginning of treatment 110 cubic inches, January 26, 160 cubic inches, a gain of 50 cubic inches. This patient is one of those that had an abscess during the process of treatment. He is now gaining.

Nicholas Robinson, age 61; pulmonary consumption in second stage; duration two and a half years. His mother died of consumption. Had had several hemorrhages; night sweats; coughed seriously at nights; expectoration considerable; specific germs present. Affection is in the infra- and supra-clavicular regions, both sides; dullness was quite marked; softening on one side. Weight at the beginning of treatment 119 pounds; weight January 26, 131 pounds. Has gained twelve pounds in about or less than two months. Vital capacity 150 cubic inches, December 1. Vital capacity January 26, 180 inches, a gain of 30 cubic inches. This patient was very weak; could not speak when he was brought to the hospital. He was given up as hopeless. Mild laryngeal tuberculosis existed. Was sleepless. Now sleeps well; coughs very little, has a good appetite and feels stronger.

John Cummings, age 49 years. Weight 90 pounds December 1; weight January 26, 106 pounds, a gain of 16 pounds in two months. Vital capacity December 1, 100. Vital capacity January 26, 110, a gain of 10 inches. This man had had frequent hemorrhages during last summer, and before that, and was almost bed fast. He was very emaciated. The bones almost protruded as a nurse expressed it. The bacilli numerous. The nurse was afraid of bed sores. Appetite was lost, coughed and expectorated a great deal; in fact, the case was despaired of. Is now improving continually, is up and about and able to go up and down stairs and feels in every way in better health; weighs one pound more than in his best health.

John Broderick, age 24; pulmonary tuberculosis in the third stage, duration over one year. Brother died of quick consumption; was very weak, emaciated, had a cavity in left infra-clavicular region, coughed continuously for two months previous to treatment. Weight December 1, 105.5 pounds. Weight January 26, 113 pounds, a gain of 7.5 pounds. Vital capacity 100 cubic inches before treatment. Vital capacity since, varied between 110 and 130 up to Jan. 26, 1895. This is one of the two cases that had an abscess in the back. He was almost bed fast when treatment began. Coughed a great deal night and day. Was very weak;

<sup>2</sup> While preparations for treatment began the last days of November, regular injections began on or the day before December 1.

<sup>3</sup> Diagnosis of city physicians.

breathing was very short and labored. Now coughs very little. No more pains or distress. Is up and about and on detail duty.

Henry Riley, age 34. Weight beginning of treatment 115 pounds. Weight January 26, 124 pounds, a gain of 9 pounds in two months. Had pulmonary consumption in the second stage; duration one and one-half years. Tuberculosis in the family. Had night sweats, diarrhea, marked dullness in the right supra- and infra-clavicular region; appetite poor; coughed frequently at night; expectoration considerable. He was a very sick man, indeed, but is now improving rapidly, and is in fact on detail duty.

James McCafferty, age 48, pulmonary consumption, second stage; duration of cough several years; serious illness in last five weeks; spit blood five weeks previous to treatment; frequent diarrhea; dullness left supra- and infra-clavicular region. Weight at beginning of treatment Dec. 1, 106.5 pounds. Weight January 26, 129.5 pounds, a gain of 13.5 pounds in eight weeks. Vital capacity at the beginning 130 cubic inches of air. Vital capacity January 25, 160 cubic inches, a gain of 30 inches. Was a very sick man, unable to do anything. Is now on night duty at City Hospital, works from 11 P.M. to 6 A.M., a very trying duty for a tuberculous patient.

Thos. Morrison, age 42; pulmonary tuberculosis, second stage, duration over three years; had hemorrhages in 1891. Cavity in left apex. Pronounced dullness in right infra-clavicular region; tubular breathing over same region; appetite poor; cough and expectoration pronounced. Has been in the City Hospital for a couple of years. Weight at beginning of treatment, December 1, 156 pounds. Weight January 26, 158 pounds, a gain of 2 pounds. Vital capacity at the beginning of treatment 160 cubic inches. Vital capacity January 26, 170 cubic inches, a gain of 10 inches. This case does not improve as rapidly as others in worse condition.

John Hopkins, age 48; pulmonary tuberculosis advanced first stage, two years' duration. Mother died of consumption. Digestion bad; cough was getting continually worse; had lost much flesh. Weight Dec. 1, at beginning of treatment, 137.5 pounds. Weight January 26, 144 pounds, a gain of 6.5 pounds in about eight weeks. Vital capacity at the beginning of treatment 250 cubic inches. Vital capacity increased between then and now (January 26) to 260 and even 270 inches.

Conrad Hogan, age 32, pulmonary tuberculosis in second stage; family history good; had slight hemorrhages, night sweats; getting weaker daily; right apex involved and dull; coughed considerably. Weight at the beginning of treatment December 1, 135 pounds; weight January 26, 142 pounds, a gain of 7 pounds in those eight weeks. Vital capacity at the beginning of treatment December 1, 180 cubic inches. Vital capacity January 26, 200 cubic inches, an increase of 20 inches.

Henry Willer, age 46; pulmonary consumption, third stage; no family history of consumption; both apices involved; had had hemorrhages; had been ill five years. His disease had begun with pneumonia. Vital capacity at beginning of treatment 140 cubic inches. Vital capacity to-day is the same. Weight December, 133 pounds. Weight January 26, 132.5 pounds, loss of a half pound. This patient has not increased in weight but has declined less than previously and is stronger and better generally. Temperature is normal and he expresses himself as gaining. It is not a favorable case.

Nils Johnson, age 34; pulmonary tuberculosis third stage. Duration twenty months; dullness on percussion of the apices; tubular breathing; hemorrhage a year ago; expectoration not very pronounced. Weight December 1, at beginning of treatment was not reported. January 1, 156 pounds; January 24, 158 pounds, a gain of 2 pounds in twenty-four days. This patient is not a favorable case; has variable temperature and chills occasionally. It seems to be a mixed infection.

Nicholas Schappo, age 56; pulmonary tuberculosis, second stage, two years' duration; night sweats; left apex dull; coughed considerably at night, and expectorated very much; bacilli of tuberculosis in great numbers. Weight December 1, beginning of treatment 108 pounds. Weight January 26, 107 pounds, loss of 1 pound. Vital capacity December 1, 140 cubic inches. January 26, 150 cubic inches, a gain of 10 inches. This man is ageing and broken down generally and is not a favorable case although he more than holds his own. He has now stopped declining and I may say his lung capacity is better.

Conrad Opperman, age 47; pulmonary tuberculosis in the third stage, duration six months. Mother died of consump-

tion; has had night sweats; was exceedingly emaciated and very weak. Cavity in the right infra-clavicular region. Has diabetes (diagnosis of Dr. Ehrlich); coughed in the morning considerably; bacilli very numerous. Weight at the beginning of treatment December 1, seventy-nine pounds. Weight January 26, eighty-two pounds, a gain of three pounds against continual loss before. Vital capacity at beginning of treatment fifty cubic inches. Has varied since then between fifty and seventy. This man was a stretcher case, brought to the hospital helpless. Could not get up the steps for a long time. Even after some treatment he was very thin. Is now improved, coughs little and is in better health in spite of his diabetes or glycosuric condition. Bacilli much decreased in quantity.

Fritz Arnold, age 59; pulmonary tuberculosis, second stage, duration two years. Tuberculosis in the family; coughed persistently; expectoration profuse; bacilli numerous; appetite bad. Weight at the beginning of treatment, December 1, 122 pounds. Weight January 26, 127 pounds, a gain of 5 pounds in eight weeks. Lung capacity December 1, seventy cubic inches. Vital capacity since has varied between 80 and 110. This is a broken-down constitution generally, but has improved in spite of it. Bacilli now scarce.

William Murray, age 41; pulmonary tuberculosis second stage, duration one year; family history good; is a drinking man; consolidation right apex; night sweats; blood in sputum; appetite poor; coughed a great deal; bacilli very numerous; expectoration profuse. Weight Dec. 1, 1894, 132 pounds. Weight January 25, 134.5 pounds, a gain of 2.5 pounds. Vital capacity at beginning of treatment seventy cubic inches. Vital capacity January 26, 120 cubic inches, an increase of 50 cubic inches.

Thos. Bennett, age 64; pulmonary tuberculosis, second stage; been coughing four months; very emaciated; affected with long standing gastritis; right supra-clavicular region involved, dull. Lung emphysematous; appetite poor; coughing considerable; sputum tinged with blood sometimes and contained bacilli of tuberculosis. Weight December 1, at beginning of treatment, 125 pounds. Weight January 26, 130 pounds, a gain of 5 pounds. Vital capacity keeps 110 cubic inches.

Martin Lemp, age unrecorded; tuberculosis first stage; bacilli numerous. Weight at beginning of treatment December 1, 131.5 pounds. Weight when discharged January 10, 151, making an increase of 19.5 pounds. Lung capacity increased from 170 at the beginning to 190 when discharged. This case was treated a little over a month and a half. He had been reduced greatly in strength and flesh, was unable to work and had to leave his family for the City Hospital. Has now returned to work. Have had no chance to examine his sputum since discharge, when no expectoration existed, to investigate the microbic question.

I purposely omit saying anything about the physical symptoms after treatment to date. This is a record to show general improvement to date, particularly to demonstrate that the great prostrating debility of consumptives (the very ground of tuberculosis as some term it) is the first thing to yield seemingly to the effects of serum.

The following are cases treated and reported by Dr. Cale:

*Dear Doctor Paquin:*—I inclose, herewith, reports of the cases of tuberculosis which have been under my care and treated with your immunized blood serum.

*Case 1.*—Charles J. M., aged 23 years; family history good; was in perfect health until seven months ago; since that time has had a cough, fever in afternoon and subnormal temperature in morning, loss of appetite, loss of weight, night sweats, etc. Small cavity in apex of left lung; large amount of expectoration; bacilli found in sputum in large numbers. Date of first treatment Dec. 22, 1894. The case has progressed nicely. Cough much less; expectoration less; no night sweats and gain in weight of three pounds in two weeks. During the last six days has gained two pounds, sleeps well; in fact all the symptoms have improved.

*Case 2.*—W. A. Buckley, nurse at the poor-house, age 33; family history good; attack dates back two years; cough, expectoration; pain in left side at base of lung, where a small dull area was found; loss of appetite and weight; had had night sweats for two months preceding December, 1894. Bacilli in sputum. Treatment during December and two weeks in January. No cough or any bad symptoms since

January 1. Dullness disappeared and gained six pounds in weight. No night sweats; temperature normal; no more expectoration.

*Case 3.*—George Roth, age 63; tuberculosis in third stage; family history good; temperature ranged from 96.5 to 103.5; cough frequent; expectoration; night sweats; no appetite and loss of weight; bacilli present. Treatment seven weeks. No cough. Gain three pounds.

I have treated irregularly, during a few weeks, two or three more cases at the poor-house, but they are insane and the treatment was not done satisfactorily. However, there was some improvement even in some of them.

GEORGE W. CALE, M.D.

All these records were kept accurately by the physician and nurse in charge of the cases at the City Hospital, and by Dr. George W. Cale, the physician who was put in charge of the poor-house cases, whose valuable assistance I secured as soon as I had gained the idea that I was in possession of blood serum truly useful for the purpose intended. Dr. Cale was selected because of his qualifications in microscopy and surgery, accomplishments required in a man whose help was needed to verify the diagnosis of each case microscopically, and to give an

### Daily Record of Cases of Tuberculosis

UNDER DR. PAQUIN'S TREATMENT.

Name of Patient	Ward	Hospital	Daily Supervising Physician	Special Treatment	Date First Treatment	Month	Day	Mon.	Tue.	Wed.	Thurs.	Fri.	Sat.	Sun.
Monday,														
Tuesday,														
Wednesday,														
Thursday,														
Friday,														
Saturday,														
Sunday,														

#### RESULTS:

Spirometer Tests First before Treatment

Subsequent Tests:	Monday	Wednesday	Friday
Month	Monday	Wednesday	Friday
	Monday	Wednesday	Friday

Remarks on Case

Signed \_\_\_\_\_ M.D. \_\_\_\_\_ Nurse

opinion on surgical cases of tuberculosis, which I wished to secure for experiment. The sputum of every case treated, contained the bacilli of tuberculosis. Dr. Cale mounted specimens from each, and he and I examined every one of them. They have been labeled and kept for future reference. At the City Hospital, after the inauguration of the treatment, the immediate supervision of the injections and attendance was by Dr. Ehrlich, who did his duty carefully and conscientiously. Mrs. Johnson, a very competent woman, was in charge as nurse.

Blanks worded as the sample shown were used, blank A being for the daily reports, and blank B for the history, nature, etc., of each case, and the compilation of the daily records at the end of each month. And so, for each case every precaution was taken that seemed necessary to insure reliable records and to convince the medical profession of the truth of the facts reported.

### THE PREPARATION OF THE SERUM AND ITS APPLICATION.

By laboratory processes I gradually rendered horses more strongly refractory to the action of the germ than they are naturally. Immunization was carried on with the assistance of a deputy veterinarian, Dr. Rouif, of this city, who had previously kept the horses under surveillance and had examined and tested them carefully with me, and independently, until we had fully convinced ourselves of their healthfulness.

Having immunized horses and tested the serum by experimental processes, and noted its effects on animals, and having injected it in myself several times, at intervals and at increasing doses to determine its reaction, it became necessary to procure a number of tuberculous patients to test its value in human consumption. With this object in view, I

### Record of Cases Treated for Tuberculosis.

By PAUL PAQUIN, M.D.

Name of Patient \_\_\_\_\_ Age \_\_\_\_\_ Sex \_\_\_\_\_  
 Where Treated \_\_\_\_\_  
 Residence and P. O. Address \_\_\_\_\_

**BEFORE TREATMENT.**

Weight \_\_\_\_\_ Stage \_\_\_\_\_ Duration \_\_\_\_\_  
 Nature of Case \_\_\_\_\_  
 Blood \_\_\_\_\_  
 Range of Temperature \_\_\_\_\_  
 Microscopic Analysis \_\_\_\_\_  
 Physical Condition \_\_\_\_\_  
 Range of Respiration \_\_\_\_\_ Spirometer Tests \_\_\_\_\_  
 Chest Capacity Expiration \_\_\_\_\_ Tachec. Inspiration \_\_\_\_\_ Tachec. \_\_\_\_\_  
 Appetite \_\_\_\_\_  
 Cough \_\_\_\_\_

#### TREATMENT.

Special: Constitutional Antiseptic, i. e. H. Blood Serum  
 General and Accessory: Constitutional Tonic  
 Local Injections  
 Hygiene  
 Dietary

Dates and Quantity of Injection and Daily Chart. Temperatures from 3 to 6 P. M.

	Month													
	Mon.	Tue.	Wed.	Thurs.	Fri.	Sat.	Sun.	Mon.	Tue.	Wed.	Thurs.	Fri.	Sat.	Sun.
Monday,														
Tuesday,														
Wednesday,														
Thursday,														
Friday,														
Sat. & Sun.														
Range														
TOTAL														
Range														

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#### RESULTS.

Weight	Increase or Decrease in	Months	Pounds
Range of Temperature	Compared with	Previous to Treatment.	
Physical Condition			
Microscopic Analysis			
Respiration	per Minute, against	at Beginning	
Chest Capacity Expiration	Tachec. against	before Treatment.	
Cough			
Blood			
Prognosis			
Remarks			

The case referred to in above record was treated at the \_\_\_\_\_ Hospital  
 by Dr. Paul Paquin, assisted by \_\_\_\_\_ and was under my general supervision  
 The record is correct. \_\_\_\_\_ M.D.

secured from Dr. Homan, Health Commissioner, the permission to select a few cases at the poor-house for treatment, and also secured from Dr. Marks, Superintendent of the City Hospital, leave to try the remedy in this institution. Both of these officers have been very kind. They turned over to me and my colleagues all the cases we wanted and expressed their good will in many ways. I owe them my sincere thanks for their generous assistance and am under obligations to them, as also to the physicians of the poor-house.

The treatment began with injections of 10 drops hypodermically in the back between the shoulder blades. In a few days we increased to 20 drops.



Then to 30, 40 and 60. Some were given as many as 70 drops once a day for awhile. To a few in private practice, I have injected as much as 150 drops at one sitting every day for several days. No reaction whatever followed these injections and the pain is no greater than during the usual injection of a morphin solution. There resulted no accidents whatever from over fifteen hundred injections in the various patients, as a whole, except at the City Hospital where two benign abscesses were produced. They were without doubt due to accidental infection by the syringe, probably the leather ends of the piston of the syringe used at the time, or the needle. Careful disinfection of the syringe will always prevent this occurrence. The serum is, in fact, innocuous, absolutely so, if well prepared.\*

#### PROSPECTS OF SERO-THERAPY.

The future of the serum therapy in several infectious diseases seems assured beyond peradventure. We may have been too enthusiastic and may have expected more than we can now obtain, perhaps, and possibly the great enthusiasts may be painfully disappointed in their hopes for immediate or remote wonders from the sero-therapy in diphtheria, tetanus, etc., but the fact will always remain that this system is unquestionably rational and that eventually, all indicate it must yield success in therapeutics where all else must fail, for it is the one rational, truly physiologic treatment, the only treatment in my humble judgment from which can be derived positive beneficial results in the cure of infections. It is nature's own remedy. Man with the serum is using nature's own weapon of defense; he has found out how he may add power to the natural resources of the organization in the fight for human existence. This system of treatment is not a spontaneous eruption in therapeutics. It is not the explosion of over-zealous laboratory delvers with more enthusiasm than experience; it is the result of years of research in all the laboratories and the chief clinics of the civilized nations, particularly France and Germany. And it is not only yesterday that it appeared in practice. It was several years ago that Kitasato applied his antitoxin experimentally against tetanus. Diphtheria has been treated successfully a year or more. Syphilis is now, it is stated, treated experimentally with it, and lastly your humble servant begs to submit to your indulgent criticism the result of his meager labors, conducted under extreme difficulties, and without State or any outside financial aid. The future of sero-therapy in tuberculosis is, in my mind, very bright and very promising. The first, the second and the third stages of consumption have been benefited under unfavorable circumstances by even slightly immunized serum. Consequently, it is only fair to reason that with more strongly immunized serum, such as I have now ready to use, (I have only a limited quantity) much better and quicker results can be obtained, particularly if proper hygienic and dietetic conditions are obtained. Theoretically, it would seem that, if by the use of this serum constitutionally, the tuberculous processes may be arrested in a given case, injections directly in the pulmonary cavities where these exist, or the excision of a rib or two and the use of tubercle antitoxin directly into the wound, would prove practicable and useful to save life. It would seem, too, that such cases as hip joint

disease, which, according to statistics, is more successfully treated by the expectant therapy than active operation, could be safely operated after the arrest of the tuberculous process for, as Koenig has pointed out, it is the operation that disseminates the bacilli in such cases, so many of which terminate fatally after the usual surgical interference and the usual after treatment. And so in all surgical cases of tuberculosis, whether it invades the bones, the joints, the ovaries, the skin, the tendons or other organs, or several of them, if the serum will, by some means, stay the microbes, as I have every reason to believe it will, there is ground for congratulation on its introduction in therapeutics.

Besides the use in the treatment of tuberculosis, we have a promising means of protection of those exposed, by the practice of periodical injections of antitoxic serum, which may render the susceptible immune, for awhile at least. As a prophylactic the antitoxic serum should prove very useful in the preservation of families tainted by inheritance, or exposed to the germs from their birth.

In closing, allow me to summarize the opinions arrived at after my few years of investigation and observations, and the recent incomplete practical tests of my colleagues and myself.

1. Sero-therapy in tuberculosis has proved, so far, efficacious.

2. Blood serum of horses seems naturally antagonistic to the germs of tuberculosis, but can not in its natural state serve in treatment with much good, as it is too slow and it takes enormous quantities of it too, to produce useful results.

3. Horse blood serum may be rendered more strongly antagonistic to the tubercle germ by the proper treatment of the animals by a proper technique.

4. A horse treated properly three months may yield serum with immunizing power that will probably prove sufficient to arrest consumption in the first stages in three or four months, and sometimes less; and in the second stage in four to six months or a year.

5. Discrimination should be made in the selection of cases, and judgment exercised to exclude from the favorable class all those seriously complicated bacteriologically, certain cases complicated otherwise pathologically, and other patients which practice alone will suggest.

6. Inasmuch as hospitals for consumptives are needed any way, the success has been sufficient already to warrant the hope that in the near future such institutions shall be built on modern principles of hygiene, for the exclusive treatment of tuberculosis. Sero-therapy, with the adjunct treatments promises better success than ever obtained before. I do not designate this serum as a *cure* or a *specific*, but a valuable new remedy.

#### TECHNIQUE.

As to the technical features of the preparation of the anti-tubercle serum, I have little to say at present. The profession realizes that success with the serum therapy depends on accurate and delicate laboratory and experimental manipulations which few are fully equipped to undertake. The preparation of the toxins, the measurement of their potency, the dosage for the realization of various degrees of immunity; and, finally, the inoculations of immune animals and the subsequent tests of the therapeutic value of the serum

\* Since reading this paper we had a harmless rash in a few cases.

extracted, are all questions of great moment, and which necessarily involve special training. Commercialism might, at any moment, by some failure or accident throw discredit on the new treatment, were I to explain fully before advancing my researches to a point where a larger number of improved cases and greater benefits, can be shown the details of procedure in the production of the agent. As yet only a small quantity of serum is on hand—not enough to offer to the profession, having under treatment some thirty cases whom I have promised and wish to inject for some time to come. The production of the serum is costly, and above all it takes months to get the best material. I have reason to believe, however, that it will be possible to shorten the time that has been found necessary to strongly immunize the horses now in use.

### THE EARLY DIAGNOSIS OF CARCINOMA OF THE STOMACH, WITH THE BACTERIOLOGY OF THE STOMACH CONTENTS.

BY FENTON B. TURCK, M.D.

PROFESSOR OF DISEASES OF THE STOMACH AND INTESTINES, POST-GRADUATE MEDICAL SCHOOL; ATTENDING PHYSICIAN TO THE COOK COUNTY HOSPITAL, CHICAGO.

(Continued from page 319.)

After the study of sixteen cases Rosenheim (*Berl. Klin. Woch.*, Dec. 24, 1888) concluded that the chemic insufficiency of the stomach in carcinoma ventriculi is not due to the cancer itself, but to the attending atrophy. He divided the pathologic changes into three stages: inflammatory, interstitial and atrophic; adding that these stages may be present at the same time; and Ewald (*Berl. Klin. Woch.*, Dec. 3, 1888) holds that the disappearance of HCl is not due to carcinoma directly, but is merely a disturbance of the functions of the secretory glands.

The post-mortem changes often veil the pathologic changes, unless well marked and permanent lesions occur. It is best, if possible, to secure specimens during an operation for carcinoma of the stomach as far remote from the tumor as possible. In three operations I secured several sections—one for carcinoma planum (anterior wall) where a large area was removed, leaving a border of tissue not infiltrated by cells from the carcinoma; the other two were carcinoma of the pylorus. The sections were cut with a Valentine knife in the fresh state and placed on a slide; 50 per cent. solution of glycerin with a little oil of cloves prevents the change.

A solution after stain in 50 per cent. glycerin is used, for staining, and "irrigated" through according to the old method of Beale. (For making permanent mounts Price's pure glycerin is carried under the cover glass and ringed with cement.) There appears the pathologic changes of inflammation. No distinction between parietal cells and chief cells; cells loosened from their membrane; karyokinesis were illustrated; nucleus crowded to one side; gland cells swollen, closing the lumen; nucleus forced to one side; cells of the mouth and neck crowded together as in proliferation, and lying within the lumen; at other points cystic degeneration, mucoid metamorphosis of pathogenic cells, as shown by Ewald and Boas; leucocytes fill up about the neck and through to the surface of the gland; other points show marked interstitial changes; multiplication of

round cells; vessels engorged flush up to the surface of the mucous membrane, where a rich anastomosis occurs at the mouth and neck of glands. If it is not alone the product formed in the growth of carcinoma of the stomach that causes this inflammatory and rapid destructive process through the infection from growing pathologic and so-called non-pathologic microorganisms colonizing upon the surface of the mucous membrane offers a possible explanation of these changes. Within the lumen of the stomach all forms of germs find their way:

The master work of Miller ("Microorganisms of the Human Mouth," 1890,) has proved that the mouth may become an ideal incubator for at least twenty-five varieties. The nose and pharynx may become an excellent bed for colonization upon the walls. Food and water are by no means aseptic—if we prepare the stomach walls so that colonization may also exist, we have a process set up in proportion to the character of the colonies found—the culture bed and conditions present. In the healthy state the stomach does not seem to encourage colonization in the bed of mucus upon its walls, although germs find their way into its lumen. This will be brought out in another work in relation to gastritis. The predisposing cause seems to be the growing carcinoma—lessening resistance and furnishing a soil,—the inflammatory process, the result of the toxins of the colonizing microorganisms. Well-known pathologic germs produce their special toxins and even the lactic acid bacillus, as shown by Wurtz and Lindet (*La Semaine Med.* Paris, Sept. 9, 1892) produce in animals marked symptoms of diarrhea, distension of the abdomen and extremely rapid emaciation. They learned that cultures in bouillon are very active—toxin is formed having the same effect as the culture itself.

Through the kindness of Dr. Ryan, Louis S., age 40, Italian, was referred to my clinic November 27, complaining of "pain in his stomach and back." No specific history. Family history negative. Experienced no difficulty until within nine months, when there appeared a distress after eating. Appetite remained good; insomnia at times and dyspnea at night. No vomiting. Alternating constipation and diarrhea.

Examination: Skin dry; some evidence of emaciation; mouth, gums inflamed at borders; tongue, light yellowish coat; nose and throat showed no marked lesions; chest organs intact; abdomen, muscles well developed; liver and splenic area normal; stomach, percussion shows slight distension; half moon space of Traube slightly increased; prevailing sound in stomach demonstrated the great curvature one and one-half inches above the umbilicus; no palpable tumor; colon dilated; tympanitis controlled with water and air gave the same results; rectum negative; genito-urinary organs negative.

Analysis of stomach contents two hours after ordinary meal: HCl+; total acidity, 40; Uffelmann's +; blood count 4,800,000. November 27, hemoglobin, 70; fasting stomach twelve hours after meal; reaction neutral. No remnants of previous meal; no stagnation.

Bacteriologic: Six slides stained for microorganisms, after removing mucus from them and mucous membrane with gyromele, four fresh slides unstained. A fine network of long rods appearing like mycelia but more angular. Short rods; colonies in groups attached, end to end and in pairs; streptococci in twisted chains; groups of micrococci; a few yeast germs but no socius ventriculi appeared in the field.

Bacteriologic cultures: Stroke culture on sterilized mucous membrane of the stomach of a pig; first stroke line colonies run together; second stroke more separated, especially at side of furrow of the line; pink colonies; grayish colonies spreading; yellow colonies; brown and a few black colonies raised;

as many as ten or twelve different colonies present. On separating out into tubes the short rods seemed more curved and the threads appeared changed. The long slender rods that formed a thick network and a luxuriant growth on the mucous membrane died out in the tubes. The pyogenic germs appeared, as well as bacilli coli communi. Five colonies were lactic acid forming bacilli.

Tube cultures taken direct from the stomach wall: Tube No. 1, left in stomach juice; No. 2, milk (sterilized); No. 3, bouillon made from stomach of pigs; No. 4, same as No. 3 with starch added; No. 5, plain bouillon; No. 6, same as No. 5, starch added. All placed in incubator at 36 C. for twenty hours.

Reaction: All acid reaction except bouillon culture No. 5. Nos. 2 and 4 showed lactic acid. No. 4 was especially marked. The fluid was filtered and extracted with ether evaporated which gave a fair iodoform emulsion. No quantitative estimation made. December 6, ordered meal soup according to Boas method. December 7, withdrew and analyzed. Lactic acid, 85 per cent.

December 15, entered hospital of the Post-Graduate Medical School; oatmeal soup of Boas at night. December 16, withdrew stomach contents. Analyzed by Dr. Wisner showed lactic acid, 75 per cent. Operation ordered; stomach washed out and December 17 I performed laparotomy, assisted by Dr. Beck, and found a scirrhus carcinoma, two nodules at pylorus; one anterior and one posterior tumor, extending from the end of the lesser curvature. Gastro-enterostomy with Murphy button. Patient was attacked with violent hicough and vomiting; stomach cleaned and fed per rectum; temperature remained normal. December 24, patient died. Post-mortem refused.

July 10, 1894, Mr. F. K., age 53, German, was referred to my office as a stomach case. Complained of pain over xiphoid appendix through to the back. Began to vomit about a year before; had to live on liquid food; dysphagia. Examination: Emaciated; could not pass stomach tube, attempted to pass the revolving sponge but met resistance at the cardiac opening; by using smaller sponges tried to explore the stricture. The cable and spiral within the sponge being more flexible than the ordinary sound there was less fear of puncture. Found a diverticulum containing remnants of undigested food; sputa negative; no albumen or sugar in urine but indican increased. Diagnosis: Carcinoma of the cardiac.

On July 23 gastrostomy was performed by Dr. Newman and myself. Introduced the gyromele through the stomach opening dilated, and passed a rubber tube through the stricture to the mouth. Examination of stomach contents, reaction neutral. July 24, made slides but no cultures were carried out. Slides showed many varieties of long and short rods, especially spirilla. After a gruel injection a slight Uffelman reaction, but not marked. July 28, patient died. No post-mortem allowed.

August 22, 1894, Mrs. S. G. S., widow, aged 65, referred, complaining of distress and burning sensation in stomach after eating. I was told that if carcinoma was thought to be present an operation would be allowed. It is often more difficult to exclude than include. The history, symptoms and general appearance favored carcinoma. Within one year loss of appetite and weight, progressive anemia, morning headache, constipation, belching after eating. Physical examination: Hair dry and brittle; skin dry; panniculus adiposus absent; color, pale, ashy hue. Teeth in good repair; tongue silver gray coat; depression of teeth. Nose and throat atrophic; rhino-pharyngitis; slight discharge from the vault. Lungs negative. Heart, faint mitral murmur. Liver palpable below costal arch. Abdomen retracted. Stomach gastroptosis; transverse colon upper border below umbilical line; prolapse of right kidney, second degree.

August 23, withdrew contents after Ewald's test meal. Litmus +; no HCl; Uffelman's +; peptone weak; urine contained no albumen, blood or sugar 4,560,000; hemoglobin 55. August 28, four hours after meal, stomach was empty; weak acid reaction. August 30, after Boas' test meal, Uffelman's reaction very weak. No iodoform, showing practically no lactic acid. September 1, bacteriologic: Removal by the revolving sponge of mucus thick and tenacious. Slides show the mucus contains cells of the glands, columnar, round cells, leucocytes, also flat cells, a large number of colonies of rods and micrococci. Tube cultures showed many gas forming germs to be present.

A diagnosis made of gastritis chronica, with beginning atrophy and the complications named. Patient put under a vigorous treatment. Stomach walls cleaned with liquid soap, using the gyromele; oil of cloves and cinnamon ap-

plied. HCl exhibited in large repeated doses, as recommended by Ewald. A selected diet ordered, baths and massage.

September 9, recorded that the headache disappeared, the distress in stomach lessened, with but little belching of gas. September 18 recorded appetite much improved. October 29, disappearance of all symptoms. November 24, patient discharged, but requested to report in one month.

Examination of stomach contents after test meal showed HCl + weak; total acidity 35, Uffelman's; general condition improves; gain in weight and strength; no return of symptoms. December, patient considers herself cured, which can not be. No evidences of carcinoma.

(To be continued.)

## THE MEDICAL CORPS OF THE U. S. NAVY.

BY FREDERICK HORNER, M.D.

UNITED STATES NAVY.

In connection with the early history of the American Navy as developed into a distinct arm of the national defense, it is interesting to recall the fact that its embryonic origin was first developed in Virginia under royal authority. As early as 1775 the convention of the colonists of Virginia had directed the Committee of Safety to procure armed vessels for the defense of the colony, and the control and management were intrusted to this committee. Accordingly in May, 1776, the House of Burgesses of Virginia foreseeing the coming struggle with the mother country for the independence of the colonies, and recognizing that the vessels of the merchant marine of James River and border harbors of Chesapeake Bay constituted the elements, if armed and equipped, of a squadron already manned by sturdy sailors who had knowledge of the sea, and commanded by officers of the pluck and experience which have ever characterized the captains of the Marine Service, appointed a Board of Naval Commissioners consisting of Thomas Whiting, John Hutchins, Champion Travis, Thomas Newton and George Webb, who met first in Williamsburg, then the capital of Virginia. These men adopted a plan for the creation of a naval force of seventy vessels which had been employed for purposes of commerce, having been constructed at the Chickahominy Navy Yard, near Norfolk, Va. Among the naval surgeons commissioned for this service during the Revolution were Dr. Balfour, an eminent physician of Norfolk, Va.; Kemp, Lyon, McClurg, Brockenborough, Christie, Reynolds, Sharpless, Pell and others. It was after this period that the seamen and naval forces of the New England States were organized for the national defense. At this period the merchant marine were not usually provided with a surgeon, and physicians who were competent to practice were obliged to go abroad to the universities of Edinburgh or Cambridge to obtain a diploma. In 1764 when the first medical college in America was founded in Philadelphia, now the University of Pennsylvania, and afterwards in 1825 when the University of Virginia had established a medical department, in 1827 the supply of surgeons for the naval service was equal to the requirement, though it may be added in the early days of the colonial period, "physick was not regarded as a fit profession for a gentleman of Southern birth, who, haply was possessed of ample fortune, and had no need to practice a profession."

Among the surgeons commissioned first were W. A. W. Spottswood, Cornick, Harris, Chase, G. R. B. Horner, Brownlee, Whelan Maxwell, Temstell, Squibb, Elisha Kane and others. Surgeon-General

Harris, while chief of the bureau of medicine and surgery contributed to systematize the work committed to the naval medical officers and proved equal to the arduous duties of his office; and with his successor, Surgeon William Whelan, elevated the standard, intellectually, and scientifically, for the admission and promotion of the junior medical officers of the Navy and also aided in promoting the success of the repeated explorations of Passed Assistant Surgeon Elisha K. Kane, in vessels fitted out by Mr. Grinnell and the Navy Department in command of Dr. Kane, and also in expeditions to Paraguay and to Japan in 1851. The war between the United States and Mexico occurred during Dr. Harris's term of office, and the war of the Rebellion in this country during that of Surgeon-General Whelan's term. The surgeons in active service during this period displayed uncommon ability and zeal in the performance of their duties, and their printed reports to the office of the Surgeon-General furnish valuable data connected with the various branches of practical medicine and surgery. A decided impetus for such publications was given to the Naval Medical Corps by the stirring events which then occurred. Under the direction of Surgeon-General J. C. Palmer and Medical Inspector A. L. Gihon, a neat volume of medical essays, compiled from reports to the Bureau, were published by order of the Navy Department. Surgeon R. C. Dean, Medical Inspector, U. S. N., made a valuable report on the naval medical schools of France and England, showing the liberal policy of the governments of those lands toward their naval medical officers. For example, in Great Britain there is established a naval medical school for the Army and Navy at the Royal Victoria Hospital at Netley. Here a per diem of 5s. is allowed the officers, with excellent quarters and subsistence, and according to a late Navy List of the British Admiralty, a liberal pension is allowed not only the widows but the children also, of the medical officers. Dr. J. D. Gatewood, Surgeon, U. S. N., contributed a valuable report on Hospital Statistics of the Naval Hospitals of Europe, showing that the average mortality was as low as 10 per cent. for the Royal Naval Hospital at Great Yarmouth, England. This report was read before the Medical Congress of the Columbian Exposition at Chicago. Among the earliest authors of the Naval Medical Corps who have, from time to time made valuable contributions to current periodical and book literature are Surgeons Ruschenberger, G. R. B. Horner, Foltz, Wilson, Wales, Brown, Wise and others. Among such publications may be enumerated: "Endemic Influence of Evil Government and Medical Statistics of the Island of Minorca," by Surgeon J. M. Foltz; "Medical Topography of Brazil," "Medical Statistics during a Cruise to the Mediterranean" and "Naval Surgery," by Surgeon G. R. B. Horner; "Arctic Explorations in the years 1853-54-55," by Elisha Kent Kane, M.D., U. S. N.; "Naval Hygiene," by Surgeon Wilson; "Mechanical Surgery," by Surgeon P. S. Wales. Such contributions betoken a commendable zeal and industry on the part of the authors, furnish evidence of their talents and erudition, and present examples worthy of imitation.

The second epoch in the history of the American Navy was marked by the occurrence of the Civil War, when a large number of naval surgeons of the Southern States either resigned from the service or refused to take the required oath of loyalty to the Federal Union

and were dropped from the registered list when the reorganization of the Navy was effected in 1861. A small number were true to the old Ship of State, ready to be scoffed at by erring ones, and, perhaps, because of the spirit of an ancestry that had signed the Articles of Confederation, the Declaration of Independence and the Constitution of the United States. Among others of this number were Surgeon G. R. B. Horner and the writer, and of those who also thought they were right were Surgeon Dinwiddie Phillips, of the ironclad *Merrimac* and Surgeon Galt, of the *Alabama*.

The decade which succeeded the return of peace to the country was marked by an accession to the number of naval medical appointees from the Southern States, and during the intervening period the strength and efficiency of the Corps has been greatly developed. The number of 170, the maximum allowed by Act of Congress is meager indeed in comparison with the 502 surgeons of the British Navy, with its Director General a Baronet of the realm, and a corps of inspector-generals; first class, staff officers; second, surgeons and fourth, medical inspector-generals of the royal hospitals at home stations and abroad. In this connection it may be remarked, *en passant*, that American authorities do not show the favor to our Naval Medical Corps, that they do to line officers, who as cadets and ensigns whose education and maintenance at the Naval Academy, Annapolis, cost the taxpayers of the country \$500 a year for each cadet. The surgical staff has no such bonus accorded them at any period of their service by our Government.

Finally, it may be asserted with truth, that the Medical Corps of the U. S. Navy has ever maintained a high professional status, and an *esprit du corps* challenging criticism. Through the efforts of Surgeon-General Tryon, the U. S. Naval Laboratory and Department of Instruction has been founded in Washington City. The courses in bacteriology and analytical chemistry have proved valuable and instructive to the class of Assistant Surgeons, candidates for examination and promotion to a higher rank. The U. S. Naval Museum, now removed to the Naval Observatory Buildings, has already proved useful in developing all that is of value in the sphere of mechanical inventive art, as well as forming the nucleus of a fine library. Surgeon-General P. S. Wales and J. Mills Browne during their terms of office contributed largely toward the success of the Museum and founded in connection with it a Naval Medical Society, before which were read and discussed interesting medical and surgical papers that were published under the supervision of Surgeons Van Reyepen and Beyer. A few retired medical officers of the Navy were Fellows of this society, and were glad to exchange greetings with old friends, and enjoy the privilege of taking part in the proceedings. The Naval Medical Staff has able representative delegates appointed to the annual meetings of the AMERICAN MEDICAL ASSOCIATION, to the Association of the Military Surgeons of the United States, to the various international medical congresses of the world, and the American Public Health Association.

The admirable report of Surgeon-General Tryon urges the necessity of an organized Hospital Corps, well instructed for all duties on board modern vessels of war, and concludes with the statement that thirty permits were granted to applicants, to be examined by a late Board of Naval Medical Examiners; of the



thirty, ten failed to present themselves, five were rejected physically, twelve professionally and three passed the examinations. The Naval Medical Examiners have, in fact, no option than that of exclusion of many talented and learned men from the Naval Medical Corps, because the legal number of 170 surgeons, passed assistant, and assistant surgeons, as already stated, is the number allowed by law, though the Navy of the United States represents a nationality of 65,000,000 people.

The comment may be pardoned that concerning the bill for the reorganization of the *personnel* of the Navy, the legislators of Congress, themselves dependent at times more or less upon physicians and surgeons for relief, surely may be trusted to do right toward the interests of the Naval Medical Corps.

Congress may recall that Passed Assistant Surgeon E. K. Kane proved to be not only equal during his medical service to professional duty, but developed into one of the most renowned captains of the nineteenth century, the discoverer of a terra incognita, Washington Land and an open Polar Sea in higher latitudes than ever before explored, to attain which even the courage and sagacity of a Columbus would hardly have undertaken it, and in the accomplishment of which he solved the mystery—so long desired in vain—of the fate of his illustrious co-explorer, the lamented Sir John Franklin.

Congress knows, also, that Surgeon James M. Ambler proved his heroic mold by remaining with the brave Commander DeLong, choosing death by cold and starvation with him and their comrades, than to accept the offer to escape and seek help.

Congress knows how Dr. John B. Hamilton, when Chief of the U. S. Marine-Hospital Service, with his efficient co-workers rescued hundreds of the fever-stricken citizens of the cities of the Southern States in the midst of the "pestilence that walketh in darkness and the destruction that wasteth at noon-day," by the establishment of refuge camps and the enforcement of prompt, incisive and strict sanitary and quarantine regulations; and with a kindred spirit, Dr. G. B. Thornton, when the Mound City of the West was decimated by a like scourge, with soldier-like courage and vested municipal authority had destroyed streets of houses, and chattels teeming with the germs of a death-dealing plague. And thus, these self-sacrificing physicians with others, who bear the mantle of the Divine Physician and stand between the living and the dead, fearlessly sought to save life; yea, with equal courage with Surgeon Edward Shippen were faithful to duty, as he was when he conveyed an order—Perry-like, of Lake Erie memory—in the harbor of Charleston in the face of the raking fire from the enemy, from one ship to another.

Indeed, it is not presumption to recall the fact that the physicians and surgeons of the United States Army and Navy, during the late fratricidal war, on the assertion of the late Prof. S. W. Gross contributed to perpetuate the Federal Union, since this class as non-belligerents and as represented by the AMERICAN MEDICAL ASSOCIATION, "suffered no disruption of the fraternal bonds which united them as brethren." Men of this stamp are entitled to be fairly dealt with by their peers of the Naval Service, and by the people's representatives in Congress, whatever reorganization of the *personnel* of the Navy may be agreed upon.

## REFERENCES.

Navy of the Revolution, by Dr. W. P. Palmer, Secretary of Virginia Historical Society.

S. Lit. Messenger, 1857. Wynne's Notes, A Memoir of the Bolling Family.

Campbell's History of Virginia.

Toner's Address, the Physicians of America; before the International Medical Congress in Philadelphia, 1876.

N. S. Davis, A. M., M.D., special Report on Medical Education, 1776-1876.

Cooper's History of the American Navy.

Porter's History of the American Navy.

## ETHYL BROMID ANESTHESIA IN POST-NASAL ADENOID GROWTHS.

Read before the Chicago Medical Society Feb. 4, 1895.

BY GEORGE MORGENTHAU, M.D.

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The subjects of "adenoids" is such a well-worn one that I would not venture to bring it before the society, had I not been encouraged in my doubts as to the proper way of operating on these growths, by a recent discussion of this very question at a meeting of the London Laryngological Society. It appeared there, too, how wide is the diversity which exists as to the choice of the anesthetic, the posture of the patient, etc. Since conditions are different with us, especially resulting from the preference given ether over chloroform by the profession at large, and the popular distrust in which the latter drug is held; since, furthermore, this mode of operation with ethyl bromid has not been described in American literature, I am in hopes that the discussion called forth by this short paper will prove to be out of proportion to its length.

While it is held by many that anesthesia is not to be induced for this operation, I make bold to consider it both cruel and immoral unnecessarily to inflict severe—and often, quite severe—pain on a nervous, terrified, struggling child. The poor little one can not accept an adult's logic; to it this manipulation is as frightful as a much larger one would be to its parent; and the latter, not infrequently, prefers to escape even the momentary pain caused by the extraction of a tooth. It further demoralizes the child, who should look upon the physician as its friend, for whom it will open its mouth when requested to do so. Children have excellent memories for injuries and insults offered them. One little girl, for instance, was held by her father and two other men while the physician amputated the tonsils about three years ago. She can not be prevailed upon to enter that office building again, and still retains the adenoids and an abiding distrust of physicians. To use main force seems to the child's mind as convincing as the wise answer given by the proverbial eagle to the little bird protesting against being devoured, "but I am big, and you are small."

The numerous operations on the non-anesthetized child which one had opportunity to witness or perform at the Berlin Laryngological Clinic appeared unsatisfactory to me (and since then the method has been changed there). I, therefore, advise anesthesia in younger children, but operate without it in older children when there is only a hypertrophied Luschka's tonsil which can be removed *en masse*. Chloroform and ether were employed by me in a limited number of cases. The child lay either on one side, or on its back with overhanging head. Chloroform is not feared without good reason; there were nine deaths in England alone within one year in just this operation. Ether, on the other hand, is very disagreeable to both patient and operator, as it takes much longer

to produce anesthesia, often causes great excitation, and increases the amount of mucus and blood to a marked extent. The severity of the after-effects, nausea and prolonged vomiting, and the undeniable dangers incidental to anesthesia with these drugs, led me to try the method I had seen practiced by Moritz Schmidt, of Frankfurt-on-the-Main. I am now able to report on a series of 100 consecutive cases in which I operated either myself or assisted Drs. Hardie and Holinger. The operation is done in the following manner: The patient's chest is first examined, as ethyl bromid should not be used in chronic heart and lung disease. Then the clothing about the chest is well loosened. I prefer to use the head mirror and reflect the light into the patient's throat. It is advantageous to have the patient on a higher plane than the operator; the patient's chin may then be lowered upon his chest, and the blood made to run from nose and mouth. If the patient is an older and sensible child he may sit upright in a chair, with a sheet about his arms and chest. It is advisable, however, to have an assistant hold a younger child in his lap, in order to restrain it if it should struggle, and to steady the head during anesthesia. A simple mouth gag should be introduced, although it is not absolutely necessary but valuable if a spasm of the muscles of the jaw should set in, as is sometimes the case, and as it saves time. We prefer to administer the anesthetic by holding a common chloroform mask covered with oiled silk closely over mouth and nose. The quantity to be used (1-2 drachms in children; 3-4 drachms in adults) is poured at once on a little gauze or cotton in the interior of the mask; the child may struggle a little in the beginning, but as the drug has a not unpleasant odor and does not irritate the mucous membrane, it is easily and quickly reassured. Often the face becomes flushed, the pulse is increased in frequency, but does not become weak or irregular; breathing becomes slower and a little shallower. In forty to sixty seconds, breathing may be slightly stertorous, the eyes begin to wander, the uplifted arm drops to the side, the right moment for operation has come. Pupillary and conjunctival reflexes do not serve as guides. For two minutes only the patient does not feel any pain. All instruments must, therefore, be within easy reach in order to save time. The tonsillotome can be adjusted accurately and quickly under the guidance of the eye in good light (Moritz Schmidt uses the hot galvano-cautery snare); the other tonsil is amputated with a second instrument. With Gottsteins's modified curved curette the adenoids are next removed, one sweep being made in the center of the vault, and a second and third one on either side. The older form of the Gottstein knife (the instrument is bent nearly at right angles) may then be used to sweep the posterior pharyngeal wall. Finally, if on introducing the finger behind the soft palate, any remnants should be discovered they may be scraped away with the nail. By this time, the child is nearly conscious, although not experiencing any pain; it opens its eyes, looks a little dazed, and appears but little disturbed. Anesthesia, operation, and recovery thus occur in five to seven minutes. The patients are ordered to lie or sit down immediately after awakening. Most of them were able to walk alone in a few minutes. Many left the office or dispensary in fifteen to thirty minutes, usually feeling quite bright and cheerful;

occasionally they complained of a slight headache. Three vomited a short time after the operation. Nausea never was very pronounced. Three patients vomited several times during the day without great nausea; in the evening they were quite happy and hungry. One very high-strung and timid girl of 10 could not, at two different times with an interval of a week, be brought under the influence of the anesthetic.

During anesthesia no alarming symptoms occurred. The pulse was generally quickened, but not reduced in strength. In four cases a spasm of the muscles of the jaw set in, notably of the masseter, which was easily overcome by pressing the spatula firmly on the tongue or behind the last molar, and thus forcing the mouth open. No vomiting occurred during anesthesia, although some had eaten but shortly before. I had seen involuntary urination and defecation occur in Germany—it is reported in adults, too—but we did not meet with a single instance. Probably we do not push anesthesia far enough for that. Twice I observed a peculiar after-effect, which is not easily explained in view of the denial of good observers that the red blood corpuscles are attacked by ethylization. The children presented a grayish, rather ghastly hue in their complexion, which did not escape the attention of their mothers; and on feeling the pulse without their knowledge, I found it accelerated but strong. This state lasted two weeks without producing any discomfort whatsoever. Ethyl bromid is eliminated by the lungs only, sometimes with a garlic-like odor; no traces of free or combined bromin are found in the urine.

It is of the utmost importance that the reflexes are not abolished. The persistence of the laryngeal reflex justifies what would otherwise be a dangerous procedure, keeping the patient in the upright posture. No blood can enter the larynx without producing immediate reaction, *i. e.*, being expelled by coughing. The pieces of severed tissue either adhere to the instrument, or are swallowed or expectorated. As soon as the vault has been cleared, the patient is ordered in a loud voice, to "spit it out." Even when consciousness has not completely returned, the command is automatically obeyed. Most of the blood escapes through the nostrils and the inclined groove formed by depressing the tongue and holding the chin downwards. When the vault is again entered, in order to palpate and scrape away any stray adenoid tissue, the patient is analgesic even if manipulation should be perceived, and recalled later on.

As far as the results of this mode of operating are concerned, we are well satisfied. Recurrence took place in only one case, where Dr. Holinger yielded to the entreaties of the mother to operate on her daughter three times within six months. The parent declared that her daughter always grew stupid when the growths were there. The patient was a girl of 16 who could easily be examined with the rhinoscopic mirror. Dr. Holinger could thus convince himself that none of the growths remained behind after the operations. As far as my experience with forceps goes, it is not possible to remove all the adenoids in the limited time at our disposal. Cutting, as it usually does, transversely, it has undoubtedly caused many severe hemorrhages, primary and secondary, by nipping the posterior ends of the turbinated bodies or the posterior edge of the septum. I know of but two cases of severe secondary hemorrhage.

after operation with Gottstein's curette; and in one, which happened to me, I ascribe it to the fact that I removed but little at the sitting, not having anesthetized the patient, a young woman. Even that popular and vigorously grasping forceps invented by a distinguished member of this Society may in busy hands, when one of them is introduced into the nasopharynx to guide the instrument, be the cause of much unnecessary blood-shedding. The upright position enables the operator to use the Gottstein knife quickly and effectually. The instrument is so ingeniously constructed that it is impossible to do damage with it. In cases where I found great swelling of the nasal tissues, I have applied a weak solution of cocain (4 per cent). The shrinking of the tissues allows the blood to run freely through the nose. The bromid of ethyl we employed with great satisfaction is made by Merck of Darmstadt. It is sold in one ounce, sealed, dark glass tubes. In glass-stoppered vials, it is not reliable. I have found that the liquid had entirely evaporated although the original packing had not been disturbed. The most practical form would be in one-half ounce tubes, just enough for one anesthesia in an adult. It is not safe to keep an opened bottle for any length of time, because the ethyl bromid is decomposed by sunlight or in contact with air. The best preparation is obtained, according to the German pharmacopœia, by distilling a mixture of alcohol, sulphuric acid and bromid of potassium. The product is colorless, of neutral reaction, with a pleasant odor. It must not be confounded with bromid of ethylene; a most dangerous mistake to which one death must be ascribed which was charged to bromid of ethyl. The impurity of the older preparation, and its cost were reasons against its use which do not hold good to-day.

The career of the drug is a checkered one; it has had its ups and downs. It is only just, however, to say that, like the historic queen, it is better than its reputation, and is at present in great favor. Discovered by Serullas in 1827, it was first used by Nunnely, of Leeds, in 1849, and again lauded by him in 1865. He considered it one of the best of anesthetics; a view in which B. W. Richardson declared he fully concurred. In America it was introduced by Turnbull in 1877, and extensively used by Levis, of Philadelphia, Chisolm, Conner and many others. In spite of their enthusiasm based on several thousand successful cases, the reports of a few deaths, notably one by Marion Sims, and the unfavorable results of experiments made by Wood on animals, drove it into oblivion. It would lead too far to follow in detail the arguments advanced by its adherents and opponents, although the perusal of the literature bearing on the subject (New York *Medical Record*, 1880, and other journals of that year) is most fascinating to the student of medical history. In the last five years ethyl bromid has again been taken up by the profession. It is steadily gaining in favor with German laryngologists; the Berlin Clinic reported excellent results in 200 cases, agreeing in nearly every point with our experience. Moritz Schmidt speaks highly of it in his latest book. He performs all the adenoid operations in his office with this anesthetic. German dentists are using it to a great extent instead of nitrous oxid because of the appreciably longer anesthesia. Witzel (*Monatschr. Zahnheilk.*, 1891, October), for instance, after 465 trials, calls it the least

dangerous anesthetic; as much devoid of danger as nitrous oxid. His experience is most valuable, as it includes patients sent from the various clinics at Marburg; among them are six with severe diseases of the heart and lungs; eleven with pulmonary disease, etc. He speaks of the anesthetics as excellent with twenty-eight exceptions. These are given under different headings:

- a. Great excitation in nine cases. Of these, four with much sweating.
- b. Cyanosis in two students somewhat the worse for liquor.
- c. Asphyxia, but rarely with his method (first, a few drops, then the whole quantity of the anesthetic).
- d. Malaise, feeling of lassitude, vomiting.
- e. Urination in three cases.
- f. Great sexual excitement.

But these phenomena, he asserts, will be seen with any other anesthetic. In two cases he could not produce anesthesia with one and two ounces. In six cases he anesthetized the patient twice in one sitting; in two cases, three times.

In regard to the dangers of bromid of ethyl anesthesia, there are numerous and most contradictory statements to be found in literature. I do not wish to conceal that even with the new and purified drug, fatal cases have occurred. While one (Billroth's) would have ended just as unfortunately had any other anesthetic been used because the patient's heart was diseased; while another, occurring on the day after its administration, can not positively be attributed to it; nevertheless there are three cases in which ethyl bromid can not be exonerated. Statistics are, unfortunately, not complete enough to be of value; and, furthermore, the number is not nearly great enough to allow of any definite deductions as yet. Gurlt's statistics (*Arch. Klin. Chir.*, vol. i, 1894) place ethyl bromid between chloroform and ether.

Chloroform, 166,812 cases with 63 deaths—1.2647.

Ethyl bromid, 7,541 cases with 2 deaths—1.3770.

Ether, 26,320 cases with 2 deaths—1.13160.

These figures will certainly be modified in the next report as far as ethyl bromid is concerned, making the ratio a much more favorable one as the number of administrations increases; the Billroth case of the patient with diseased heart turning the scales most unfairly.

The discussion on this subject in the Berlin Laryngological Society (*Berl. Klin. Woch.*, No. 1, 1894) shows well how contradictory are the views held by various observers. While the essayist (Ed. Meyer), relying on 200 successful administrations, could speak highly of the lack of danger and the other good qualities of this drug, Grabower quoted the results of experiments on rabbits. He declares it to be one of the most dangerous of narcotics, if not the most dangerous one. After a few inspirations the pulse rate is greatly increased; later on arrhythmia; then genuine cardiac delirium with utter lack of coördination of the different parts of the heart. In a short time the heart stops. During arrhythmia there is no abnormality of respiration. Thus there is no warning of danger as with other narcotics. Others controverted the right to draw conclusions from experiments on animals in reference to the human economy.

In his "Text-book on Therapeutics," Hare draws attention to the studies made in Jefferson Labora-

tory, which show that the dominant action of ethyl bromid is on respiration, not on the circulatory system. Its effect is depressant, but only seen after excessive doses. Blood pressure falls under its influence to a slight degree, and the pulse is slowed through an influence probably exercised on the inhibitory nervous mechanism of the heart.

H. C. Wood, however, from a series of experiments made upon lower animals, has arrived at the opinion that it acts upon the heart in a manner similar to chloroform, although its influence is not so depressing. A more recent investigator (Brubacher) found, in experimental intoxication of rabbits and guinea pigs, that the heart always continued to beat regularly and powerfully after respiration had ceased.

Schneider, Professor of Dentistry at the University of Erlangen (*Monatschr. Zahnheilk.*, May, 1890), who uses ethyl bromid extensively in practice, made a most searching series of experiments in the Physiological Laboratory. His deductions appear well founded, and are as follows:

While it may be admitted that under the influence of chloroform the red blood corpuscles are disintegrated, producing fatty metamorphosis, we must deny a similar action to ethyl bromid in every respect; believing that we proved by microscopic, chemic, and physical examination:

That bromid of ethyl can not produce any change whatsoever in the red blood corpuscles.

That bromid of ethyl, on account of its lower boiling point, is very rapidly eliminated from the body by the lungs.

We, and with us most of the authors, have observed that even in deepest bromid of ethyl narcoses, the pupils are hardly contracted. This proves that these vapors have not an energetically paralyzing influence on the medulla, because the narcosis is reduced to a previous stage by the rapid elimination of these vapors by the lungs. It was demonstrated, moreover, by the hemodynamometer that the blood pressure always suffices for an exchange of gases; and, finally, the sphygmographic curves, of which the author made a great number, show hardly any change in the pulse tracings. This proves that contraction of the muscles of the vessels takes place while most chloroform tracings show paralysis of the vasomotors. There is a slight diminution of the blood pressure from reduced innervation. That is to say, cardiac alterations are much less than in chloroform narcosis. With at least as much right as it is maintained of ether, bromid of ethyl has only a slight depressant action on the heart; and death from ether results from paralysis of the respiratory center. When ethyl bromid was administered to animals in fatal doses respiration stopped much sooner than the heart, which continued to beat regularly and vigorously after respiration had ceased.

After all, laboratory and animal experiments do not seem to bring us much nearer to a universally acceptable solution of these questions. The long and bitter fight between chloroform and ether partisans is still raging. Until we have an absolutely safe anesthetic, if that is possible, we must content ourselves to run risks. Even if ethyl bromid should prove to be more dangerous than ether, the incomparably shorter duration of anesthesia would outweigh the apparently greater security of etherization. It is a question which must be decided by many thousands

of clinical experiments, as it were. The opposing views have been presented impartially, without allowing my gratitude for the time and trouble saved by the use of this anesthetic to blind my judgment. The manifold and obvious advantages of this mode of operation will, I may trust, recommend it to many as well worthy of extended trial.

Venetian Building.

## THE IMPROPER USE IN MEDICAL LITERATURE OF CERTAIN WORDS AND PHRASES.

BY CASEY A. WOOD, M.D.

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In one of his published letters, Oliver Wendell Holmes writes: "I've sometimes made new words. In 'Elsie Venner' I made the word chrysocracy, thinking it would take its place—but it didn't; plutocracy, meaning the same thing, was adopted instead. Oddly enough I had a letter from a man to-day asking if I did not make the word anesthesia, which I certainly did."

The life history of words and expressions, medical terms included—how they came to be used at all—how some of them, after enjoying a period of prosperity, even of aristocratic connection, sank into obscurity—how some of them were resuscitated and afterwards became a part of the speech of every-day life—how certain candidates for favor were rejected while others were taken up, fêted, caressed, and finally became immortalized in the common dictionary of the language—all this forms a story of the greatest interest. It may also be pointed out that words endure on account of some quality inherent in themselves or because of their peculiar environment or in virtue of both. A medical term survives when there is a great need for it and when its form is pleasing to the literary sense (if one may use that phrase) of the community.

There is quite a large number of medical terms knocking for admission into the fold of our scientific vocabulary, either as entirely new forms or as later and better representatives of old ideas. What proportion of these will be adopted into the growing family of medical terms remains to be seen. Meantime their employment is entirely unauthorized.

The following sentences contain examples of the improper use, in this sense, of certain words that occur occasionally in our medical journals. The objectionable words are italicized: (a). On the next day we *operated* the child. (b). Care should be taken not to *operate* the cataract too soon. (c). If the *operated* eye remains quiet it is better to interfere early. (d). These symptoms may be due to a swollen *turbinate*. (e). The *iritic* reflexes were found to be normal. (f). If we wish to measure the total ametropia, it is usually necessary to employ a *mydriatic* (cycloplegic). (g). It is often difficult to *refract* such a patient. (h). In cases where the *refracted* eye is shown to be emmetropic (i) the *refractor* places a convex lens before his own eye.

(a), (b), (c), In Vicente Salva's Spanish-Spanish-Latin dictionary, the nearest approach to a Latin equivalent of the Spanish word *operar*, to operate upon, is given as *operationem chirurgicam peragere*. The English language has in this particular followed the Latin construction more closely than the so-called Latin languages themselves. There is no single transitive verb (derived from *opus*) in either tongue



that conveys the idea of the performance of a surgical operation. If there be such it will be found in the works of modern writers of Latin who, under German, French, Italian or Spanish influence, have coined a corrupted derivative (*operare*) from the deponent verb *operari*, which has quite a different significance from *operar*, *opérer*, *operare* (Italian) and *opereiren*, which are, in a perfectly legitimate sense, transitive. It is probable that the above mentioned and objectionable use of the English verb may be traced to the same source. This probability will be brought out by the following short sentences and phrases taken at random from foreign publications: *Ich habe das operirte Auge sehr oft untersucht. Einen Blinden, die Augen, den Staar u. s. w. operieren. Ce chirurgien est habile, il opère parfaitement bien; il a opéré dans la journée deux hommes qui avait la pierre. Il primo a operare con successo l'estirpazione della laringe fu un italiano.* So that while the continental surgeon we are best acquainted with usually *operates* his patients or their organs, we must continue to operate *on* or *upon* them.

(d). This word is never used as a noun, although there is abundant authority for the employment of *turbinal*—meaning a turbinated bone. For example, in Huxley's "Anatomy of the Vertebrates" occurs the following: "Forming the floor of the front part of the nasal chamber on each side is a large concavo-convex bone . . . which is commonly termed a *turbinal* . . . does not truly correspond with the *turbinals* of the higher vertebrata." This pretty well disposes of the argument (in favor of "turbinate") that we have no single word in English to designate a turbinated bone.

(e). A moment's consideration of the fact that the adjective *iritic*, like *neuritic* and *pleuritic*, has to do with the inflammation of the part designated by the first portion of the word should be sufficient to prevent the mistake of using it to refer to the part itself. On the other hand, this improper use of *iritic* is not uncommon; I have lately seen it so employed in one of our most widely known medical journals. Legitimate adjectives (derived from *iris*, gen: *iridis*) are numerous enough; there is good authority for *iridal*, *irian* and *iridian*, not to mention the frequent and proper use of the noun *iris*, as an adjective.

(f). The use of *cycloplegia* and *mydriasis* as synonymous terms and of *mydriatic* and *cycloplegic* as interchangeable adjectives and adjective-nouns is one of the commonest errors one meets with in medical literature. A mydriatic may be, but is not necessarily, a cycloplegic, even though a cycloplegic is usually a mydriatic. A giant is always a man, but men are not necessarily giants. The electric current and a quarter-grain solution of cocain are under certain conditions mydriatics but neither of them is a cycloplegic. If one wishes to refer specifically to the dilatation of the pupil the ancient term *mydriasis* should be employed, reserving the modern word *cycloplegia* (from *κυκλος*, a circle, *i. e.*, the ciliary ring, and *πληγη*, a stroke) for indicating a paralysis of the ciliary muscle.

(g), (h), (i). It is not uncommon to witness the incorrect employment of these words, even by those who make some pretensions to scientific accuracy. If we think of their etymology (or consult any dictionary) it will not be difficult to show the inaccuracy of connecting the idea of personality with any

of them. One may properly *measure* or *determine* the refraction of a patient's eye,—but ought not to say: "I advise you to refract Mr. Jones," or "You had better refract both his eyes," which would be tantamount to condemning Mr. Jones or his eyes to be broken up or bent back (*re* and *frangere*). In the same way the noun, *refractor*, has been incorrectly given a new meaning—that of a person who determines the refraction of the ocular media, *vulgo*, a man who fits glasses. One meaning of *refractor* is that of a telescope and the idea is of something that refracts, or bends from their course, light or sound waves.

Although it is undoubtedly true that we can not with propriety speak of *refractor*, *refract* and *refraction* apart from a *thing*, yet it can not be denied that the phrases, "to measure Mr. Jones' refraction," and "to determine the refractive condition of Mr. Jones' eyes," are entirely too clumsy and eat up too much time. Already, in England especially, the shorter expression "to measure Mr. Jones" (for glasses) is in vogue. In practice this would be less objectionable (to Mr. Jones himself and others) than "to refract Mr. Jones," who might be hard to bend or break.

There is a demand, but less urgent, for some term that will designate the person doing the refraction work above referred to, but that "refractor" meets this philological want is at least doubtful.

Many other examples of the questionable use and application of terms in medicine might be given, but such a task may well be undertaken by some other writer better qualified to complete it.

## SCARLATINA AND THE STREPTOCOCCUS INFECTION.

Read in the Section on Diseases of Children at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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The clinical history and symptomatology of scarlatina point to a virulent infection. Streptococci are found in the throat, cervical glands and other lymphoid structures, as well as in the blood, pleural, pericardial and peritoneal secretions, internal organs and skin of patients succumbing to this dread disease.

Mr. Bergé, in a paper read at a recent meeting of the Biological Society of Paris, maintains that scarlet fever is the result of a local infection by the streptococcus. In an article upon "The Local Lesion of Scarlet Fever," Dowson speaks of the "accidental inoculation of the tonsil by minute scratches while taking food."

No one questions the common etiology of idiopathic and surgical scarlatina. Their relation to puerperal fever and pelvic suppuration is admitted. Consequently their affinity to any local abscess formation, septicemia or pyemia must be conceded. No clinician has failed to observe the likeness of the course and progress of an attack of scarlet fever to one of septicemia or even pyemia. Post-mortem records emphatically corroborate this characteristic and harmonize the seeming conflicting facts with the specific microbic distinctions and diversities. With reference to the latter and the progressive changes in the biologic field, Hueppe says: "For a better enlightenment, and under the influence of a

strictly scientific apprehension of the etiologic problem, these rugged differences are disappearing." In the effort to determine the cause of such apparently diverse conditions as erysipelas, scarlatina, septicemia or suppuration, the specificity of the streptococcus erysipelatis, the streptococcus scarlatina, the streptococcus pyogenes may have been too markedly dwelt upon and their almost biologic indistinguishability overshadowed. Osler believes "the rash of puerperal fever and of surgical scarlatina to be the red rash of septicemia." To me, it seems reasonable to push this thought to its logical conclusion, viz., to call the red rash of *idiopathic* scarlatina a septicemic eruption. Such complications as endocarditis, arthritis, etc., are doubtless pyemic, and possibly indicative of but a more malignant and extensive scarlatinal incursion.

Fraenkel, Baumgarten and lately Knorr are avowed advocates of the identity of the streptococcus erysipelatis and the streptococcus pyogenes. In 1889 Fraenkel by erysipelas culture inoculations, caused purulent ophthalmia in one case, peritonitis in another and an abscess of the skin of the back in a third case. This proved to his mind "the identity of the two," while "clinical differences in the disease were due to the mode and locality of the infection; perhaps also to the quantity of the virus and disposition of the individual." The identity of the scarlatinal and pus germ is as yet undetermined, although by many, they and the streptococcus erysipelatis are considered as different varieties of one and the same species. It yet remains to bring this theoretical work into consonance with practical clinical experience.

Spatswood in a recent article entitled "Infant, 1 Month old with Erysipelas of Head, Face, Neck, Trunk and Extremities," traces the infection to the mother, who four days after delivery came down with puerperal fever. Dowson reports a case of scarlet rash superimposed upon an otorrhea. Gimmel reports two adult cases of erysipelas developing upon a previous scarlatinal attack. In the one case, scarlatinal desquamation took place on the sixth day and upon the tenth day was followed by a localized facial erysipelas exfoliation. He is of opinion that "the scarlatinal poison may often have, just as in erysipelas, its point of entrance in an epidermal injury." . . . "It is a question with me, whether or not in these cases the etiology of the two processes was not identical; for the erysipelas occurred during the desquamative stage of scarlatina and the contagion carried to a nasal excoriation by the desquamating skin."

As early as 1840, Braun calls attention to the fact of many contemporaneous attacks of angina and facial erysipelas. A scarlet fever case of Gläser's in whom great flakes of desquamating skin exposed the deeper, oozing, rete malpighii suggests to me the possibility of this disease invasion through the skin as well as through the usually accredited portal, viz., the tonsils.

In the *Archives of Pediatrics*, April, 1893, I reported a case of erysipelas, contracted by the father through the scratch of his child's fingers, the child at the time being sick with scarlet fever.

In February, 1894, I was called to see a boy suffering from severe scarlatina which prevailed in his neighborhood. There was an enormously large bilateral cervical adenitis. The matter was deeply seated and caused some respiratory embarrassment. The patient was in a dangerously septic state, much

enhanced by a superadded right facial erysipelas. The surface was swollen, brawny, glazed and involved the eye and neck of that side. Unfortunately, I had no further opportunity for observation of this interesting case. But I was again profoundly impressed with the probable identity, or at least possible interchangeability of the pyogenic, erysipelatos and scarlatinal microorganisms and their correlative aggression.

Jordan, in the *Centralblatt für Bakt.*, 1891-92, concludes that: "Erysipelas is etiologically not a specific disease." He is criticised for "so many conclusions on so few cases." I must plead guilty to the same indictment, but because of the importance and interest of my theme, present it for consideration. The etiologic and clinical parallelism of scarlatina, septicemia and erysipelas having been presented, their points of non-resemblance, variable intensity, individual susceptibility to, or immunity from, must be explained. Their diverse manifestations need interpretation; for in the one instance an abscess or septicemia obtains, in another, erysipelas, and again in a third case scarlet fever.

Varying virulence is probably dependent upon the life history of the germ, its different avenues of entrance and the natural and acquired immunity of the invaded organism. The character of the disease may likewise depend upon the vulnerability of the individual; some responsibility being attached to age, heredity, congenital disease, anatomico-physiologic conditions peculiar to age and personal environment.

An infectious agent is often innocuous to a healthy individual, illustrated by the presence of Löffler's bacillus in the throat of healthy persons. Diphtheria and scarlet fever are preëminently dangerous diseases of childhood. Why? Not alone do adenoid tissues, especially accessible to bacterial encroachment, prevail in youth, but this period of life has anatomic structure of fauces, larynx and skin peculiar to it. Again, a great majority of the child world are born with a rachitic, tubercular or syphilitic taint. They are subjects of a lymphatic diathesis, particularly prone to the streptococcic onslaught. In childhood, mucous membranes and skin are to some extent unripe and tender, and their peripheral layers easily succumb to the deleterious effects of implanted microbes. Large assailable epidermic surfaces are perhaps exposed to a diffuse and overwhelming incidence. Scarlet fever results; its mildness or severity gauged by the quantity, virility, extent and penetration of the overpowering force and the age, health or disease of the besieged organs and tissues. The sheltering care and environment of childhood ordinarily prevents the grosser lesions necessary to the inception of erysipelas and ordinary wound septicemia; adult exposure diseases. Environment is here a great factor. The horny, mature, epidermal layer also withstands, consequently localizes, the streptococcic irruption. Erysipelas results; the graver, the larger the implicated surface. Grosser injuries and inundation of the blood by the streptococcus determines a septicemia. A lymphatic streptococcic incursion, a final connective tissue space involvement, determines abscess formation. Idiopathic erysipelas has disappeared from the nomenclature. Idiopathic scarlatina will eventually meet a similar fate for the same reason. The association of surgical scarlatina and puerperal fever are regarded as modified scarlet fever. Erysipelas may in the future be considered an analogous variation, due to differ-

ing essential character and inherent quality of tissue attacked.

As anthrax displays three forms of disease consequent upon the entry of the bacillus into different regions of the body; so might the streptococcus give rise to diverse manifestations according to its mode of entry through the adenoid, mucous, serous, epidermal tissues or blood. When we consider that the incidence of scarlet fever is only 5 per cent. it does not compare unfavorably with that of erysipelas and septicemia over which such a cry of susceptibility and immunity is not raised. Heredity, perfect health and fully developed structure may account for natural scarlatinal immunity. A previous attack or a protective blood serum inoculation, as demonstrated by Ashmead, produces artificial or acquired immunity. However, positive scarlatinal immunity can not be sustained in the face of accredited cases of second independent attacks.

The subject of immunization will be nearer solution with the development of the toxin and blood serum therapy questions. Thus future therapeutics will be directed into: 1, the antiseptic; 2, the antitoxic lines.

Before closing, I wish to place myself upon record as strenuously opposed to the use of inunctions in scarlatina; for I have long believed that the diseased skin and secondarily the kidneys, by reason of an oily lacquer are made to carry an additional burden. Arnheim, Unna, and recently Sskelow, have proved that in scarlet fever the respiratory and secretory function of the skin is seriously involved; consequently inunctions but aggravate this condition and cause secondary nephritic complications. In the face of this evidence, warm antiseptic baths had better supersede so dangerous a procedure, thus promoting physiologic function and meeting anti-bacterial indications. Through biologic research we again see surgical cleanliness invading the domain of medicine. To sum up:

1. A specific scarlet fever germ or toxin is not yet demonstrated.

2. The disease is associated with a streptococcus infection.

3. A streptococcus admitted to be the cause of surgical scarlatina and puerperal fever.

4. A streptococcus admitted to be the cause of erysipelas.

5. The frequent association of the latter with puerperal fever and it in turn with surgical scarlatina.

6. The relation of idiopathic scarlatina to surgical scarlatina and puerperal fever acknowledged.

7. The identity of the streptococcus pyogenes and erysipelatis advocated.

8. Clinical records showing the association of supuration, erysipelas and scarlatina in one and the same subjects, suggestive of the parallelism of these three infections and the probable biologic identity of these several streptococci.

9. Clinical differences and varying susceptibility to the one or the other due to heredity, age, anatomico-physiologic conditions, congenital disease, environment, life history of the invading host and its avenues of entry.

10. Disappearance of idiopathic erysipelas from the nomenclature. Analogously, idiopathic scarlatina may meet a like fate.

11. Natural immunity due to heredity and healthy fully developed structure.

12. Acquired immunity from antitoxins of the disease or through blood serum therapy that will revolutionize the treatment of this dread disease.

13. Inunctions disapproved of. Antiseptic baths better meeting anti-bacterial and physiologic indications. 3353 Indiana Avenue.

#### BIBLIOGRAPHY.

- Sskelow, D., Die Hautperspiration bei Kindern im physiologischen und pathologischen Zustande. (Bei Scharlach und Nierenentzündungen.) Archiv für Kinderheilkunde, Vol. XIV, 1892, p. 25.
- Arnheim, F., Zur Frage über der Einfluss des Firnisses der Haut. Zeits. f. Klin. Med., Bd. XIII, Heft. pp. 33-34.
- Knorr, K., Beitrag zur Lehre, von der Identität des Streptococcus. Berl. K. Woche. July 17, 1893, p. 699.
- Fraenkel, Grundriss der Bakterien Kunde.
- Gimmel, C., Scharlach bei Erwachsenen nach Beobachtungen auf der Med. Klinik in Zürich. Deutsches Archiv f. Klin. Med. Leipzig., 1892-93, Vol. LI, pp. 26-49.
- Glaser, J. A., Drei Fälle von Scarlatina mit besonderen Erscheinungen. Zeitsche f. Klin. Med., Berl., 1892, Vol. XXI, p. 393.
- Pollak, A., Über Scarlatina Occulta, Prag. Med. Wochsch., 1893, Vol. XVIII, p. 442.
- Aufrecht, Die Septische Scharlach Nephritis, Deutsches Archiv f. Klin. Med. Leipzig., 1893-94, Vol. LII, pp. 339-351.
- Behring, Untersuchungs ergebnisse betreffend den Streptococcus Longus. Centralblatt für Bakt., Bd. XII, No. 6.
- Brinton, W., A Puerperal Woman Dying on the Seventh Day of Scarlet Fever, Maryland, M. J., Balt., 1892-93, Vol. XXVIII, pp. 3970-4000.
- Spatswood, D. J., Puerperal Fever and Erysipelas Infant 1 month old with Erysipelas of Head, Trunk, Face, Neck, Extremities, Recovery. N. Y. Med. Rec., 1893, Vol. XLIV, p. 14.
- Bartlett, F. W., How Shall We Treat Scarlet Fever? Buffalo Med. and Sur. Jour., 1893-94, Vol. XXXIII, pp. 78-84.
- Bokenham, T. J. and W. S. Fenwick, The Pathologic Effects of Certain Substances Derived from the Spleen in Cases of Scarlatina. Brit. Med. Jour. London, 1893, Vol. II, pp. 405-409.
- Leask, H. L. G., Recrudescence in Scarlet Fever, Brit. Med. Jour., 1894, Vol. I, p. 240.
- Johnson, H. P., Scarlet Fever, Relapse on the Seventeenth Day, Brit. Med. Jour., London, 1893, Vol. II, p. 1322.
- Spear, D. D., An Epidemic of Scarlet Fever; Etiology, Boston Med. and Sur. Jour., 1893, Vol. XXIX, p. 594.
- Carger, F. C., On Relapse in Scarlet Fever, Med. Times and Hosp. Gaz., London, 1894, Vol. XXII, p. 67.
- Dowson, M., The Local Lesion of Scarlet Fever, Med. Chron., Manchester, 1893-94, Vol. XIX, pp. 217-237.
- Manning, N. S., On the Skin Eruptions which occur in Septicemia following Scarlet Fever and Diphtheria, Brit. Med. Jour., Lond., 1893, Vol. I, p. 691.
- Nugent, R., A Case of Scarlatina, Med. Reporter, Calcutta, 1893, Vol. II, p. 106.
- Hunter, J., Case of Recrudescence in Scarlet Fever, Brit. Med. Jour., Lond., 1892, Vol. II, p. 1430.
- Ashmead, A. S., A Japanese Sick with Scarlet Fever, Univers. Med. Mag., Philadelphia, 1892-93, Vol. v, p. 721.
- Cattell, H. W., Some Notes of Scarlet Fever Based on One Hundred and Eighteen Consecutive Cases, Internat. Med. Mag., Philadelphia, 1893, Vol. II, pp. 124-126.
- Jameson, W. A., The Antiseptic Treatment of Scarlet Fever, Med. Mag., London, 1892-93, Vol. I, pp. 1046-1054.
- Curgeve, J. B., On the Treatment and Disinfection of Scarlet Fever by Antiseptic Inunction, Med. Mag., London, 1892-93, Vol. I, pp. 729-749.
- McKeehuie, R. G., An Anomalous Rash in Scarlatina, Montreal Med. Jour., 1892-93, Vol. XXI, pp. 591-601.
- Russell, J. B., and A. K. Chalmers, On an Outbreak of Scarlet Fever in Glasgow, connected with an Epidemic Teat Eruption on Milch Cows at Jaapston; with report by E. Klein on certain material sent him, Glasgow, Med. Jour., 1893, Vol. XXXIX, pp. 1-22.
- Philips, S., A case of Scarlet Fever with Relapse, Acute Rheumatism and Purpura Hemorrhagica. Recovery, Lancet, London, 1893, Vol. II, p. 366.
- Barker, W. J. F., Two Attacks of Scarlatina in Three Months, Brit. Med. Jour., London, 1893, Vol. II, p. 843.
- Mason, J., Anomalous Cases in an Epidemic of Scarlet Fever, Brit. Med. Jour., London, 1893, Vol. I, p. 349.
- Ashmead, A. S., A Study in Scarlet Fever; apparent Transmission of Immunity by the Inoculation of Human Blood Serum, Univers. Med. Mag., Philadelphia, 1893-94, Vol. VI, pp. 31-34.
- Hershey, E. P., The Prophylaxis of Scarlet Fever, Med. News, Philadelphia, 1893, Vol. LXII, p. 435.
- Kennedy, J. M., Report of Three Cases of Scarlet Fever with Secondary Attacks Occurring in One Family, Med. Rec., New York, 1893, Vol. XLII, p. 461.
- Caddy, D. J., Exceptional Cases of Scarlet Fever, Lancet, London, 1893, Vol. II, p. 1307.
- Curgeve, J. B., Antiseptic Inunction in Scarlet Fever; a Criticism Answered, Med. Mag. London, 1892-93, Vol. I, pp. 1150-1154.
- Jackson, A. S., The Complications of Scarlet Fever as Observed in Fifty Cases, Boston Med. and Sur. Jour., 1893, Vol. CXXIV, pp. 162-166.
- Murray, R. W., Case of Scarlet Fever with Purpura, Lancet, London, 1893, Vol. I, p. 290.

## THE VAGINAL DOUCHE IN ITS RELATIONS TO BLENNORRHEA IN THE FEMALE.

Read before the Louisville Academy of Medicine, Feb. 18, 1895.

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To be concise, to avoid irrelevancy, to be up to date, to be orthodox, is the aim of this paper.

What is blennorrhoea or gonorrhoea, as you may please to call it? The following quotations from Fin-

ger<sup>1</sup> embody my answer of this question and will be the basis of my argument:

"So many positive inoculations have been made that doubt of the pathogenic character of the gonococci is hardly possible at the present time; in fact its etiologic significance is not recognized universally except by a small group of French writers."

Further on, after viewing the full history of laboratory research in this matter he says: "If we make a résumé, the following facts may be regarded as well established:

"1. The gonococcus is found in all cases of suppuration of the mucous membranes, especially of the genitalia and conjunctiva which are described clinically as gonorrheal.

"2. It is absent in all non-gonorrheal processes.

"3. Pus free from gonococci does not produce gonorrhea.

"4. Pus containing gonococci produces gonorrhea.

"5. The microörganisms which are cultivated from gonorrheal pus, but which are not identical with the gonococcus do not produce gonorrhea.

"6. The gonococcus cultivated from gonorrheal pus produces gonorrhea with distinct increase of the inoculated microörganisms."

In the comparatively modern literature of gonorrhea that has, in its full fruition led up to the evolution of the laparotomist and his hospital, Van Buren stands undeniably first. It is now quite thirty years since he wrote: "More people die of clap than do of syphilis." Like most prophetic warnings his statement was long ignored and unappreciated. Ten years later, Noeggerath "wrote himself down an ass" in his paper on "Latent Gonorrhea and Its Influence on Fertility in Women." The story is a long one and instructive as well. Nothing but the *pudor*, the false shame that surrounds it, has kept it from resounding through the columns of almost every phase of literature.

Noeggerath's second pronunciamento came in 1876, yet as late as 1884, Milton, the most voluminous writers on gonorrhea of ten years ago, refers to specific endocervicitis, endometritis and ovaritis as *complications* of an original specific vaginitis. Finger (*op. cit.*) says: "I still remember when it was impossible for me to demonstrate a trace of blennorrhagia on examining a woman from whom a man was proved to have acquired acute gonorrhea. Not alone could the diagnosis not be made in many cases, but the severity of the process in women was not recognized. The knowledge of the process was confined to the recognition of vaginitis, vulvitis, abscess of Bartholin's glands and urethritis. The latter was regarded as very rare (5 per cent of all blennorrhagic females—Zuissl). Very bold syphilologists ventured to speak of an 'endometritis cervicalis blennorrhagica.'"

In 1874, Bumm first called attention to the cervical canal as the frequent site of gonorrhea; and although the gonococcus of Neisser was demonstrated in 1879, it was not until 1891 that Kratter insisted on the microscopic examinations of secretions and curettements before making a positive diagnosis.

Currier ("Morrow's System," 1893), while questioning somewhat the absolute relationship in the matter of cause and effect between the coccus of Neisser and gonorrhea, rates himself a specificist in saying: "Gonorrhea in a woman always implies a

precedent gonorrhea in some one else . . . it never exists *de novo* either in man or woman."

I am indebted to the article by Currier just referred to for much of the following history. He says: "In recent times it has been seriously questioned by more than one thoughtful writer, whether gonorrhea of the vagina ever exists as a primary condition."

Bumm, in 1891, after a study of fifty-three cases of gonorrhea in the female, found that the cervical endometrium was the seat of gonorrhea in 75 per cent. of the cases, the corporeal endometrium in 15 per cent., and the tubes in 3.5 per cent. "Formerly," said he, "I questioned the existence of vaginal gonorrhea in adults; now I believe it seldom occurs in adults as an acute process and *never as a chronic one*."

Sänger finds gonorrhea most frequent in the cervical endometrium. He holds that while the vagina necessarily receives this discharge it is not always influenced by it.

Sternschneider finds the urethra the most frequent site of acute, and the cervical endometrium of chronic gonorrhea in the female.

Erand demonstrates the frequency of cervical gonorrhea by curettement. In common with other observers, he believes that the exemption of the vaginal mucous membrane from the disease is due to the character of its epithelium (pavement) which is not favorable to the growth of the gonococci. He holds that gonococci found in vaginal secretions are migratory.

Horand gives some interesting statistics in that they contrast in this matter, childhood and adult life. He states that in eighty-five female children with gonorrhea he found vaginitis in sixty-eight. In twenty of these the vagina alone was infected.

Currier aptly refers to the structural difference between the vagina of children and of adults as an explanation of this. In the very young the vaginæ are lined with an exceedingly soft, delicate epithelium and are or should be unused and almost sealed passages, while in the adult, with her descended womb and recurring menstuous flow to say nothing of other influences, ablutions, etc., the resistant pavement protective speedily hardens and with the many benign and septic germs that innocently find lodgment there, some quite probably inimical to the coccus of Neisser, it is not at all a matter of wonderment that her vagina is almost absolutely proof against the disease.

To summarize: Gonorrhea in the female is ordinarily anything but a vaginitis. It attacks the vulva and its appendages, the urethra, the uterus and even the tubes and ovaries, sometimes, notably in children and young girls, the vagina. But in such cases it is always of an acute and so temporary type; a type which because of its necessarily concomitant symptoms is not conducive to contagion. Need I enlarge upon the inferences to be drawn from this array of facts? That the vaginal douche if used as a curative agent for a presumed specific vaginitis, is useless must be apparent to all, and in the light of modern science the *strong* zinc or alum for the woman, as a parallel of the *weak* zinc or alum for the man, is a thing of the past. So, too, of boric and bichlorid and permanganate and all of the growing family of curative specifics, all are futile in vaginal douching. Yet the douche has its place and wisely used this is unquestionably a place of the highest importance.

<sup>1</sup> Blennorrhæa of the Sexual Organs, by Dr. Ernest Finger; translation, third edition. Wm. Wood & Co. 1894.



What is it? First, it is a prophylactic agent. We recognize how feeble the hope of prevention is, where a lacerated surface receives friction in the sexual act, with a chancre. But not so with the gonorrheal virus. Here the prompt douchment with a fountain syringe, hot water, and, say a dash of vinegar may be productive of great good. Here is rational hope of escape from infection, and with statistics demonstrating the cervical canal to be the commonest site of infection, I would in the abstract say that a thorough hot douchment of the vagina, the subject recumbent, in every case where risk is incurred, would in its results alone justify the retention of the vaginal douche in genito-urinary practice. Beyond this it has, as a rule, two purposes in gonorrhea and two only: 1, for cleansing and disinfection, with, say, carbolic acid or some other of the creasols, or with simply warm water, non-curative but of much worth; and, 2, its use as a means of applying the soothing influences of moist heat to those inflamed and sensitive organs, the uterus and its appendages. Here it may be undoubtedly made fruitful of much good; yet here unless it be desired in its use to at the same time wash from the vagina the migratory virus, I would suggest that much greater benefit will accrue if the vaginal douche be given *in the rectum*.

## DISCUSSION.

DR. L. S. McMURTRY—The paper read by Dr. Palmer is too valuable a one to be allowed to pass without discussion. It is a clear cut syllabus of facts from beginning to end, and I indorse it thoroughly. Van Buren's statement was indorsed by Lawson Tait in his great work, and in all probability Lawson Tait never saw Van Buren's writings. The statement referred to was that of the two diseases, gonorrhea was much more severe and dangerous to life than syphilis, and in late years the profession had recognized this. As the gonococcus finds a nidus in the cervical canal, the vaginal douche as a curative measure is useless, the specific virus being lodged where it can not be reached. After the acute symptoms have passed little is heard of it as a chronic malady; it is in the tubes; a gonorrheal salpingitis develops, the pus leaks out in cavity, peritonitis increases and it is the severe general symptoms which bring the patient to look for advice and treatment. It is true, radical measures can cure, but if only the lower mucous membrane is affected the patient is not invalided and the physician is rarely consulted.

DR. W. H. WATHEN fully indorsed the conclusions of Dr. Palmer's paper, and was impressed by the statement that the vaginal mucous membrane is seldom involved in gonorrhea. He had frequently examined patients with gonorrheal discharges and frequent micturition, and from a microscopic view there was no change in the vaginal mucous membrane, and this must be accounted for by the resistance this membrane has for the gonococcus. He does not know what position to take in regard to douches in specific vaginitis. Hot water is as good as any antiseptic; patients are benefited by frequent hot douches, and patients thus treated have not developed pus tubes. If the gonococcus has invaded the cervix and uterus in acute cases, it is only the superficies; it should be curetted and washed with a 1 to 5,000 bichlorid solution, and tamponed with iodoform gauze. Gonorrhea is not so frequently the cause of pus tubes as was formerly believed, but it is oftentimes the cause, especially in young married women who have married men who thought themselves cured of a gonorrhea. Now can any one tell what percentage of involvement of the vagina, uterus and tubes has been due to the gonococcus? The pus tubes removed, if no gonococcus is found does not indicate that it was not there; the gonococcus is a sensitive bacteria. In the large chronic pus tubes no gonococci are found. The older and larger the tube the less virulent the pus.

DR. DUGAN said that the absence of the gonococci from the pus in tubes is an evidence that the pus is not due to this organism. Scraping of the endometrium is not effectual, because the gonococcus is not satisfied with the surface, but dips down. The primary lesion is a stricture analogous to the stricture of the urethra in the male. The septic bacteria or those of suppuration are associated with the gonococcus

the drainage is interfered with on account of the stricture and an abscess results, formed by the bacteria of suppuration.

DR. FRANK stated that Dr. Palmer had explained why the vagina is not affected by the gonococcus. Gonorrhea does not exist in pavement epithelium surfaces, and in all cases in which there exists gonorrhea with a discharge it comes from the uterus or cervix. A vaginal douche is of no avail as a curative measure, but it may give some relief. Dr. Dugan has explained why the gonococcus is not found in the pus of pyosalpinx. The gonococcus invades the deeper structures; it is found in the tissues on section. He had demonstrated in one case in which there was from one to one and a half ounces of pus in a pyosalpinx, the presence of gonococcus. Treatment of gonorrhea should not be by the douche but by applications to the uterine mucous membrane, curetting and drainage, taking away the mucous and some of the glandular structure. This may not prove effectual, as these glands dip deep down in the muscular coat, and to have regeneration of tissue some of it must be left. The gonorrhea may travel by means of the lymphatics. The paper read by Dr. Palmer is interesting and timely.

DR. J. B. BULLITT complained that this most excellent paper read by Dr. Palmer had left us in rather a hopeless state, as he had offered no treatment to take the place of the vaginal douche, which even now many believed to be the only treatment, and he knew that all would be obliged for a treatment to be advised.

DR. McMURTRY asked if gonorrhea in male or female ever got well spontaneously.

DR. PALMER answered that nine women in ten never get well and a large percentage of men do not. Almost all of the speakers had approached the subject from a different standpoint than he had treated. He rather looked to the possibility of the disease being transmitted to men, and they, in turn carrying it to the marital couch. The pus in the pus tubes is different from the pus in the urethra; the gonococcus is a dainty organism, not content even with the urethra, for a drop of serum obtained from the former five days after the development of the disease has been found to contain the gonococcus. Of all organisms the gonococcus is a burrower, and all authorities show that it is want of care and persistence on the part of the examiner which causes him to fail to find the gonococcus. He had under his care at present a girl 14 years of age who had never menstruated, but why had a profuse gonorrhea in the discharge of which the gonococci had been found by Gram's method.

The left vulvo-vaginal gland was involved, there was vaginitis, vulvo-vaginitis and vulvitis. Bichlorid 1 to 2000 douche had been used for one week, and at the end of that time, after cleansing thoroughly he could not touch the uterus with his very long finger. A virginal speculum was introduced and the entire vagina was as raw as any raw meat he had ever seen, the cervix could not be found, and the conclusion was arrived at that the patient had a virginal uterus which had not descended from the abdominal cavity. This case was cited to show the difference between an adult female with gonorrhea and a child; in the latter there occurred a vaginitis. Nine out of ten men contract gonorrhea from women who have this disease in the subacute or chronic stage. If in the acute stage they could not receive the male organ on account of the pain. In acute gonorrhea of the female there is no sign, unless there be a urethritis or vulvitis, until the cervix is reached; cleanse the vagina and you see nothing indicative of inflammation but a tender cervix, and a flow of pus from the canal. The gonococci may remain here for fifteen or twenty years. In the case of the girl with gonorrhea, fully one ounce of pus was mopped out, this alone showing the inefficiency of the douche, which had first been given thoroughly. In the treatment of adult females, in a suspected case it is better to use a powerful chemic agent rather than the knife or curette. Churchill's tincture of iodine is good; this should be carried up and allowed to lie there, asking the patient to possess herself with patience, perhaps making two or three applications at one sitting. The douche is good for cleansing purposes. The cervical canal is the seat of gonorrhea in 75 per cent. of all cases, the vagina is never the seat of chronic gonorrhea. The gonococcus lets the vagina alone. Rather send the water up into the rectum, and by its proximity let it bathe the ovaries, and obtain a soothing action against the inflamed parts. The subject, as before stated, should be looked at from the standpoint of the general public rather than the surgeon's chasing after pus tubes. In conclusion, he would state that when gonorrhea is treated in the female do not treat the vagina, but the cervix; the vaginal douche is absolutely useless as a cura-

tive measure. He has the record of one case of gonorrhea of the mouth, but the mouth with its seventeen different kinds of bacteria is practically proof against the infection by the gonococcus. It is the exceptions which prove the rule. Introduce the speculum, cleanse the vagina well, disinfect the exposed surfaces, in old cases curette the cervix, then apply the medication; but if the cervix is lacerated use nitrate of silver and burn thoroughly. Introduce an antiseptic tampon to absorb the discharges, which should be withdrawn at the office, and always treat the cervical canal instead of the vagina.

The youngest case of gonorrhea which Dr. Palmer had seen was 3 years of age. Twelve years ago a man gave his pregnant wife gonorrhea, the child was born and developed a gonorrheal ophthalmia. The grandmother went blind from gonorrheal ophthalmia developed from the child, and two sisters, 3 and 5 years old developed gonorrheal vaginitis from the same case.

## A CASE OF HYPERTROPHY OF MAMMARY GLANDS.

COMBINED WEIGHT FIFTY-TWO POUNDS—EXCISION—  
RECOVERY.

BY JOHN B. HAMILTON, M.D.  
CHICAGO.

July 19, 1894, Mrs. P., of Lancaster, Wis., was brought to the Presbyterian Hospital by her physician, Dr. F. E. Strong, of Lancaster, who gave me the following history:

"Mrs. P., age 32, had ordinarily good health up to the time of her marriage eight years ago. Began to menstruate at usual time. At 12 years of age had scarlet fever, and when 16 began to have slight irregular pains in both mammary glands. During her first pregnancy when six months advanced, the breasts began to enlarge and became painful. At this time she was very sick with malarial fever and remained so until eight months, when twins were born. Two weeks afterward breasts had resumed their natural size. During second pregnancy they began to enlarge at second month, but did not attain their former size. The child was born at term and nursed from the nipple, which the first did not do. In fall of 1893, just before her third pregnancy, the breasts began to enlarge a third time. She grew weak and an abortion followed at five months; the breasts did not diminish in size, but increased until she came to the hospital. The right breast measured forty-two inches in circumference at the nipple and the left thirty-nine. The right breast measured thirty inches around the pedicle and the left twenty-seven. The right breast measured fourteen inches from the nipple to the pedicle, and the left thirteen and one-half. She was unable to walk without assistance owing to the great weight and bulk of the breasts. The drawings herewith from a photograph, show the appearance of the breasts.

The enormously enlarged veins, the great size of the tumor and the history of former cases, made operation an object of some solicitude on account of the danger of hemorrhage. The first operation was done in the clinical amphitheater of Rush Medical College, July 21, 1894. I had a couple of long skewer pins made and thrust them through the pedicle. I then cast a stout rubber cord between the pins and the chest, and drew them tightly but separately from each side. The breast was then removed by cutting two flaps of skin from the tumor, reflecting them respectively upward and downward, and enucleating the gland; the vessels were secured without difficulty. The hemorrhage was considerable, but it was almost entirely

from the blood remaining in the gland, as the constriction had prevented arterial hemorrhage. The great bulk of the gland prevented the emptying of the blood vessels by compression, although something was done in that direction by elevating the breast while the patient was in recumbent position. The measurement after removal was thirty-nine and one-half inches in circumference, from nipple to pedicle fourteen inches, and around pedicle thirty inches. Its weight was twenty-seven and one-half pounds. On section, the tissues were a grayish-white color, normal in structure.

Dr. F. W. Miller, Interne at the Presbyterian Hospital, made the microscopic examination, and the following report:

"The histologic elements may be considered under two headings, viz.:

"1. Parenchyma elements which are seen as acini

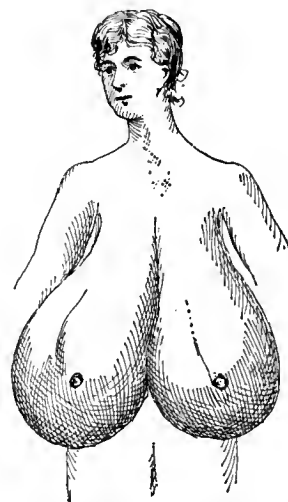


FIG. 1.—Hypertrophy of Mammary Glands. Hamilton's case, 1894.



FIG. 2.—Hypertrophy of Mammary Glands. Hamilton's case, 1894.

and ducts, sometimes greatly compressed so as not to be easily distinguishable. In some the epithelial lining is distinctly columnar, and the lumen of the duct oblong, or large and spherical; in others the epithelial lining, consisting of two layers is made up of small pavement epithelial cells.

"2. The connective tissue elements are in excess of the normal proportion, and consist of highly refractile non-nucleated fiber bundles, taking deep stain with eosin; these fibers interlace in all directions; fat cells are abundant but vessels lacking. Diagnosis: hypertrophy of mammary glands."

There was considerable shock; the patient was well stimulated, external heat applied and the foot

of the bed elevated; she rallied and the wound healed by primary union. On August 11, the wound having healed and the patient being in good condition, the left breast was similarly removed in my clinic at Rush Medical College. The breast had slightly increased in size, contrary to the statement sometimes made that when one breast is removed the other diminishes in size. The operation was attended by no unusual incident and recovery was prompt.

This diffuse form of hypertrophy of the mammary gland is extremely rare. Williams<sup>1</sup> states that "while 2,422 cases of mammary neoplasms came consecutively under treatment at Middlesex, University College, Bartholomew's and St. Thomas Hospitals, during a period of from sixteen to twenty-one years, only six cases of diffuse hypertrophy were seen in the same period." The same author has collected notes of amputations done on sixteen patients, and only one death. "This patient died twenty-two hours after the operation from collapse from excessive hemorrhage during the proceeding."

M. Pierre Delbet<sup>2</sup> says: "Known since the time of Galen, hypertrophy of the breasts is very rare. Velpeau did not observe more than five cases; in 1880 Billroth esteemed it a privilege to have encountered two examples; Labarraque, the author of altogether the best work on this subject, was not able to collect more than thirty-three observations, to which it is necessary to add the more recent cases of Benoit and Monteils (1877), of Monod (1881), Klippel (1887), Billroth (two cases), Barton, Richter, Schussler and Lihotsky."

In conclusion, it is to be mentioned that true hypertrophy (uncomplicated) is usually double, while the cases of hypertrophy of the male breast, described by Leudet (1886) and Blomfield (1886) as an occasional complication of phthisis pulmonalis were unilateral.

## "THE RELATIONS OF MATTER AND MIND."

BY R. E. HAUGHTON, A.D., M.D.

MIDLAND, TEXAS.

Formerly Professor of Surgical Pathology, Operative, and Clinical Surgery, in Central College Physicians and Surgeons, Indianapolis, Ind.; Late Professor of Anatomy, Descriptive and Surgical, in Indiana Medical College, and also Professor of Physiology and Demonstrative Physiology and Anatomy, in College of Physicians and Surgeons, Indiana; Member of American Medical Association, State Medical Association of Texas, Ex-President of Indiana State Medical Association, Honorary Member of Ohio State Medical Association, etc.

### REVIEW.

In reading the article with the above title to its close, I find in the last paragraph this remarkable statement in the form of an interrogatory, viz.: "Do not these converging testimonies focus the truth in the proposition, that the somatic mind of man is (clearly enough) the highest manifestation and legitimate sequence of the primal law of *matter* and *motion* expressed by the Creator in the beginning on the elements of the earth?" The author of this paper paper said in his Presidential address before the AMERICAN MEDICAL ASSOCIATION: "The progress in medicine in the immediate future must be along biologic lines." So in accentuating this thought, I accept the position assumed as to the progress in medicine, but do not accept the final conclusion arrived at in the quotation in the paragraph alluded to. It is to my mind the enunciation of the exploded idea of evolution,

from lower to higher forms, and also involves the doctrine of the "survival of the fittest." It also from the standpoint of investigation ignores the fact of creative design and power in the beginning, in the realm of both matter and mind. It is stated as a proposition by Sterling: "That all organisms consist of the same life matter, which life matter is, for its part due to chemistry, must be pronounced untenable, nor less untenable the materialism founded upon it." The materialism in such a statement is seen when we strip the verbiage from the proposition and present it thus, viz.: That the mind of man is clearly enough the highest manifestation and legitimate sequence of the primal law of matter and motion upon the elements of earth. Motion and matter in their interaction upon each other produce mind. I think it is accepted as true that "like causes produce like results," and that no creature has been produced since the first dawn of creation without sufficient cause.

The opinion that life is a mode or form of energy is one which is gaining an increasing number of adherents among scientific men. Beale, "Protoplasm," page 102: "The idea that life exerts a power over matter—guiding or controlling its actions, having no relation to other forces," is an exploded one, and in this age of free thought and inquiry, ought to require no contradiction. If we follow the lines of the school men they are divided into two classes, viz., vitalists and materialists, and there have been these two classes upon every phase of medical doctrine, as well as upon every other question. Were we to give a more exact division or classification we should say men were divided into materialists and rationalists on the one hand and vitalists on the other.

### THE CREATION OF MATTER.

Forces are the powers which are made to explain the phenomena of vitality. It must have been true that the same forces which give form to a cell as found in a living body, must have been operative when the "worlds were made." These latter belong to the inorganic universe in which there is some unseen power or force which confers life or vitality. True it is, one is microscopic and the others are macroscopic or telescopic, and yet of such vast and wondrous size that we are dumb with wonder and astonishment, and cast about in thought for the power which could create a system of worlds revolving around a common center with such harmony and exactitude. Does it not anticipate the thought which is said, "clearly enough, to be the highest manifestation of and legitimate sequence of the operation of the final law of matter and motion impressed by the Creator in the beginning on the elements of earth?" I am glad he confesses that there is a Creator and that there was a beginning for creation, and this admission stamps out much that is material and irrational in this statement under review. The great First Cause, least understood, is shadowed forth and comes at last upon the scene of the dawn of creation, walking in His majesty upon the wings of the wind, or manifesting Himself as the great I Am, when the rosy hues of the sun's living light first dawned upon the Creator's handiwork, and he said in tones of majesty and power: "Let there be light, and there was light." Why was there light? Because the Infinite and Creative mind had made the sun and hung it out in light and majesty and power, giving heat and warmth and

<sup>1</sup> A monograph on diseases of the breast, London, 1894, p. 82.

<sup>2</sup> Traité de Chirurgie par Duplay et Reclus, t. vi, Art. Mamelle, p. 130.

power to the entire cosmic scene. Which was first? The Creative mind and its fiat, or the worlds? By whose hand were they made, and "without which there was nothing made that was made." Here then we prove that mind, and it matters not as to the fact of the somatic mind of man or the Infinite mind, we thus prove that priority of existence belongs to mind, and that a Divine mind or Creative mind and if so, then according to the law laid down that "like begets like," and like causes produce like results, we have the fact of mind from mind, a Creative mind and a created mind again in the process of creation.

We are told "man was made from the dust of the earth," and God "breathed into his nostrils the breath of life and man became a living soul." Therefore, "when one attempts the analysis of the relation of matter and mind, by any study of it as it exists in the human adult one fails of success most signally." "Because it is not given to men to comprehend infinite questions. How did man become a living soul? By a creative energy, and this is one of the forces of the material universe which has operated upon man ever since and before he had breathed into him the breath of life.

We shall not attempt a review of the processes of the school men in all ages to fathom the processes of human life, or indeed any other manifestation of life. Not even the "modern scientific methods of involved problems." Yet our former neighbor and confrère says: "We must devote ourselves to seeking the simplest form in which the relations of mind and matter exhibits itself and following its development, step by step in its ascending scale until it reaches its maximum in enlightened man." In this question as just stated, I would begin at the reverse end of the scale and passing from higher to lower forms would reach the ultimate limits of the scale in protoplasm conformed to cells, and their almost infinite multiplication as we study their relations in tissues, blood, etc., performing function in all its varieties and uses, with the same system, the same regularity, the same precision as is found to control the globes or cells of more immense and infinite perfections, in what is known as the planetary system. Here is law and order operating in control upon matter, thus revealing the Infinite Intelligence as well as the power which fashioned them by the operation of will, which is known to be the supreme faculty of mind in the inferior orders of creation, dominating the powers of mind as possessed in reason, judgment, affection, etc., so as to accomplish the highest happiness of the individual, when conformed to it.

#### IN THE BEGINNING.

Genesis is simply the beginning, and we are told that "in the beginning God created the heavens and the earth, and the earth was without form and void, and darkness was upon the face of the deep, and the Spirit of God moved upon the face of the waters and God said, Let there be light and there was light." Hence we find in these statements of the book of the beginning (Genesis) the cytogenesis, the morphology, the histology, the anatomy and the physiology of creation in its beginnings (whenever that was), and it does not matter whether it was chronologically 6,000 years, or whether it was according to some data of so-called geologic ages as expressed by Sir Charles Lyell, 35,000 or 50,000 years of our time. It is not so much a question of time as of mind and power or force in

the higher planes of creation; the same law of design, power and creation runs through the entire series. In this historical but brief résumé, the relations of mind and matter are presented to the thoughtful and investigating individual who begins at the top of the scale to comprehend the author, and any attributes which such author may be supposed to possess, and as we must reason, we reason in two directions; from God himself as shown in his works, to his attributes, and when we fail in this direction to comprehend any attributes we look into our own, and thus rising from lower planes and mental characteristics we reach the law that "like produces its like," and thus in form and attribute, as the poet expresses it in his graphic description of man. He says: "In form and moving how express and admirable; in character how like a God." So, too, in the type and forms (cellular) in cytogenesis we see the same admirable and undeviating law that "like produces its like," except when some indefinable and inadvertent influence so operates as to divert the original type into some other form or type which is abnormal to the original type and is not or can not be found in any healthy or normal organism. This may be said to be heterogeneous formation and is the result of some rule or law of morbid production not known in the original type. For illustration: If we take any form of cancer and examine cellular forms we do not find the original type of structure, but some deviation of form and type which is known to us as cancerous formation, varying as the cell forms indicate, so that diagnosis and pathology go hand in hand.

#### GROWTH.

Growth of an organic body involves the question of nutrition, and "nutrition involves the conversion of lifeless pabulum into living germinal matter and comprises several successive steps." (Beale, "Protoplasm," page 102):

"1. The contact of the soluble pabulum with germinal matter.

"2. The separation of the elements of the nutrient substance from the state of combination as pabulum.

"3. The new rearrangement of the elements, and conversion of these into new germinal matter.

"Finally, nutrition, which means growth, is impossible unless living germinal matter be present, and in every case in which it is known to occur new germinal matter is produced." Hence nutrition is a vital process, a living process, and is positive evidence of vitality, and no approach to it has ever been accomplished in the chemic laboratory or in processes which are so-called chemico-vital, and no human ingenuity will ever be able to duplicate the vital relations of living organisms operating under some unchangeable vital force which exists or presides in and over the "germinal matter," which continues under the operation of this force to produce its like, and thus sustain growth upon one side and "metabolism" upon the other, as here are the two sides of life.

#### VITALITY.

Embodied in the term, "germinal matter," it is probable we find the secret of nature's arcana, and the life force is impressed upon it in some such way as the "Spirit of God moved upon the waters," and also when it was said: "Let there be light and there was light." Matter then had been created, and the operative and effective force which was directing the



changes upon the void of the great cosmos was the same intelligent mind and force which has directed the operations of the physical world ever since; no matter what the period of time may have been. So we establish a relation of mind and spirit with the material and spiritual of the universe in which and of which we are a part. It matters but little to the philosopher except he be an evolutionist, or to the scientific physician or scholar except he be a doubter, what particular changes he observes in the modes of mind and force if he but remember,

"One universal purpose through all the ages runs."

And thus on such a basis no cataclysmic results can be found in the realm of mind or matter. There are no results which are not worked out in harmony with divine law and purpose and no

"Eagle's eye or scent of prey,"

but is the result of adaptation and purpose, and hence the biologic result of cells in the construction of the eye and the nerves, with their acute sensibility. Like the bloodhound, which, amid all the traces of others than the one sought, will rapidly follow the right one, without mistake, to the end. Why is it so? First there is the original purpose in the germinal matter, and through cultivation and education the sense and faculty reached its ultimatum in astonishing acuity. So it may be said in the sphere of mind on its cultivation on one subject of thought or practice or another. One becomes a wonderful accountant, and can cast up several columns of figures, and yet can not explain how it is done. So, too, in the musical and poetical world, men and women reach marvelous power and compass in voice, and produce those wonderful instrumental accompaniments of voice, which hold you entranced and bewildered, yet it is by study and practice with the nerve and muscle, one controlling the other in the mechanical execution; yet were it not for the power of assimilation in the germinal cell and membrane, where were the art and practice of music, poetry and song? Where were the touches of Raphael?

#### CONCLUSION.

So we rise in the scale of being, and effort is God's method for this moral and spiritual progress, even up to the idea of a final salvation at the end of a probationary race, to enter into a higher and more spiritual realm which is seen by the eye of faith, "for eye hath not seen nor ear heard the things" nor hath it entered into the heart of man to conceive the things which God has in reservation for those who shall be assimilated to himself in such manner as is presented in the thought of the Bible: "The fatherhood of God and the sonship and brotherhood of the race." This is to my mind the highest evolution of the race, and such an one as he is controlling and directing, not only in this physical universe for man's benefit and development, but will continue it in the future progress and development of such as shall catch the divine purpose, "which through the ceaseless ages runs," in earth and heaven. For these are but parts of the scheme and plan of a divine evolution (mind for material and material for mind) under all the peculiar relations which can or will occur in the evolutionary series. The series here is one in which creative power has had a hand; from the monad to the elephant, from the first cell which originated a human form, to the highest and most intelligent archangel before the throne of God, or may be found

in the lowest or most depraved in the pit of perdition; mind has had to do with matter up to the point and process of translation, when matter drops off by the refining process, and we become like gods, knowing good and departing from evil. This is spiritual evolution, and is also accomplished by the purpose and will of God, operating upon human minds and wills until his purpose be accomplished, either in blessing, or if we will not, in cursing or malediction, or perdition.

Submitted, with no disposition to discussion on the subject, but to put the other side of the question.

### ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Continued from page 321.)

#### CHAPTER VI.

*Case 8.*—Double pneumonia, bloody sputa, recovery. Robert Hanley; Irishman; came to America in 1846 and has been living in New Orleans since 1847. Weighs 150 pounds; florid complexion, light hair and blue eyes. On Jan. 6, 1877, while working in the hold of a ship, which was very close and hot, was thrown into a great heat and profuse perspiration. Being called suddenly, he left the ship without his coat (his shirt being saturated with perspiration), went on shore and was exposed to a cold wind, and in a few minutes was seized with a severe pain in the left side below the seventh rib. The pain continued to increase on the seventh and eighth, and upon the last day he began to cough and to expectorate thick, bright red sputa. Could not lie on the right side in consequence of the pain and oppression of breathing. On the tenth, eleventh and twelfth the pain and oppression of breathing increased and was attended with high fever. Admitted to Charity Hospital January 12. January 13, A.M., tongue red at tip and edges and furred in the center; sputa thick, brownish-red and streaked with bright blood; high fever, anemia, restless. Respiration labored and attended with sharp pain greatest over region of middle and lower lobes of left lung. Face flushed. Skin bathed in hot perspiration. Upon percussion, dullness amounting to almost complete flatness over middle and lower lobe of left lung and over lower lobe of right lung. Auscultation revealed tubular breathing and crepitant râles upon full inspiration over the regions indicated. The patient was placed upon 2 grains each of quinin and Dover's powder every three hours, and five drops of the tincture of yellow jessamine every two hours. Turpentine stupes were applied over the affected portions of both lungs; milk punch and beef tea ordered in small quantities at regular intervals of two hours. This treatment was continued for several days and the bowels were opened when necessary by the ordinary efferverscing powders. On the 20th there was a marked improvement and the chlorids which had been absent reappeared in the urine and the sputa contained much less blood. Convalescence continued and on the 25th the patient was able to walk about the ward. He was finally restored to health, although he was allowed to remain in the ward for four weeks, until his strength was fully restored. The following table presents the relations of the pulse, respiration and temperature:

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	N.	E.
1877						
Jan. 13	109	118	42	40	101.5°	103.2°
" 14	114	104	41	41	103	101.5
" 15	90	100	36	38	101	104
" 16	86	87	30	37	100	101.5
" 17	88	89	36	37	100	99
" 18	72	76	29	32	97	97
" 19	68	67	28	32	98	98.3
" 20	96	65	33	28	98.3	98.3
" 21	94	.	32	.	98.5	.
" 22	.	72	.	24	.	97
" 23	61	62	22	26	97	97.8
" 24	65	60	22	20	97.5	98
" 25	60	.	20	.	97	.
" 26	82	.	24	.	98.5	.

*Case 9.*—Pneumonia; middle and lower lobes of left lung involved. John Dugan; age 21; native of New Orleans; longshoreman. Has enjoyed good health up to July, 1876, when he suffered with chills and fever. On Dec. 15, 1876, admitted to Charity Hospital with pneumonia and was discharged Jan. 6, 1877. February 21, seized with severe chill, attended with cough, high fever and severe pain in left side. Admitted to Charity Hospital February 25; high fever, rapid pulse and respiration; tongue red at tip and edges and furred in center; middle and lower lobes of left lung dull upon percussion, with tubular breathing and crepitant râles; chlorids absent from urine; sputa thick and rusty colored. The treatment was similar to that instituted in the preceding case; namely, quinin and Dover's powder, tincture of yellow jessamine, turpentine stupes, milk punch and beef tea. The results were favorable. February 27, oppression of breathing and pain in left side diminished; February 28, free from pain, although left side still dull upon percussion; sputa still mixed with blood; small quantity of chlorids in urine. Continued to improve up to March 3, the expectoration being quite copious, with progressive diminution of dullness; reappearance of crepitant, subcrepitant and mucous râles over the affected portions of the left lung. March 3, the temperature and pulse were normal and patient able to sit up with good appetite. Recovery rapid and complete. The following observations were recorded:

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1877						
Feb. 26	120	108	40	36	103 °	102 °
" 27	94	105	28	44	99	101
" 28	80	86	28	37	98	101
Mch. 1	78	77	26	28	98.2	99
" 2	72	76	22	28	98	98.2
" 3	72	73	24	24	98	98.2

It is evident that in the preceding cases of pneumonia, the combined use of quinin, Dover's powder and tincture of yellow jessamine reduced the frequency of the pulse, diminished the temperature and promoted the arrest and resolution of the pneumonic inflammation.

*Case 10.*—Pneumonia of right lung, engrafted on malarial fever. John C. Keller; age 24 years; admitted to Charity Hospital Feb. 4, 1874. Occupation, clerk. Seized with a severe chill January 30, followed by high fever. Middle lobe of right lung in second stage of pneumonic inflammation; lower lobe of left lung in similar condition. February 4, evening temperature of axilla 104.8 degrees. February 5, morning, respiration 36, pulse 126, temperature 103; evening temperature 105. Suffers from a painful cough and oppression of breathing; sleep disturbed; skin dry and hot; tongue red at tip and edges and coated heavily with yellow fur. Sputa abundant and mixed with considerable quantities of blood. February 6, morning, respiration 38, pulse 118, temperature 104.8; evening temperature 105.3. February 7, morning, respiration 39, pulse 128, temperature 104.1. This day the patient had a profuse hemorrhage from his lungs and his stools also contained blood. The hemorrhage was attended with a marked depression of temperature, as is often the case in the black vomit (hemorrhage from the stomach) in yellow fever. February 8, morning, respiration 37, pulse 121, temperature 103; evening temperature 101.5. February 9, morning, respiration 38, pulse 125, temperature 101.8; evening temperature 101.6. February 10, morning, respiration 34, pulse 108, temperature 101.2; evening temperature 103.2. February 11, morning, respiration 34, pulse 104, temperature 102; evening temperature 102.6. February 12, respiration 30, pulse 101, temperature 101.5; evening temperature 101.3. February 13, morning, respiration 32, pulse 120, temperature 100; evening temperature 102. February 14, respiration 32, pulse 96, temperature 100. February 15, morning temperature 98.9; evening, 100.8. The patient continued to improve and was discharged March 3.

It is worthy of note that in this case of pneumonia, hemorrhage from the lungs was attended, as in cases of hemorrhage from the stomach and bowels in yellow fever, with a decided reduction of temperature, and also that the loss of blood from the lungs in this case appeared to be productive of good and to mark the period of convalescence.

*Case 11.*—Pleuro-pneumonia, solidification of entire lung,

death. I. D., age 28; entered Charity Hospital Feb. 19, 1874. February 20, morning, respiration 36, pulse 108, temperature 102; evening temperature 102.7. February 21, respiration 26, pulse 95, temperature 103. February 22, respiration 39, pulse 104, temperature 102.7. February 23, respiration 39, pulse 115, temperature 103.5. February 24, respiration 40, pulse 120, temperature 102.5. February 25, respiration 38, pulse 114, temperature 97. This patient died on the night of the 25th. Entire right lung solidified, as shown by post-mortem examination. Great capillary congestion before death.

*Case 12.*—Abscess of lungs, following double pneumonia. A. R., age 26; admitted into Charity Hospital with pneumonia (double) Nov. 20, 1873. During the active stages of the pneumonic inflammation the temperature of the axilla reached 109 degrees F.; the pulse ranged from 100 to 130, and the respiration from 50 to 58 per minute. A large portion of the right lung passed into the stage of solidification and gray hepatization, and a large cavity formed in the middle lobe of the right lung; the patient was not restored to health until the end of four months. During the period in which these changes were taking place in the lungs, daily observations were made upon the pulse, respiration and temperature, numbering over seven hundred. During a period of one hundred and twenty days, while structural alterations were taking place in the lungs the pulse ranged from 80 to 130; the respiration from 22 to 40, and the temperature of the axilla in the morning from 99 to 102 degrees F., and in the evening from 100 to 104 degrees F.

*Case 13.*—Pneumonia engrafted on malarial fever. P. W., age 33; entered Charity Hospital Dec. 11, 1873. Had suffered with chills and fever for one week before entering the hospital. Lower lobes of both lungs involved on the 12th. During fourteen days the active stages of the disease, the morning temperatures ranged from 101.5 to 105 degrees, and the evening temperatures from 103 to 106 degrees. On the fifteenth day there was a distinct remission of the fever, which rose again on the seventeenth day, declined on the eighteenth to twenty-fourth days. On the twenty-fifth, the temperature again rose, apparently from the supervention of a fresh paroxysm and the involvement of other portions of the pulmonary tissues in the pneumonic inflammation. In this which was the last paroxysm and followed by convalescence the axillary temperature reached 104 degrees. The pulse in this case ranged from 72 to 120; and the respiration from 24 to 40 per minute.

*Case 14.*—Double pneumonia. Michael Castello; age 30; entered Charity Hospital Jan. 13, 1874. Had chills and fever two days before entering hospital. January 15, delirious. Region of left lung dull upon percussion, with crepitant and subcrepitant râles. Lower lobe of right lung dull upon percussion with crepitant râles, oppressed breathing with severe cutting pains. Tongue red at tip and edges and coated with yellowish fur in center. Urine high colored; specific gravity 1022; strong acid reaction, and mere trace of chlorids; no albumen. Morning, pulse 120, respiration 25, temperature 105.2 degrees; evening, temperature 105 degrees. January 16, delirious; increased dullness over left lung and lower lobe of right lung, with tubular breathing, bronchophony and increased vocal resonance. Specific gravity of urine 1025; high colored; strong acid reaction; absence of chlorids; no albumen. Morning, pulse 114, respiration 32, temperature 104 degrees; evening, temperature 105 degrees. January 17, morning, pulse 114, respiration 32, temperature 104 degrees; evening, 104.2. Trace of chlorids in urine. January 18, morning, pulse 124, respiration 40, temperature 103.5 degrees; evening, temperature 103.5 degrees. Trace of chlorids in urine. January 19, morning, pulse 114, respiration 32, temperature 101.5 degrees. Trace of chlorids in urine. There has been a marked decline of temperature, the pulse and respiration are also less frequent, and the delirium is disappearing. January 20, morning, pulse 98, respiration 26, temperature 99.5; evening 100.6 degrees. While the physical signs show no marked change, the urine shows a marked increase of the chlorids, the temperature has declined and the circulation and respiration are slower and more natural. The delirium has disappeared and the patient shows signs of marked improvement. January 21, continues to improve. Morning, pulse 84, respiration 28, temperature 98.5; evening, 99.8. Chlorids increasing in urine. January 22, morning, pulse 80, respiration 24, temperature 98.4. January 23, continues to improve; the air is again entering the solidified portions of the lungs and there is a great increase of the chlorids in the urine. Morning, pulse 66, respiration 24, temperature 97.5; evening, temperature 99.2. January 24, pulse 70, respiration 20, temperature 99.2;

evening, temperature 100.3. Specific gravity of urine 1022. Chlorids abundant. January 25, morning, pulse 74, respiration 22, temperature 98.4; evening, temperature 99.6. January 26, morning, pulse 72, respiration 20, temperature 98; evening, 98.7. January 27, morning, pulse 76, respiration 20, temperature 98.4; evening, temperature 101.1. Continued to improve and on the 28th was able to dress and come down to amphitheater.

*Case 15.*—Pleuro-pneumonia of left lung, recovery. L. Winans; age 30; native of Ohio; on the trip from St. Louis to New Orleans was seized with severe chill followed by diarrhea and pain in left side. Entered Charity Hospital, ward 27, Jan. 3, 1874. Face flushed, frequent and painful cough, rusty colored pneumonic sputa, dullness over lower portion of left lung, bronchophony, bronchial respiration, increased local fremitus, vesicular murmur heard only in clavicular region of left lung, some pleuritic pain in left side, hot dry skin, dry red tongue, thirsty, loss of appetite and restlessness. Morning, pulse 110; respiration 28; temperature 104. The treatment which I described at length in the article on "Pneumonia," vol. I, "Medical and Surgical Memoirs," was instituted. Three and a half grains each of quinin and Dover's powder were administered every four hours, and 4 drops of the tincture of veratrum virid, every four hours, alternating with the powders of quinin and ipecac et opii, turpentine stupes applied over region of affected lungs. Beef tea and milk punch freely administered. Mere trace of chlorids in urine. January 4, morning, pulse 104, respiration 28, temperature 102. The quinin and Dover's powders and veratrum appear to have effected a decided reduction in the temperature, although patient is restless and anxious, and complains of some pain in the left side. January 5, morning, pulse 80, temperature 100.4, respiration 28. No chlorids in urine, specific gravity 1018, strong acid reaction, bowels moved, no albumen in urine. Evening, temperature 100.2. January 6, temperature still depressed, trace of chlorids in urine; substituted tincture of yellow jessamine 10 drops every four hours for the tincture of veratrum. Morning, pulse 94, respiration 32, temperature 102.5. Evening, temperature 105.5. January 7, left lung completely solidified, sputa abundant and rusty colored. Morning, pulse 112, respiration 32, temperature 104.4. Evening, temperature 103.5. January 8, pulse 100, respiration 36, temperature 102.5. Evening, temperature 103.5. January 9, morning, pulse 104, respiration 30, temperature 100.2. Evening, temperature 102. January 10, pulse 80, respiration 26, temperature 98.9. Evening, temperature 99. January 11, morning, pulse 80, respiration 26, temperature 98.2. Evening, temperature 99. Chlorids reappear in urine, specific gravity 1018, no albumen has appeared in the urine up to the present time. January 12, morning, pulse 78, respiration 26, temperature 98.5. Evening, temperature 98.8. On this day chlorids reappeared in the urine, continued to improve and was discharged cured.

*Case 16.*—Pneumonia. Michael Burk; age 22; native of Germany; laborer. Entered Charity Hospital Jan. 12, 1874. Was taken with a chill followed by a high and continued fever four days before entering the hospital. January 13, great pain in left side, hot dry skin, dullness over left lung, bronchophony and increased local fremitus with tubular breathing. Morning, pulse 120, respiration 52, temperature 101.3. January 14, patient complains of great pain in left side and lower portion of right lung, which is dull upon percussion, rusty colored sputa. Morning, pulse 118, respiration 50, temperature 104.5. Quinin and Dover's powder, three grains of each every three hours administered internally. Tablespoonful of official solution of acetate of ammonia every four hours. Turpentine stupes to chest. Beef tea and milk punch. January 15, rested badly during night, delirious, tubular breathing and dullness upon percussion over left lung, dullness upon percussion over lower portion of right lung. Morning, pulse 112, respiration 56, temperature 102. January 16, very restless, delirious, physical signs the same, absence of chlorids in urine, no albumen in urine. Morning, pulse 104, respiration 48, temperature 102.6. January 17, delirious, necessary to confine patient to the bed, no chlorids in the urine, trace of albumen in urine. Morning, pulse 124, respiration 64, temperature 103.5. January 18, wild delirium, was held in bed all night by nurses, albumen in abundance in urine but no chlorids. Morning, pulse 120, respiration 64, temperature 103.5. Evening, temperature 105. January 18, patient more quiet, albumen not so abundant in urine, chlorids absent. Morning, pulse 132, respiration 62, temperature 104. Evening 104.3. January 20, patient in semi-conscious state, traces of albumen in urine, no chlorids. Morning, pulse 112, respiration 64, temperature

103. Evening 104.5. Alcoholic stimulants have been freely given. January 21, no delirium, rested well during the night, some appetite, albumen disappearing from the urine, chlorids returning, expectoration more free. Morning, pulse, 90, respiration 36, temperature 101.9. Evening, temperature 102. Convalescence was slow in this case. The patient sat up for the first time about February 2. The temperature remained elevated until February 10; it reached 103 on this and for a period of twenty-two days, from January 21 to February 10 ranged in the morning from 101 to 103, and in the evening from 101 to 104. Pulse from 90 to 140, and respiration from 32 to 58 per minute. Recovery tedious but satisfactory.

*Case 17.*—Double pneumonia, death. Peter Wonts, age 27. Entered Charity Hospital Dec. 18, 1874; pneumonic inflammation of lower lobes of both lungs, great oppression in breathing, purple lips and extremities, delirium. The morning temperatures ranged from 97.5 to 102; and the evening temperatures from 100 to 105.5, pulse from 96 to 120, respiration from 25 to 35. This patient died on the tenth day after entering the hospital.

*Case 18.*—Pleuritis. T. Lynch, age 21, native of Ireland; entered Charity Hospital Dec. 20, 1873. Had been treated in this institution two weeks before, for intermittent fever. December 20, evening. Intense pain in right side, dullness upon percussion of right lung with friction, pleuritic sounds in respiration. Pulse 130, respiration 25, temperature, axilla 105. December 21. Pain in side intense, morning pulse 77, respiration 23, temperature 101. Evening pulse 110, respiration 23, temperature 106. The patient has been treated with quinin and Dover's powders,  $3\frac{1}{2}$  grs. of last every three hours, and turpentine stupes to chest, these measures appeared to be beneficial and to rapidly reduce the temperature. December 22. Morning, pulse 76, respiration 30, temperature 99; evening, pulse 80, respiration 30, temperature 100. At 3 p.m. on the preceding day the patient had a severe chill followed by high fever in which the temperature reached 106. A large plaster was applied to the side, quinin freely administered with beneficial results as stated. December 23, slept better during the night, improving, pain in side much relieved. Morning, pulse 72, respiration 25, temperature 99; evening, pulse 80, respiration 28, temperature 101. December 24. Morning, pulse 86, respiration 32, temperature 100; evening, pulse 82, respiration 30, temperature 102. December 25. Morning, pulse 75, respiration 28, temperature 99.5; evening, pulse 83, respiration 30, temperature 101. December 26. Morning, pulse 70, respiration 20, temperature 99; evening, pulse 75, respiration 24, temperature 100. The patient continued to improve and was discharged in a few days after this observation.

*Case 19.*—Pneumonia. Supervening on malarial fever, cured. N. T., aged 24, entered Charity Hospital Jan. 6, 1874. Arrived in New Orleans in destitute condition and slept on levee nights and January 5 had a violent chill followed by congestion of lower lobes of both lungs and high temperature, 106.2, pulse 120, respiration 38. Under the action of the quinin and Dover's powders, rapid reduction of temperature and improvement of symptoms.

*Case 20.*—Typhoid fever. T. P., entered Charity Hospital Jan. 11, 1874, rapid pulse, high temperature, great nervous prostration, muttering delirium. During a period of thirty-two days the temperature oscillated between 99 and 106. The temperature in the morning varied from 1 to 7 degrees lower than the evening temperature. On January 12, (second day after entrance) the morning temperature was 104 and the evening temperature 105. On January 23 the morning temperature was 99 and the evening 106; on the 28th morning temperature 100, evening 103; the 30th, morning temperature 102, evening 105. The pulse ranged from 90 to 110, respiration from 30 to 56.

*Case 21.*—Typhoid fever. H. F., age 27. Entered Charity Hospital November 29, high fever continued from November 29 to December 21. The range of the temperature and pulse are as follows: November 29, evening, pulse 102, temperature 105. 30th, morning, pulse 86, temperature 103; evening, pulse 94, temperature 105. December 1, morning, pulse 82, temperature 103; evening, pulse 90, temperature 105. 2d, morning, pulse 80, temperature 103; evening, pulse 82, temperature 103.5. 3d, morning, pulse 86, temperature 103.5; evening, pulse 90, temperature 104.5. 4th, morning, pulse 90, temperature 103; evening, pulse 86, temperature 104.5. 5th, morning, pulse 82, temperature 101; evening, pulse 88, temperature 103.4. 6th, morning, pulse 80, temperature 101; evening, pulse 88, temperature 103. 7th, morning, pulse 100, temperature 104; evening, pulse 94, temperature 104. 8th, morning, pulse 82, temperature 99; evening, pulse

104, temperature 105. 9th, morning, pulse 90, temperature 112.5; evening, pulse 88, temperature 104. 10th, morning, pulse 82, temperature 100.5; evening, pulse 104, temperature 104. 11th, morning, pulse 90, temperature 100.5; evening, pulse 88, temperature 104.5. 12th, morning, pulse 108, temperature 100; evening, pulse 94, temperature 104. 13th, morning, pulse 86, temperature 103; evening, pulse 80, temperature 101. 14th, morning, pulse 84, temperature 100; evening, pulse 80, temperature 100. 15th, morning, pulse 80, temperature 99.5; evening, pulse 80, temperature 100.3. 16th, morning, pulse 90, temperature 98.8; evening, pulse 80, temperature 100.2. 17th, morning, pulse 86, temperature 98.5; evening, pulse 80, temperature 100. 18th, morning, pulse 80, temperature 99.5; evening, pulse 120, temperature 103.6. 19th, morning, pulse 110, temperature 102; evening, pulse 100, temperature 103. 20th, morning, pulse 96, temperature 101.5; evening, pulse 92, temperature 100.5. After this date the temperature gradually descended to the normal state and the bowels became constipated.

*Case 22.*—Typhoid fever. John Martin, age 24, entered Charity Hospital November 21. In this case the diarrhea and fever continued for a period of forty-four days. The morning temperature ranged during this period between 98 and 105, and the evening temperature between 98.5 and 105 degrees F. The pulse ranged from 70 to 120; the respirations from 24 to 34 per minute.

*Case 23.*—Albuminuria and malarial fever. J. P. Banem; age 30; admitted to Charity Hospital Jan. 20, 1874. Has been living on the banks of the Mississippi River, where he contracted intermittent fever, from which he has suffered during the past three months. The condition of the patient is as follows: Great anemia; tongue swollen, indented by the teeth along the edges, pale, flabby and tremulous; complexion sallow and of a waxlike greenish tinge; features swollen; abdomen distended with fluid; lower extremities swollen; complains of headache and dullness of intellect; urine high colored and scant, and loaded with albumen. This patient was kept under observation for about three months (ninety days), and at various periods the urine contained blood corpuscles in addition to the albumen and urinary casts. The treatment consisted mainly in keeping the bowels open by means of saline purgatives, the occasional use of quinin for several consecutive days, and the administration of diuretics and alteratives, among which may be mentioned iodid of potassium combined with wine of colchicum and syrup of squills. The strength was maintained by nutritious diet and the preparations of iron. Under these measures the improvement was gradual and decided; the dropsical effusion disappeared and the patient was discharged at his own request in April.

In this case the action of the heart was quick and irritable; no valvular disease, however, was detected. Edema of the lungs was a troublesome symptom. The pulse was rapid and irritable, varying from 100 to 130; the respiration was often embarrassed and ranged from 20 to 30; the temperature in the morning ranged from 97.5 to 100, and in the evening from 99 to 101. This case appears to have been dependent to a great extent upon the action of malaria.

*Case 24.*—Constitutional syphilis. R. N. W., age 49½ years. Entered Charity Hospital Dec. 12, 1873. Contracted syphilis in 1866; suffers with severe pains in the extremities and head which increase greatly during the night and destroy his rest. December 17, morning, temperature 99.6, pulse 80, respiration 20; evening, temperature 100.6. 18th, morning, temperature 98.5; pulse 80, respiration 18; evening, temperature 100. 19th, morning, temperature 98.5, pulse 96, respiration 24; evening, temperature 100. The observations upon the temperature and pulse were continued for a considerable length of time, and the former ranged from 98 Fah. in the morning to 101 in the evening and the latter from 80 to 100.

*Case 25.*—Cirrhosis of liver; ascites; dysentery and diarrhea. T. G., age 50; native of Cincinnati, Ohio. Entered Charity Hospital March 4, 1874. Has been a hard drinker for twenty-two years. Had malarial fever in July, 1873. Has lost flesh, his weight decreasing from 154 to 123 pounds. Abdomen distended with liquid; lower extremities edematous; bowels very loose. In this case the temperature in the axilla varied in the morning from 98.5 Fah. to 99.5; and in the evening from 99 to 100.5; the pulse varied from 70 to 90 per minute.

*Case 26.*—Aneurysm of the arch and descending portions of the aorta. L. D.; age 43; native of Ireland; has lived in

America twenty years; served in the Confederate Army about twelve months. Laborer. Entered Charity Hospital March 4, 1874. States that about one month before entering the hospital, while rolling a bale of cotton, felt a sudden pain in the abdominal region and upon examination found a small tumor which has been steadily increasing from that date, and at times interferes with his respiration. The second sound of the heart is accompanied by a distinct aortic murmur and the pulse is irregular and at times dicrotic. The temperature in this case ranged from 98.4 Fah. to 101.3, and the pulse from 80 to 90.

*Case 27.*—Aneurysm of arch of aorta and phthisis pulmonalis. Nicholas Batterton; age 33 years. Admitted into Charity Hospital Dec. 1, 1873. Patient says that he has been sick for one year and that the disease began with pneumonia. His brother died with phthisis. After the attack of pneumonia, suffered with a troublesome cough, and has had hemorrhage from the lungs seven times. The arch of the aorta is dilated and the tumor is evident in the supra-clavicular region, where the pulsation can be seen and also readily felt. When the fingers are pressed above the superior border of the sternum, downward and backward, the round pulsating contour of the aneurysm is distinctly felt. Observations were continued in this case, for one hundred and twenty days, and during this period the pulse varied from 60 to 100, the respiration from 30 to 40 per minute, the temperature in the morning from 99 to 101, and in the evening from 100.3 to 103.5. Auscultation revealed a distinct diastolic mitral murmur, propagated along ascending aorta and along the arch. Upon cod-liver oil and syrup of the hypophosphites, this patient continued much in the same state, until the winter of 1874, when the emaciation became more rapid and the patient died Nov. 2, 1874. Death in this case was in no manner attributable to the aneurysm of the aorta.

*Case 28.*—Abscess of thigh and extensive bed sores resulting from yellow fever. E. Scheiss; age 37; native of Germany. Entered Charity Hospital Oct. 29, 1873. Had been sick with yellow fever several days before entrance. Attack severe attended with high fever, vomiting and intense jaundice. During the period of convalescence and calm, a swelling was observed in left leg which greatly increased. From the confinement and also from the deranged state of the fluids caused by the yellow fever poison, large bed sores formed upon sacrum and hips. A large abscess of the thigh was opened. Patient died from exhaustion induced by hectic fever February 24. During 140 days following the active stage of the yellow fever the temperature ranged from 100 to 105.2; the evening temperature ranged from 101.5 to 105.2. The pulse varied from 100 to 140 and the respiration from 24 to 34.

*Case 29.*—Mitral regurgitation, hypertrophy and dilatation of heart, and Bright's disease. R. Maney; age 36. Admitted to Charity Hospital Jan. 29, 1874. Had yellow fever in 1854 and 1858; contracted syphilis in 1864; suffered with rheumatism in 1869; malarial fever in 1871 on Red River. In August, 1873, feet began to swell, the liver was enlarged and the action of the heart irregular. Urine loaded with albumen. Owing to the obstruction to the circulation the patient suffered with the symptoms of edema of the lungs, accompanied with bloody expectoration, ascites and anasarca. In this case the pulse varied from 52 to 120; respiration from 20 to 28; temperature from 98 to 102.2. The temperature attained the highest point in the evening of February 5. The reduction of the pulse to 52 beats per minute was due to the action of digitalis.

A comparison of the results recorded illustrating the changes of the pulse, respiration and temperature in various diseases with those of yellow fever, establishes the following conclusions:

1. Yellow fever is a distinct specific disease.
2. Yellow fever is distinguished from other diseases by the frequency of the occurrence of black vomit and jaundice, and the progressive diminution of the frequency of the pulse after the establishment of the maximum temperature, also the want of correspondence observed in many cases between the rapidity of the respiration and the action of the heart.

3. As a general rule in acute diseases, the rapidity of the action of the heart corresponds with the rapidity of the respiration; but in some cases of yellow fever in which the respiration is increased fourfold, the pulse actually beats less rapidly than in health.



4. Yellow fever is a continued form of a single paroxysm, in which a powerful depressing effect is evidenced upon the action of the heart. The cause of the depressed action of the heart will be discussed in the following chapter relating to the changes of the blood.

5. If the thermometric changes of yellow fever be projected as in the form of charts, and if a comparison be instituted with the thermometric changes in other diseases, it will be observed that those of the former disease more nearly resemble the rapid rise and sudden fall of temperature observed in varioloid without secondary fever, mild scarlatina, and simple uncomplicated pneumonia which runs its course without fresh accessions of inflammatory action; while on the other hand, they differ materially from the rapid and oft recurring elevations and depressions of temperature characteristic of the various forms of paroxysmal malarial fever.

6. The cause of the rapid rise and declension of the temperature in yellow fever must be sought chiefly in the changes induced in the blood and in those organs upon which the circulation and integrity of the blood depends. Neither the rapid rise nor the sudden declension of the temperature can be referred wholly to the effects of the yellow fever poison upon the nervous system.

While it must be admitted that the experiments of Chossat, Sir Richard Brodie, H. Nasse, Claude Bernard, Brown-Séguard, Budgé, Waller, De Ruyter, Schiff, Naunyn and Quincke, and the experiments of Tscheshichim, in which division of the medulla oblongata near its junction with the pons, caused a remarkable elevation of temperature from 102.92 to 108.68 Fah. and finally convulsions and death; and a large number of pathologic observations, in which most remarkable elevations and variations of temperature accompany profound alterations and disturbances of the nervous system, without corresponding changes in the respiration and circulation, sustain the theory of centers of control which have their seat in the brain, and which regulate the activity of the spinal cord, (when they are destroyed, the activity of the spinal cord being morbidly increased, as manifested by increased reflex action, quickened respiration, acceleration of the cardiac systole, and increased animal heat), and that a great part of the pathologic phenomena of warmth may be only the expression of the action of the vasomotor nerves, and still farther that the integrity of certain parts of the central nervous apparatus is more necessary for the regulation of animal heat than that of any other part of the body; on the other hand, Breuer and Chrobok, after an investigation of the question, whether the nerves of a part supply the stimulus which causes the febrile elevation of temperature in an inflamed part, by means of experiments on animals in whom they have as far as possible divided all the nerves of one part of the body, think themselves justified in concluding that the fever of the traumatic inflammation is independent of the nervous connections of the inflamed part, with the nerve centers; and by an extended series of observations, (see note) I have established the fact that in hospital gangrene and pyemia, the elevations of temperature are independent of the local lesions of the structures, and are

coincident with the introduction of the gangrenous and pyemic poisons into the blood, and the changes of temperature are intimately associated with the changes of the blood and urine, and are invariably accompanied by increased amounts of such constituents as urea, phosphoric and sulphuric acids, which result from the chemic changes of the solids and fluids of the body; and even the traumatic fever accompanying gunshot wounds arises from the introduction of inflammatory products into the blood, and depends not so much upon the extent and nature of the wounds as upon the state of the solids and fluids at the time of the reception of the injury, and upon the character of the inflammatory products absorbed into the circulatory fluid. Even in such inflammatory diseases as pneumonia, attended with extensive tissue change, the introduction of certain organic products into the blood must be active to a greater or less extent in the production of high temperatures.

It is well known that some of the most violent poisons, during their direct action upon the nervous system, are unattended with elevations of temperature; while on the other hand putrid matter, pus and certain animal secretions, as the poison of the rattlesnake and copperhead of this country, induce profound alterations in the constitution of the blood, attended with the most marked variations of temperature; and in the action of the latter class of poisons, the phenomena appear to be akin to the changes which may be induced by ferments, which are not only capable of increasing the amount of heat, but may be limited in their action, or in the amount and character of the changes which they induce in virtue of their chemic constitution and that of the blood or medium in which they are active.

It is well established that certain substances as woorara, coffee, musk and camphor, and putrid fluids, have a direct effect in raising the temperature after their entrance into the circulation.

Voisin and Lionville, by means of subcutaneous injections of woorara, induced a complete artificial fever in human beings, with rigors, heats and sweatings, the temperature rising to 104.8 F., accompanied with all the signs of febrile circulation and secretion and disturbance of the nervous system.

The effects of certain animal substances in elevating the temperature, when injected into the blood, have been shown by the experiments of Billroth, Hufschmidt, O. Weber, Fresse and others. When the putrid solutions or pus are injected in the blood, the temperature rises considerably even within two hours after injection, and reaches its maximum in from two to twenty-eight hours; after a single injection a rapid defervescence generally sets in, shortly after the acme has been reached; while on the other hand, after repeated injections, death constantly occurred generally with high temperatures. Fluids from inflamed tissues, pyemic and septicemic blood, and even the blood of an animal merely suffering from simple inflammatory fever, or from other kinds of fever, produced similar deviations of temperature.

Fresse has determined by experiments, that the rise of temperature induced by the introduction into the blood of the products of decomposition, and of inflammatory tissue destruction, do not depend upon the pus corpuscles, nor upon the so-called germinal matter, which according to some, are such powerful and essential agents in the production of inflammatory diseases, but upon the serum of the fluid;

NOTE.—Investigations upon the Nature, Causes and Treatment of Hospital Gangrene, as it prevailed in the Confederate Armies, 1861-1865, by Joseph Jones, M.D. Surgical Memoirs United States Sanitary Commission, vol. II, pp. 146-570.

even boiling and subsequent filtration does not destroy the property; and that the removal of the fibrin and even the filtration of the blood of animals suffering from fever, do not deprive it of the pyrogenic effects when injected into the living circulating blood.

The unknown cause which excites the specific morbid process of yellow fever would appear to have something in common with the action of such putrid animal substances, when introduced into the blood; and the fact is worthy of careful consideration that the property possessed by such matters, of exciting chemic change and elevation of temperature, was not destroyed by boiling and subsequent filtration of the putrid matters, for we have thus a clear demonstration that the animalculæ, vegetable or germinal theories, as to the origin of yellow fever, are not *absolutely necessary* to the explanation of the febrile phenomena.

Neither the rapid rise nor the sudden declension of the temperature in yellow fever, therefore, are *necessarily* referable *solely* to the effects of the poison upon the nervous system; because, in the first place, the changes of the blood are among the first manifestations of diseased action, and the progress and termination of each case is largely dependent upon the extent and character of the changes of the blood and the degree of elevation of the temperature; in the second place, the sudden fall of the temperature during the succeeding stage of calm may be referred to the peculiarity of the self-limited chemic changes excited by the poison, and to the structural alterations induced in the muscular tissue of the heart and in the liver and kidneys, and the sedative action of the bile, urea and other excrementitious products retained in the blood upon the nervous system; and finally, in the third place, the changes of the blood and of the heart, liver and kidneys are of a definite physical and chemical nature and could never be induced by a mere exaltation or depression of nervous action, and must be referred to the introduction and action of some agent or material, related in a definite manner in its chemical constitution and physical properties, to the fluids and solids in which it induces these profound physical and chemical changes.

Without doubt, the action of the yellow fever poison upon the nervous system may be indirect and of the most important character; but the best established facts do not justify us in locating the origin of the disease wholly in the action of the poison upon the nervous system, and in fact the earliest sensible manifestations of disordered nervous action, as evidenced in unconsciousness, loss of appetite and chilly sensations may be entirely secondary to the changes in the blood, by which all parts of the nervous system are surrounded and supplied.

It must, however, be admitted that in the present state of our knowledge it is impossible to refer the elevations and depressions of temperature in yellow fever, with certainty to either the decrease or increase of any one constituent of the blood; for M. Andral has shown that when the blood contains more than .004 of fibrin the temperature rises, and in a corresponding ratio. Thus of all diseases, pneumonia is marked with the greatest increase of fibrin, and is the highest in temperature of all the phlegmasiæ; in eighty-five cases, in only thirteen was the temperature below 39 degrees C. (102.2 degrees F.), in forty-four it was between 39 and 40 degrees C. (102.2 and

104 degrees F.) in twenty-six below 40 degrees C. (104 degrees F.) and 41 degrees C. (105.8 degrees F.); and in two rose to 41.2 degrees C. (106.16 degrees F.). In acute pleurisy, in which there is always less fibrin, the temperature only once reached 41 degrees C. (105.8 F.) and usually oscillated between 38.5 degrees C. (101.3 F.) and 39.5 degrees C. (103.1 degrees F.). M. Andral, however, records exceptions to this relationship of the increase of fibrin and the elevation of temperature in inflammatory diseases, as in erysipelas, when there have been only .007 of fibrin, the temperature has been 41.8 degrees C. (107.24 degrees F.); and he very justly does not consider the increase of fibrin and the rise of temperature as cause and effect; for in the pyrexia, when there is no excess of fibrin, but rather a diminution of this constituent, the temperature is as high or higher than in the phlegmasiæ; thus 42.4 C. degrees (108.32 degrees F.) have been reached in typhoid fever; 42 degrees C. (107.6 degrees F.) in the event of smallpox, the last stage of ague and in glanders, etc. Indeed, the highest degrees are reached in diseases where there is the least fibrin in the blood. (See note.) Neither do the number of red globules affect the rise of temperature to an appreciable degree in inflammations and fevers, as I have carefully determined by comparison of the constitution of the blood, with the elevations of temperature in various diseases.

(To be continued.)

## SOCIETY PROCEEDINGS.

### Proceedings of the First Meeting of the American Academy of Railway Surgeons.

Held at the Grand Pacific Hotel, Chicago, Ill., Nov. 9 and 10, 1894.

(Continued from page 327.)

### COMPARATIVE VALUE OF PLASTER-OF-PARIS AND SILICATE OF SODA, AS A DRESSING FOR FRACTURES.

BY MILTON JAY, M.D.

CHIEF SURGEON, C. & E. I. RY, CHICAGO, ILL.

Plaster-of-Paris, and silicate of soda are both valuable agents in the treatment of fractures, when skillfully used by the experienced surgeon; and we soon become so familiar with the use of such common agents as these that we are likely to imagine that any one can readily and in a proper manner apply either of these bandages to any and all kinds of fractured limbs. But because of the careless manner and unscientific way in which inexperienced persons use either the plaster-of-Paris or silicate of soda in the treatment of fractures many failures and results that are not satisfactory are recorded. The first question should always be, *Do we know how to use any agent or instrument successfully before we condemn it?* It may be a failure in our hands, and yet a success in the hands of one experienced. It will not do to condemn or extol an agent or instrument as being good or bad upon a single trial, or upon the authority of a single person; it may require experience to enable a good surgeon to discover the good or bad qualities of an agent, instrument or appliance. I have more than once attempted to use an instrument or surgical device (with which I was not familiar) denounced it as worthless and laid it aside but after seeing it used by an experienced hand it appeared to be perfect. I have tried again and succeeded, came to the conclusion that it was just the thing, I had learned how to use it. This same rule holds good in the application of bandages in cases of fractures. *No one splint or one kind of bandage will do for all kinds of fractures.* Different kinds of fractures, as well as fractures of the same kind in different parts of the body, require a splint or bandage well adapted to each individual case.

I am satisfied that the plaster-of-Paris splint when properly applied will fill more indications and be applicable to

more kinds and a greater variety of fractures than any one agent in surgical use. The silicate of soda (or liquid glass, as it is sometimes called) is clean, neat, and very fine for small bones. It is easily applied and makes a beautifully light splint or fracture dressing; there is nothing untidy or unclean about it, hence as a dressing for the fastidious, who insist on having everything neat and clean, whether sick or well, this is a very desirable dressing for the smaller bones. But as an agent that is to be used in the treatment of fractures generally, it will not compare favorably with the plaster-of-Paris, which will set or become firm and permanently fixed much sooner than silicate of soda, which dries very slowly and requires a long wait before it becomes firm. In compound fractures, or where an opening is necessary to treat a flesh wound, the plaster-of-Paris is the preferable bandage. One can also succeed better with the plaster-of-Paris, when the surface is irregular or uneven, or where a joint must be included in the bandage. In all cases of railroad fractures except it be of the fingers, you will succeed best with plaster-of-Paris. In fractures of the femur in upper third when it is necessary, in order to fix the short fragment, to include the pelvis as well as the leg in the bandage, the plaster-of-Paris is the only agent out of which to make a perfect dressing. In all injuries about the spine, when it is necessary to secure fixation no agent acts so perfectly as plaster-of-Paris. In general surgical practice it would be very difficult, at least, if not impossible, to find a substitute for it; while silicate of soda is very convenient at times, and makes a fair substitute in certain cases, yet we could dispense with it altogether without much inconvenience.

Some surgeons have advocated the use of silicate of soda for the reason that it is always pure and clean and aseptic. I have never had any trouble in securing plaster-of-Paris which was not strictly pure and clean. I always use dental plaster and prepare it myself when I am ready to use it. I have never had any trouble from either in this respect. I think that there is less trouble in removing a cast or bandage of silicate of soda than plaster-of-Paris, and you do not litter up the surroundings as you must do with the removal of a plaster-of-Paris cast. But this is of little consequence, when compared with its efficiency.

There is what is known as the Bavarian splint—a hinge splint—used for fractures of the leg near the ankle, or including the ankle and foot which is easily and conveniently made of plaster-of-Paris but very difficult to make of silicate of soda.

For bandaging the head in cases of injuries when it is necessary to secure fixation as well as cleanliness, I prefer the starch bandage to either the plaster or the silicate. Hence I argue that by experience in the general practice of surgery, we learn to use a variety of ways and means to adjust and keep in apposition the multiplied varieties of fractures which we are called upon to treat. In some cases we use splints, in some bandages, in others neither splints or bandages. I like the ingenious surgeon who can and will devise something new, if he can not readily secure the old favorite with which he is familiar. Many times a hastily devised appliance in case of emergency has proved to be a valuable acquisition to our surgical armamentarium.

#### DISCUSSION.

DR. HARNDEN—Dr. Jay has called attention to an important point. I know some men who call themselves prominent surgeons who use silicate of soda in cases of fractures of the larger limbs. I was called in six months ago to assist a confrère in applying a silicate of soda dressing to a fracture of the femur in a child about 10 years of age. The child was subject to convulsions and I protested to the doctor against using silicate of soda, although he said it was all right, and he preferred it to plaster-of-Paris. I assisted him in using it under that protest. The limb was badly deformed, and it was caused, the doctor says, by the convulsions, the limb being drawn out of shape before the silicate of soda had thoroughly hardened. I call attention to that point. The Doctor has brought it out very nicely.

DR. WEBB J. KELLY, of Galion, Ohio—Dr. Harnden's remarks bring to my mind a case I saw two or three years since that involved a considerable amount of money, and the treatment was questionable. A passenger on our Southwestern Limited stepped off of the back end of the train and had one limb badly injured about the knee. His home was in St. Louis, he having a brother there who was a practicing physician. He came under our immediate care. We dressed the limb with plaster-of-Paris, applying the dressing nicely, and then telegraphed for his brother. His brother

arrived the next morning, examined the case, said the dressing was too heavy, and that there was no sense in using such a dressing. He took off the plaster-of-Paris and applied silicate of soda. In one hour thereafter the patient was placed on a cot and taken to St. Louis, and only a short time ago I was told that in about three or four months thereafter the man died. His death involved a point that came up with his insurance, whether he could have died from that injury, or whether it was the injury sustained in connection with moving him with this light dressing on, some seven or eight hundred miles. There were two accident companies represented in the case and they fought it vigorously, so that the heirs never got a cent. This is a point that nobody ever thought of.

DR. PARKER—I will suggest one point in regard to the use of plaster-of-Paris. I recognize the usefulness of such a dressing, as we all do. I also have found in my own practice that it is not well to apply it immediately in some of the severe injuries we are called upon to treat. I have waited a few days, applying some temporary dressing until the swelling has reached its height, then applying the plaster-of-Paris dressing. In children there is no question of plaster-of-Paris setting quicker, and in fractures that are still movable, it is a more rapidly setting material than silicate of soda. I have been in the habit for a long time, in order to make my plaster bandage lighter, of using pasteboard. You know how easily this material can be torn. It is not necessary for you to cut it with the scissors, but you can tear it easily and use it in connection with your plaster. There is one point I would suggest for your consideration. Possibly you have observed the same thing. It is a frequent custom with surgeons to take a case that has been in splints, where there is a good-sized callus, and put on a plaster bandage, and on the fourteenth day or so allow the patient to get up. I have noticed in those cases that when the bandage is opened at the end of fourteen days or more that the callus has almost entirely disappeared and union had not taken place, although when it was put in the cast there was every evidence that union was taking place. The callus was ample and the indications were that union was taking place. I have a theory to suggest for that which is this: I think the pressure of the bandage on all sides upon the nutrient vessels interrupts or disturbs the normal nutritive action and arrests the callus-forming process. I have seen this a number of times and I have no better explanation for it. I have seen the callus disappear very largely and union delayed. If the limb in these cases is put back into a Volkmann's splint or some apparatus of that kind, in another ten days the leg is solid. On the other hand, I have seen union delayed where Buck's extension has been used on the femur, whereas if the patient's limb is put in a plaster-of-Paris dressing union takes place. It is in those cases where there is a good-sized callus and the bandage has been applied snugly, all swelling having disappeared, that the plaster-of-Paris dressing delays union. I call attention to one method of using plaster-of-Paris in spinal injuries because we all have them to treat more or less. I have found the hammock method of applying a plaster jacket to be very advantageous. I make it a rule invariably in spinal injuries to apply a light jacket, because it is impossible to think of suspending patients in a Sayre apparatus. In the hospital with which I am connected they have rigged up an apparatus for this purpose.

DR. H. J. MAYNARD, of Cheyenne, Wyo., stated that in all fractures below the knee—even in compound fractures, unless there be much destruction or laceration of soft parts, plaster-of-Paris has been for years his strong hold. In Wyoming he has encountered a great many cases of fracture of the leg among cowboys from falling off horses, and these fractures were almost always below the knee. The first hint he got with regard to the use of the plaster stirrup in fractures was from Dr. Hodgen, of St. Louis, and he has since used it with excellent results in a great many cases.

DR. LEMEN said if there were any members present who were not familiar with the manner of making and applying the plaster stirrup, he would demonstrate how it was done. (This he did.) In the last twenty-five years he said he had treated over six hundred fractures with the plaster stirrup and invariably he has obtained good results in cases of fractures below the knee. There were three cardinal principles to be observed in regard to the treatment of all kinds of fractures: 1, the diagnosis—the surgeon should be sure that he has a fracture before he applies a dressing; 2, place the fragments in position; and 3, retain them there. If these three principles are observed the results would invariably be good.

(To be continued.)

TABLE SHOWING NUMBER OF STUDENTS IN ATTENDANCE AT ONE HUNDRED AND ONE COLLEGES IN THE UNITED STATES AND CANADA: SESSIONS OF 1894-95, 1893-94, AND AVERAGE YEARLY ATTENDANCE OF PREVIOUS YEARS.

[REPRINTED FROM THE JOURNAL OF JANUARY 12, BY REQUEST.]

COLLEGES.	STUDENTS IN ATTENDANCE, BY GRADES: 1894-5.				TOTAL ATTEND- ANCE: 1894-5.	TOTAL ATTEND- ANCE: 1893-4.	AVERAGE YEARLY ATTEND- ANCE: 1889-90, 1893-94.	PER CENT. OF IN- CREASE OR DECREASE.	
	1st.	2d.	3d.	4th.				1894-95 compared with 1893-94.	1894-95 compared with prev. 5 yrs.
Medical College of Alabama	53	32	16		101	102	128	— .98	—21.
1 Medical Department Arkansas Industrial University	50	22	3		75	74	85	1.3+	—11.7
2 Cooper Medical College	75	78	75		228	228	160		42.5
Medical Department University of California	33	46	66		145	109	89	33.+	63.+
College of Medicine, University of Southern California.	18	16	10		44	37	30	18.9+	46.6+
3 Denver Medical College	10	15	13		38	38	43		—11.6
4 Medical Department University of Colorado	20	15	10		50	35	23	42.8+	117.4+
Gross Medical College.					72	18	51	—10.	41.1+
5 Medical Department Yale University	60	20	14		94	73	65	28.7+	44.6+
6 National Medical College	75	40		55	170	151	151	12.5+	12.5
7 Medical Department University of Georgetown	39	36	35	11	121	136	116	—11.	4.3
8 Medical Department Howard University	48	36	10	25	119		107		11.2
9 Atlanta Medical College	50	160			210	173	163	21.4+	28.8+
10 Southern Medical College	52	15	11		82	81	87	1.2+	—5.7
Rush Medical College	330	300	170		800	767	613	4.2+	20.5+
Northwestern University Medical College	96	76	93	8	265	252	259	5.1+	2.3
11 College of Physicians and Surgeons of Chicago	67	53	40	86	246	288	222	—14.5	10.8
12 Central College of Physicians and Surgeons, Indianapolis					52	38	36	36.8+	44.4
13 College of Physicians and Surgeons of Keokuk	122	78	33	5	238	176	141	35.2+	68.8
Medical Department State University of Iowa.	85	65	43		193	162	145	19.1+	33.1
Iowa College of Physicians and Surgeons	35	15	13		63	48	39	31.2+	61.5
Keokuk Medical College	61	42	40		143	143	145		—1.3
Council Bluffs Medical College	5	9			14	12		16.6+	
Kansas Medical College	29	18	8		55	45	44	22.2+	25.+
Kentucky School of Medicine					426	504	440	—15.4	—3.2
Hospital College of Medicine					210	123	127	70.7+	65.8+
14 Medical Department New Orleans University	11	12	5		28	36	19	—23.2	47.3
Medical School of Maine	53	30	30	3	116	97	95	19.6+	21.5+
College of Physicians and Surgeons of Baltimore	167	168	119	8	462	461	470	.2+	—1.7
15 Baltimore Medical College	140	106	116	8	409	303	219	35.1+	86.7+
Woman's Medical College of Baltimore	28	8	4	2	42	20	22	110.+	90.9+
16 Johns Hopkins University	32	19			51	18		183.8	
Harvard University Medical School	182	124	96	34	436	420	282	3.9+	14.1+
College of Physicians and Surgeons of Boston	43	77	10		120	137	87	—12.4	37.9+
Tufts College Medical School	41	23	21		85	72		18.+	
17 Michigan Univ., Department of Medicine and Surgery	116	101	66	65	348	380	364	—8.4	—4.3
Detroit College of Medicine	111	95	78		284	285	218	— .35	30.2+
Michigan College of Medicine and Surgery	53	41	22	6	121	118	116	2.5+	5.2
College of Medicine and Surgery, Univ. of Minnesota	102	66	53		221	181	141	22.+	56.7+
18 Minneapolis College of Physicians and Surgeons	22	17	18		57	13			
Missouri Medical College	76	64	74	2	216	182	190	18.6+	13.6+
St. Louis Medical College	43	41	26		110	95	121	15.7+	— .9
Medical Department, University of the State of Missouri	22	12	5		39	39	37	5.4+	5.4+
Kansas City Medical College	34	48	31		113	109	88	3.6+	28.4+
19 St. Louis College of Physicians and Surgeons	106	94	42	14	256	140	183	82.8+	40.+
20 University Medical College Kansas City	65	52	39		156	119	100	31.+	56.+
21 Ensworth Medical College and Hospital					38	56			
Barnes Medical College	108	92	92	23	315	236	249	33.4+	26.5+
22 Woman's Medical College of St. Louis	18	9	4		31	43	26	—28.	19.2+
Omaha Medical College	38	25	24		87	75	49	16.+	77.5+
John A. Creighton Medical College	11	25	15		51	33		54.5+	
23 Dartmouth Medical College					139	114	100	21.9+	39.+
24 College of Physicians and Surgeons of Columbia College	222	241	231	83	777	786	630	—1.1	23.3
25 Albany Medical College	76	53	58		187	173	165	8.+	13.8+
26 University Medical College, New York City	152	111	114		377	365	631	3.3+	—29.
Medical Department, University of Buffalo	93	84	64		241	188	184	28.+	31.+
27 Long Island College Hospital	95	63	59	24	241	255	231	—5.8	4.3+
28 Bellevue Hospital Medical College	120	110	115		405	407	419	— .5	—8.4
29 Woman's Medical College of New York Infirmary	33	19	34		86	82	86	4.8+	
Syracuse University College of Medicine	34	30	17		81	61	54	32.8+	50.+
Medical Department of Niagara University	21	23	19	3	66	57	48	19.3+	37.6+
Leonard Medical College, Shaw University	13	9	15	11	48	57	49	—15.8	—2.
North Carolina Medical College		24			24	16		60.+	
Medical College of Ohio					296	242	237	22.3+	24.8+
30 Medical Department, Western Reserve University	42	32	32		106	93	130	14.+	—18.4
31 Starling Medical College	122	99	86		287	223	165	28.7+	73.9+
Miami Medical College					95	92	89	8.2+	6.7+
32 Toledo Medical College	21	20	9		50	38	38	31.5+	31.5+
Woman's Medical College of Cincinnati	15	10	9	1	35	26	34.6+		
33 Ohio Medical University	56	29	26		141	79	80	78.5+	78.4+
Medical Department of Willamette University	14	15	7		34	36	31	—5.5	9.7+
34 Medical Department, University of Oregon	23	12	7		42	29	23	46.+	82.6+
35 University of Pennsylvania, Medical Department	244	196	352		792	787	671	.6+	18.+
36 Jefferson Medical College	220	251	225		726	640	691	17.8+	25.4+
37 Woman's Medical College of Pennsylvania					168	192	192	—12.5	—12.5
Medico-Chirurgical College	74	54	81		209	184	140	13.+	49.3+
38 Medical Department, of Western Univ., Pennsylvania	115	94	72		281	262	184	7.2+	52.6+
39 Medical College of the State of South Carolina	25	30	25		80	70	60	14.3+	33.3
Nashville Medical College					180	234	251	—23.	—24.2
40 Meharry Medical College	37	32	31		101	107	90	—5.6	12.2+
41 Tennessee Medical College	32	22	12		66	79	68	—16.4	—12.9
42 Sewanee Medical College					47	25		67.8+	
Medical Department, University of Texas	85	55	8		148	116	55	27.6+	169.1+
Medical Department, University of Vermont					202	192	190	4.9+	6.8+
43 University of Virginia	86	82		15	168	143	130	17.4+	29.2+
44 Medical College of Virginia	53	67	7		132	96	67	37.6+	97.+
Wisconsin College of Physicians and Surgeons	16	15	3		34	31		9.7+	
45 McGill University, Faculty of Medicine	111	120	95	70	398	350	237	13.7+	67.9+
Faculty of Medicine, Laval University	45	45	55	59	247	286	280	—13.6	—16.
Trinity Medical College					306		292		4.8+
Halifax Medical College	26	7	8	6	43		33		30.3+
University of Bishop's College, Faculty of Medicine					64	54	52	11.1+	16.4+
46 Manitoba Medical College	45	36	23	26	130	101	76	28.7+	71.+
Ontario Medical College for Women	9	10	7	11	37	34	34	8.8+	8.8+
Anonymous Schools	356	322	221	118	*1057	1067	910		16.1+

1 A number preceding a college title refers to a note of comment bearing the same number in the Notes and Comments column following this Table. \* Including 40 specials.



The foregoing table gives the following aggregates for the 101 reporting Colleges, including 7 not specified by name, but whose totals are given under the title "Anonymous Schools."

First year students . . . . .	6,198
Second year students . . . . .	5,248
Third year students . . . . .	3,998
Fourth year students . . . . .	781
Special and irregulars . . . . .	2,359

Aggregate attendance, 1894 . . . . .	17,784
Aggregate attendance, 1893 . . . . .	15,865
Aggregate average previous years . . . . .	14,559

Percentages of increase:

1893 over average of previous years . . . . .	8.9
1894 over 1893 . . . . .	12.4
1894 over average of previous years . . . . .	22.1

NOTES AND COMMENTS.

<sup>1</sup> Estimated; return made "first day of regular winter term; students not all in. Decrease in numbers since 1891-92 due to adoption of three years' compulsory course."—Med. Dept., Arkansas Industrial University.

<sup>2</sup> "We have just adopted a four-year curriculum. In the first year of the table, seventy-five includes students of the first and second years of the four-year course, i.e., first year thirty-seven, second year thirty-eight; total seventy-five. I may say in addition that these figures include from two to five physicians each year—as well as a number each year who do not 'stick,' but as the same occurs at other colleges I presume these figures will afford basis for comparison."—Cooper Medical College.

<sup>3</sup> "The decrease in our attendance can be directly traced to the unequal competition of a State school removing to Denver and taking any student who applies, at no cost to the student whatever. It also means that our standard has been maintained."—Denver Medical College.

<sup>4</sup> "Four-years' course begins with the session of 1895-96. A large increase occurred in sessions of 1893-94, owing to second and third years being taught in Denver, instead of Boulder, giving good clinical advantages. The increase seems likely to continue."—Med. Dept. University of Colorado.

<sup>5</sup> "You will note that there has uniformly been a larger number of students in the first year than in the second or third. This has been due to the fact that a very considerable number of students fail at the end of the first year, and therefore have to repeat their work. Our entrance requirements are placed at the high school grade in the subjects in which we require examinations, and these requirements are well enforced, yet we have this large percentage of failures of men who can not stand the work of our first year. I do not know whether this is the experience elsewhere, but certainly our matriculation requirements are higher than the average of the country, and the whole thing seems to me to be a strong argument for the necessity of a higher grade of matriculation. I have felt for some time that this increase in the matriculation requirement was more needed in this country than the increase of time of study; that is, that three years with well prepared students would be better for the profession than a larger number of students kept at their professional work for a year longer. This opinion, however, does not seem to be the one which has prevailed. We have delayed starting the four years' course, hoping that there would be a general increase in matriculation requirements first, and while we do not altogether give up the hope of increasing matriculation examinations, we are about to adopt the four years' course in conformity with the other schools of the better class. I wish you might have included in your examination, the question of the proportion of medical students who are college graduates, and whether this is increasing or diminishing."—Med. Dept., Yale University.

<sup>6</sup> "In this list the third and fourth years are given together, as last year was the beginning of the four year system."—National Medical College.

<sup>7</sup> "A large number of students who matriculated last year withdrew and went to schools with a three-year course. The four-year course was made obligatory last year. This probably reduced the number of matriculates this year."—Med. Dept., Georgetown University.

<sup>8</sup> "Four years' course began with the session of 1892-93."—Med. Dept., Howard University.

<sup>9</sup> "The scholastic year has just been changed to a three-year term, and this is the first year of such change."—Atlanta Medical College.

<sup>10</sup> "Small attendance in our second course is attributed to the fact that those who attended with us in 1893-94 can graduate in ——— Medical College at end of this term, while we would require them to attend until end of 1895-96. Those seeking early graduation have thus left us. The large increase in our first-year course is due to the school having adopted a three-year graded course and having by hard work for fifteen years established a very good reputation for giving thorough instruction." Total attendance 1894-95 (82) includes "one fourth year." The college, however, is not a four-year school.—Southern Medical College.

<sup>11</sup> "The reason of decrease is on account of the grade being raised and examination more difficult; also our course being four years instead of three."—College of Physicians and Surgeons of Chicago.

<sup>12</sup> "There is a larger percentage of students who have attended literary colleges than in any former year."—Central College of Physicians and Surgeons, Indianapolis.

<sup>13</sup> "Faculty reorganized in 1890-91, with resulting steady improvement in size of the class."—College of Physicians and Surgeons of Keokuk.

<sup>14</sup> "Our school two years ago adopted a four years' course of study."—Med. Dept., New Orleans University.

<sup>15</sup> "Total 409 includes 'two fifth year, one eighth year and thirty-six' not graded at date of making report."—Baltimore Medical College.

<sup>16</sup> Attendance 1893-94 includes three women; first year, 1894-95 includes eight women; second year 1894-95 includes two women. "Our medical school is now in its second year. A noteworthy fact is that all of the fifty-two persons admitted in the two years are graduates of a reputable college, holding baccalaureate degrees, and several of them have pursued graduate studies in the sciences after completing their college work. In addition to these undergraduates in medicine, a large number of physicians are attending special courses in the Johns Hopkins Hospital given by University professors: 1893-94—65; 1894-95 (to November 21)—44."—Johns Hopkins University.

<sup>17</sup> "The large senior classes in 1891 and 1892 were due to the fact that in 1890 we changed from a three to a four years' course. This change, which was announced some years beforehand, brought us large classes in 1888 and 1889, students realizing that if they entered later than 1889, they would have to spend four years here. The small senior class in 1893 is explained in the same way. It appears from the figures that we have fewer medical students than we had last year. This is not true. The number is about the same as it was this time last year. There are always students coming here in the fall, who are unprepared to enter the medical course and have to do some work in the literary department or in the high school before they can enter. Some of these will enter the medical department at the beginning of the second semester. They will not be able to graduate with those who entered this last October, but it will increase the number of students appearing on our register when it is published next spring."—Dept. of Med. and Surg., University of Michigan.

<sup>18</sup> "This college was reorganized last year, so members for past years would not be of value for statistical purposes."—Minneapolis College of Physicians and Surgeons.

<sup>19</sup> Causes of increased attendance: "Faculty thoroughly reorganized and prominent teachers from numerous Western schools having been selected. Also refusal to admit inferior students—no candidate being accepted unless presenting diploma of college or high school. College has no entrance examinations; they are farces!"—St. Louis College of Physicians and Surgeons.

<sup>20</sup> There has been an increase, due to the fact that the school has offered unusual clinical advantages, which have attracted students, in spite of the business depression. This increase is so marked, as evidenced by the fact that more than one-third more actual attendants are present, so that the capacity of the college is strained to accommodate the students. Matriculation list is twenty-five higher than attendance."—University Medical College of Kansas City.

<sup>21</sup> "There was a marked falling off last session. The chief cause was, I think, that no one could graduate on two terms and such sought other schools. One of these now finds that his two-term diploma will not register him and he proposes to take another course. Another cause was that some of them thought they could more certainly graduate in another school. The hard times was another cause."—Ensworth Medical College and Hospital.

<sup>22</sup> "We had forty-three students in attendance last session; this year thirty-one—decrease the result of the scarcity of money."—Woman's Medical College of St. Louis.

<sup>23</sup> "The present is the ninety-eighth annual course of lectures at this college, and the number of students is the largest in its history. Causes: A hospital has just been

opened in town. Possibly the depression in general business may have some influence."—Dartmouth Medical College.

<sup>24</sup> "There is a decrease in the first year, due to the establishment of the four-years' course."—College of Physicians and Surgeons of Columbia College.

<sup>25</sup> "Not complete; return made November 1."—Albany Medical College.

<sup>26</sup> "The junior class of session of 1891 was the first under the graded system."—University Medical College of New York City.

<sup>27</sup> "Our collegiate year does not close until June, 1895, and we always have a considerable number entering our reading term in March—these will bring our number for 1894-95 up to 280 or more. This is the largest class we have ever had, and is undoubtedly due to the clinical advantages we offer."—Long Island College Hospital.

<sup>28</sup> "1890-91 was the last year of the two-years' system; 1891-92 was the first year of the *obligatory* three-years' system. The unusually large class of 1890-91 was due to the fact that many students intend to take advantage of the two-years' system. In 1891-92 three courses of lectures were made obligatory. Students were required to pay for each course attended and the fees on lectures were raised from \$140 to \$150. *Unclassified* includes those who did not attend the full regular course." In the total 409 for 1894-95 are included 60 "unclassified," and in the total 407 for 1893-94 are included 85.—Bellevue Hospital Medical College.

<sup>29</sup> "Our four-years' course began with the session of 1893-94 and there are consequently no fourth year students as yet." The total third year students (thirty-four) include eight who are in the third year of the four-years' course.—Woman's Medical College of the New York Infirmary.

<sup>30</sup> "With the session of 1896-97 we will require a fourth year. It is now optional."—Med. Dept. Western Reserve University.

<sup>31</sup> "The increase seems to affect all schools, more or less, and is probably due to prospective enforcement of the four-years' course next year."—Starling Medical College.

<sup>32</sup> "Increased facilities for instruction over years gone by have increased our class from thirty-eight the past season to fifty for the present."—Toledo Medical College.

<sup>33</sup> "The increase is due largely to the reputation of the school among college-trained students and school teachers. Our school is conducted on the normal methods of teaching. The students are enthusiastic and spread the good news to their friends seeking a medical education."—Ohio Medical University.

<sup>34</sup> "Increasing good reputation of the school and perhaps because of lack of opportunities for employment on account of times has driven more persons than usual to professional study."—Med. Dept., University of Oregon.

<sup>35</sup> "The total number in attendance this year (session of 1894-95) may be increased by about thirty when students at present under conditions are permitted to matriculate after their conditions are passed."—Med. Dept., University of Pennsylvania.

<sup>36</sup> "Partly due to the fact that we begin our compulsory four years' course next year. Any progressive movement like this increases the popularity of the school as it indicates a determination to take a higher stand among the medical colleges."—Jefferson Medical College.

<sup>37</sup> "The recent reduction in the number of students was probably due to the lengthening of the course of study to four years and the advance in the standard of entrance requirements adopted by the college."—Woman's Medical College of Pennsylvania.

<sup>38</sup> "The great clinical advantages by reason of its proximity to a large general hospital, viz.: The Western Pennsylvania Hospital. This and the fact that we have adopted the three-years' graded course explains the increased attendance."—Med. Dept., Western University of Pennsylvania.

<sup>39</sup> "Our facilities for teaching are being yearly increased and an increasing number of students are in attendance."—Medical College of the State of South Carolina.

<sup>40</sup> "We now have a four-years' course of study."—Meharry Medical College.

<sup>41</sup> "The decrease is owing to the stringency in money matters all over the country."—Tennessee Medical College.

<sup>42</sup> Heretofore conducted as a spring and summer school, not graded. "The school has now withdrawn from the Southern Medical College Association and will teach annual terms of ten months, from first of March to latter part of December, and permit students to apply for graduation after attendance upon two such annual terms and three years of study."—Sewanee Medical College.

<sup>43</sup> "We have no required third year, but some students

distribute their study over three years." Two annual sessions of nine continuous months each are required for graduation. "The increase of students is due to the establishment of the graded course."—University of Virginia.

<sup>44</sup> "We have ten State scholarships, given in consideration of the fact that we receive aid annually from the State. We have no other scholarship feature, as is so often found in other medical institutions, or our number of matriculates would have been greatly increased. We have no dental or pharmacal department connected with our school. It is proper to state that the number of students above for session 1894-95 is incomplete, as we expect a number more to come in soon."—Medical College of Virginia.

<sup>45</sup> "During the last session the qualifications for degree were increased from four six months' sessions and two compulsory summer sessions of three months each, to four sessions of nine months each. The increase in students was unexpectedly large this year which we attribute chiefly to the increased clinical advantages afforded from the opening of the new Royal Victoria Hospital."—Faculty of Medicine, McGill University.

<sup>46</sup> "The increase during the present session is probably due: 1, to the fact that the enlargement of the building last summer, increasing it to double its former size, was well advertised throughout the Province; 2, the work of the college is becoming favorably known; 3, the proportion of young men entering the profession in this section of the country, as shown by increasing attendance, is rapidly (too much so, possibly), on the increase; 4, it has become generally known that it is the intention of the college to lengthen the term. This has had the effect of bringing a few students in earlier than they would otherwise have come."—Manitoba Medical College.

## NECROLOGY.

DUJARDIN-BEAUMETZ, M.D., of Paris, at Nice, France, February 15, aged 61. He was physician to the Hôpital Cochin and a well-known writer on therapeutics. He had many friends among the medical profession of America, and was a member of the Ninth International Medical Congress at Washington, 1887.

CHAS. W. BREYFOOLE, M.D., who was for several years a leading physician of Louisville, died at his late residence, San Jose, Cal., on the 28th ult. He was 54 years old, was born in Columbus, Ohio, lived in Louisville, and in 1872 moved to San Jose on account of ill health.

SIR WILLIAM SCOVELL SAVORY, F.R.S., Surgeon Extraordinary to the Queen, and late President of the Royal College of Surgeons died in London, March 4, aged 69 years.

JOHN CAMPBELL THOMPSON, for many years a practitioner at South River, N. J., died February 14, in his sixty-seventh year. He was a graduate in medicine at the College of Physicians and Surgeons in the class of 1856.

MILTON N. TAYLOR, M.D., of Baltimore, died February 25, aged 68 years. He was a native of that city and a graduate in 1848 at the Washington University School of Medicine, since merged with the College of Physicians of Baltimore. He was connected at odd times, from the year of his graduation, with the administration of health affairs. He was the City Physician in 1853 and 1854 and a Commissioner of Health from 1867 to 1871.

T. S. HOLLINSHEAD, M.D., of Harrisburg, Pa., February 25.—J. F. Parks, M.D., Bourbon, Ind., February 28.—A. J. Bell, M.D., Atlanta, Ga., February 23.—I. de Zouche, M.D., age 72, Gloversville, N. Y., February 22.—Francis Obetz, M.D., Grove City, Ohio, February 20.—W. D. McWhorter, M.D., Washington, D. C., February 20.—A. J. Robb, M.D., Owosso, Mich., February 26.—J. H. Sherrod, M.D., Paoli, Ind., age 52 years, February 26.—Grace Danforth, M.D., Granger, Texas, February 21.—I. M. Ward, M.D., Lyons Farms, N. Y., age 89 years, February 25.—Ben Smith, M.D., Mount Upton, N. Y., February 23.—L. S. Henthorn, M.D., Indianapolis, Ind., February 25.—W. H. Seobey, M.D., Hamilton, Ohio, February 27.

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00

SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,

NO. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.

W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, MARCH 9, 1895.

SOURCES OF ARROW POISON.

Commenting on LEWIN's work on arrow poisons (*Die Pfeilgifte*) LAGNEAU observes that many of the European peoples in ancient times employed poisoned arrows, but most authors who mention the fact neglect to state the mode of preparing the poisons. Some of these appear to have been composed of vegetable extracts of great toxic power, and others of venoms or putrified animal matters, undoubtedly containing ptomaines.

The Gauls, according to PLINY, dipped their arrows for the chase in the juice of hellebore: "*Galli sagittas in venatu elleboro tingunt.*" (Hist. Nat., lib. xxv.) He also speaks of an herb called *limeum* by the Gauls, from which they made a preparation which they called "poison of the deer:" "*Limeum herba appellatur a Gallis, qui sagittas in venatu tingunt medicamento, quod venenum cervarium vocant.*" (Hist. Nat., lib. xxvi.) STRABO and ARISTOTLE also mention poisoned arrows for hunting used by the Celts. The Scythians, according to OVID, then in exile on the shores of the Black Sea, coated their arrows with the gall and blood of the viper—more probably its venom. Different Greek authors also speak of the viper as being used to poison arrows, but ARISTOTLE notes that the Scythians add human blood—*ἀνθρώπων αἷμα*—to the viper venom. "When this blood is equally putrified," says ARISTOTLE, "the serous liquid which rests on top is mixed with the putrid viper and thus they make a mortal poison." (*De Mirab. Auscult.*, cap. cxli.)

LEWIN states that among the Somali of North-east Africa a blackish material called *waba* is used; this is extracted from plants of the *Apocynaceae* and is identical with amorphous ouabain. Among

the Waitata of Central Africa the poison more nearly resembles crystallized ouabain. Other Central African tribes, the Waschamba, Wanika, etc., like the Somali, use amorphous ouabain. The peoples of South Africa possess modern arms, using poisoned weapons only exceptionally, so that in the near future these tribes will have lost the art of weapon poison. In the rest of Africa the poison used is sometimes ouabain, sometimes strophanthin, sometimes a mixture of the two.

In Asia, aconite seems to be preferred to other poisonous substances. During the French war with Tonquin in 1878, REGNAULT showed that the natives used a cardiac poison extracted from the *Antiaris toxicaria*. Many soldiers were wounded with weapons thus poisoned—in one skirmish a lieutenant and two privates, but only one of these had dangerous symptoms.

TREATMENT OF PENETRATING WOUNDS OF  
THE CHEST.

In the *Revue de Chirurgie*, for Jan. 10, 1895, there appears an interesting article on the conduct of the surgeon, in the case of penetrating wounds of the chest by side arms, by HUGUET and PÉRAIRE, who quote numerous observations by TERRIER and LUCAS-CHAMPIONNIÈRE, and by themselves.

The code duello is so much in vogue in France that even in the "piping times of peace," there is abundant opportunity for the study of this class of wounds.

The authors make very clear by their observations that early removal of such patient from the field is extremely dangerous, unless every precaution be taken to immobilize the chest wall as far as possible. The following is a summary of their conclusions:

1. There is absolute necessity of treating the wounded, at the place; the gravity of the concussion communicated by transportation, whether the journey is long or short, gives even stronger reason, as treatment may be performed in the carriage. If it is necessary to transport the wounded to a distance the inevitable jolting of the vehicle will produce hemoptysis or accentuate it, and this may induce the death of the patient.

2. The state of syncope favoring hemostasis may be respected in a certain degree, but it may become necessary to make moderate subcutaneous injections of ether, to the end that the depression may not become too considerable. It is in such cases that above all we may have recourse to caffeine and to hypodermatic injections of artificial serum.

3. The treatment of penetrating wounds of the chest by ordinary means (cold applications and iced drinks, injections of ergotin, compression, antiseptics, ligature of vessels, suturing of the wound) appears to us insufficient in many cases, unless immediately subjected to as absolute immobility as possible. Thanks to this absolute rest which results from forced immobilization of the entire pulmonary apparatus, there is obtained a condition from the outset which alone may insure success.

4. It goes without saying that this immobilization does not exclude the ordinary means mentioned.

5. In case of hemothorax consecutive to a lesion of a great vessel, there is no urgent need, the phrase "*expectation armée*" (armed neutrality) never finds a better application than in such circumstances. It is necessary to be guided by the symptoms and above all by the complications, to come to a determination. It is not necessary to resolve upon thoracentesis until the effusion becomes too considerable, and the dyspnea excites serious fears for the case.

6. The indication is in all cases of penetrating wounds of the chest to banish the permanent dressing; to make an elaborate dressing of the wound, being restricted to the necessities of the case, and always avoid jolting or concussions.

The treatment recommended must commend itself to all military surgeons, notwithstanding this subject has furnished food for discussions from time immemorial.

THE forty-sixth annual session of the AMERICAN MEDICAL ASSOCIATION will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9, and 10, commencing on Tuesday, at 10 A.M.

#### SANITARY EXPENDITURE PAYS.

At the recent Indian Medical Congress—the first, by the way, in the annals of Indian medicine—SURGEON-LT-COL. W. G. KING, D. P. H., delivered the Presidential address on Public Health, in which he pointed out that during the last six and a half years 201,394 deaths were registered from smallpox in the Madras Presidency. Taking into account the probable number of survivals from these attacks at 64.3 per cent., he calculated that—without considering the capitalized value of lives—there must have resulted, during sickness and upon funeral ceremonies, an unproductive expenditure of 51 lakhs of rupees—if it be presumed that the persons attacked occupied no higher position than the coolie gaining Rs. 5 per month. Translated from East to West, in terms of currency, this means that a sum equivalent, in round numbers, to about \$48,000,000 was wasted in six and a half years through a preventable disease—to say nothing of the suffering, the disabilities of the survivors and the loss of human life.

On the other hand, one day last week the municipal authorities of Chicago dedicated, with appropriate ceremonies, what is known as the "four-mile crib." This is a structure covering the intake of an eight foot tunnel running out into Lake Michigan a distance of four miles from the city, with a daily capacity of 140,000,000 gallons, taken from the lake at a point beyond the observed limit of shore pollution. As a matter of fact the tunnel has been in operation since December, 1892—a period long enough to furnish some interesting data concerning its effect on the death rate from typhoid fever and the diarrheal diseases. The Health Commissioner, DR. REYNOLDS,

showed that during the three years from Jan. 1, 1890, to Dec. 31, 1892—about which latter date water was first let into the tunnel—Chicago had an average annual death rate from typhoid fever of eleven and one-half in every 10,000 of population. In 1893—that is, during the first year's duty of the tunnel—this rate was reduced to four and one-fifth in 10,000, and last year it was still further reduced to three and one-tenth in 10,000. Up to the close of 1892, Chicago had, year after year, the greatest typhoid death rate of the seventeen principal cities of the Union—all those having populations of 200,000 or over. In 1894 the city had moved up from the lowest to the tenth place in the scale of healthfulness in this respect, with a rate of 3.1 in 10,000, being outranked by New Orleans (3.0), Milwaukee (2.5), Boston (2.4), Cleveland (2.2), New York (1.6), and Brooklyn (1.5), and outranking Philadelphia (3.3), St. Louis (3.5), Minneapolis (4.6), Baltimore (4.8), Louisville (5.0), Cincinnati (5.2), Pittsburg (5.6), Buffalo (5.7) and Washington (8.1).

It was further pointed out that while the greater or lesser prevalence of typhoid fever is generally accepted as an indication of the character of the water supply, it is by no means the only disease whose prevalence is increased by impure water. The diarrheal diseases are similarly affected, and these cause in the aggregate a larger number of deaths than typhoid. In the four years, 1890–93 inclusive, there were 7,803 deaths in Chicago from the diarrheal diseases—a yearly average of 1,951. In 1894 there were only 809 deaths from these causes—a reduction of over 58 per cent. If the same death rate had obtained from typhoid fever and the diarrheal diseases in 1894 that obtained in 1890, '91, '92 and '93, there would have been 2,153 more deaths from these causes than there really were. Accepting the capitalized value of a human life at \$5,000—an estimate which is indorsed by the Legislatures of many States in fixing the penalty upon railroads for killing people outright—this would give an aggregate of \$10,765,000 saved as against the cost of the tunnel construction and pumping plant (\$3,083,000), leaving a balance of \$7,682,000 to the credit of an improved water supply over and above its cost.

In this computation, however, no account is taken of a still larger factor of cost. Each death from typhoid represents, probably, twenty cases—nineteen of whom recover and are never mentioned in statistics; each death from the diarrheal diseases similarly represents probably forty cases—say an average of thirty cases to every reported death. If, then, an improved water supply prevented 2,153 deaths from these diseases, it also prevented nearly 65,000 cases of these diseases, and has also saved their aggregate cost of medicines, medical attendance and nursing, of time taken from business or productive work, and



of expenses of many other kinds incident to the sick room.

Sanitary expenditure pays, whether in vaccinating against the smallpox or in providing a pure water supply. That is to say, it pays the community, whatever may be its effect on the income of the practitioner.

#### EXACT ENGLISH AND PURE WATER.

Although REPRESENTATIVE BARTHOLDT's efforts to secure the passage of a bill—to appoint a commission for the investigation of the pollution of water supplies where such pollution affects or threatens to affect the sanitary condition of the people of more than one State—failed at the session of Congress just closed, it is to be hoped that he will renew the attempt at the earliest opportunity and push it to a successful conclusion. The subject matter is one in which every sanitarian is interested and the moot questions involved should be promptly and authoritatively settled. Meanwhile, the agitation has not been without result, since the text of the measure has furnished occasion for an excursus upon the exact use of language which the JOURNAL thinks may be profitably reproduced.

Commenting editorially upon the bill, an esteemed contemporary had this to say: "One of the sections provides that 'at the next session of Congress the commission shall submit such suggestions as may seem desirable for the purpose of remedying any insanitary conditions that may have been developed by its work.' Surely this is not what the framer of the bill meant, for he can hardly intend that the commission shall go into the business of developing insanitary conditions; he has simply lapsed into 'sloppy English.'" To which the framer of the bill, DR. CHARLES SMART, Surgeon, U. S. A., responds that this is precisely what he meant and intended. "The transitive verb *develop* means to take a thing out of the wrappings or obscurities in which it is enveloped. The thing referred to is in existence, but it is not apparent until its existence is developed by some agency. It may be intangible—an idea, for instance; but the existence of the idea may be developed by the use of words spoken or written. It may be invisible, as is the photographic picture, which can be seen only after it has been developed by certain chemical solutions; or it may be a very material and substantial thing, as a hostile army in line of battle, the position of which may be developed by reconnoitering parties. The first two illustrations are analogues and the last is the homologue, from the literary standpoint of 'the insanitary conditions which may be developed [*Synonyms*: uncovered; unfolded; laid open; disclosed; exhibited; unraveled; disentangled; detected.—*Webster*.] by the labors of a commission of competent investigators.' Some persons, through ignorance or carelessness, use the word in the sense of to produce or to cause to come into existence,

Against these the charge of lapsing into slovenly English may be preferred with justice, but certainly not against those who give the word its true value."

All of which goes to show that Analyst SMART is no less doughty a champion of English undefiled than of water unpolluted.

#### THE TRIUMPH OF M. PÉAN.

The session of the Académie de Médecine of Paris held January 15, was made remarkable by the presentation of a patient by M. PÉAN.

This patient had had a carcinoma of the larynx and to relieve it, it was necessary for M. PÉAN to make entire extirpation of the larynx, the superior portion of the esophagus and the inferior portion of the pharynx. Not only did the patient support the mutilation, but by means of a prothetic apparatus constructed by M. MICHAËLS, under the direction of M. PÉAN, the organs were replaced so that the patient could breathe, eat and drink. Not only that, but the apparatus allowed the patient to make articulate sounds, so that speech could be understood. It is two years since the patient was operated upon, and the crowning glory of the operation has been the phenomenal, nay, the brilliant success of the artificial larynx. In former times the saving of the life of a patient so afflicted would in itself have been a triumph of surgery, but to replace lost parts with apparatus of such delicacy and usefulness seems to represent an art almost superhuman.

#### HENRI DE MONDEVILLE.

In a scholarly article by DR. ADRIAN SCOTT in the *Atlantic Medical Weekly*, March 2, 1895, we note the following:

"The oldest French writer upon surgery is HENRI DE MONDEVILLE, at first teacher in Montpellier, then body surgeon to PHILIP THE FAIR. He was at the same time one of the earliest French writers upon anatomy, the instructor of CHAULIAC. His 'Chirurgie' has never yet been printed."

This is an error, for the *Chirurgie* of MASTER HENRI DE MONDEVILLE was published last year. In our issue of April 28, 1894, we published a leading article on the work, and complimented the editor, M. NICAISE, on his great public service in rescuing DE MONDEVILLE's work from the obscurity in which it had so long remained.

If DR. SCOTT had read this JOURNAL carefully he would not have fallen into the serious error which we have noted.

#### THE DATE OF THE ASSOCIATION MEETING.

By an unfortunate error in the publication of SECRETARY ATKINSON's circular, the date was given as June. The actual date is May 7, 8, 9 and 10.

There need be no confusion if one will always remember that for many years the rule has been that when the ASSOCIATION meets south of MASON and DIXON's line, the meeting is invariably held in May; when north of that line in June.

## CORRESPONDENCE.

## A Warning against Castration for Prostatic Enlargement.

CHICAGO, Feb. 25, 1895.

To the Editor:—Permit me to utter through your columns a warning against promiscuous castration for prostatic enlargement. The operation is so easy and the relief afforded sometimes so great, that some seem to have forgotten the existence of other means to the same end. In several of the nineteen cases already reported, it would seem that complete relief should have been afforded by a simple incision, or simpler puncture, or perhaps even by a catheter in a practiced hand.

The interesting analogy between uterine myoma on the one hand, and one element in prostatic enlargement on the other, has obscured to some of us the other element in this enlargement, the *inflammatory*; which while playing no rôle in uterine myoma, is the important clinical factor in all severe cases of prostatic hypertrophy.

I hope to discuss this element at length in another place, and to show that a process which I call "milking the prostate" is an efficient measure for the relief of prostatic enlargement; at present, I shall merely mention the admitted facts that suppuration in the prostatic glands (prostatico-cystitis) occasions the patient acute distress, and that inflammation in the parenchyma results in the edema and connective tissue hypertrophy which constitute much of the enlargement. That castration may cause atrophy of glands, subsidence of edema and hence relief of distress is admitted; but that it will not reduce the hypertrophied connective tissue is *a priori* probable and seems proved by at least two of the cases already reported.

If the argument were ended here, the relative merits of castration and incision might be debatable; but there is another feature which, in my opinion, makes castration as the operation for the relief of prostatic hypertrophy dangerous to the surgeon namely, the impossibility of knowing that the cystitis is due to the apparent hypertrophy. It is well known, for example, that prostatitis very often have vesical calculi which may indeed be the chief cause of suffering; and that in such bladders calculi may easily escape detection by the sound because concealed by the projecting prostate or in diverticula. I emphasize this fact because there have come to me within six months, two elderly patients suffering from prolonged and severe cystitis ascribed to the undoubtedly swollen prostates, each of whom had been urged by his physician to submit to castration. Careful search with the sound revealed a calculus in one, but failed to detect in the other a small stone which was found by supra-pubic incision lying below the swollen prostate. Prolonged vesical drainage was followed by great reduction of the prostatic enlargement (evidently inflammatory) and a symptomatic cure. Imagine the status—professional and legal—of the surgeon who might have castrated either of these men, when the calculus was subsequently discovered.

A mistaken diagnosis of simple prostatic enlargement—because this is a common cause of severe cystitis—is sometimes made when the real trouble is a less familiar condition, such as cancer, papilloma, tuberculosis, or concealed stone. It seems to me therefore that whenever a case of real or supposed prostatic enlargement demands operative relief, this should always be an incision into the bladder; castration, if it have any place at all, must compete with prostatectomy and not with simple incision which, in the interest of surgeon as well as patient, should precede it. The claim that double castration is safer than drainage is

not, in my experience, warranted, if drainage be made by either perineal urethrotomy or supra-pubic incision in *deux temps*; the danger in cases that really demand operative interference is the anesthetic, not the knife.

WM. T. BELFIELD, M.D.

## Treatment of Gonorrheal Conjunctivitis.

MINNEAPOLIS, MINN., Feb. 23, 1895.

To the Editor:—Two recent cases of conjunctivitis have interested me and are perhaps worth publishing. Jan. 7, 1895, Dr. B. asked me to visit and take charge of a case of purulent conjunctivitis, to which he had been called during the night. A young bride of two weeks, a healthy blonde, had suffered for four days from a profuse muco-purulent discharge of left eye, for which she had used some domestic eye wash and warm fomentations. Dr. B. had been called on account of severe pain which was relieved by morphia and hot water. I found intense congestion of entire conjunctiva, pupil strongly contracted, and a muco-purulent discharge which under the microscope showed only a few pus cells and streptococci, some of the latter in pairs. The eye was thoroughly washed out with boracic solution, mopped with 2 per cent. silver and again flushed with boracic solution. A single drop of 4 grains solution atropia was instilled, and the eye was flushed every fifteen minutes during the day. In eight hours it was much better. The two following days 1 per cent. silver was applied. There was almost no discharge. The fourth day the eye was white, slightly sticky in the morning, but free from irritation, and in a few days more entirely well. There was nothing beyond a slight occasional leucorrhea which could be suspected of being a causative factor.

Jan. 12, 1895, Dr. X., a professional friend, came to my office with what appeared a purulent conjunctivitis of both eyes. His eyes were well in the morning, but at 3 P.M., I found a profuse purulent discharge, with intense congestion of conjunctivæ. The eyes were thoroughly washed out with boracic solution, mopped with 2 per cent. silver, again flushed, and this repeated about three hours later. Iced cloths were kept constantly applied until the following morning when the discharge had nearly ceased. The 2 per cent. silver was again applied, and the boracic solution at frequent intervals during the day. On the second morning the eyes were free from discharge and practically well, there being only a few subconjunctival ecchymoses and a yellowish discoloration, with some feeling of stiffness. The microscope showed as characteristic evidence of the gonorrheal nature of the pus as I have ever seen in unquestioned cases.

Dr. A. F. Irwin, Professor of Pathology at the College of Physicians and Surgeons, to whom I submitted the microscopic slide, concurred in my diagnosis. In neither of these cases could the nasal condition have played any special causative part. In the one there was a mild intumescent rhinitis; in the other the atrophic stage of hypertrophic rhinitis. In the latter case, a profuse nasal discharge began and ended with the conjunctival discharge, being evidently secondary.

The first case was probably a streptococcus infection. The second, I am confident, was of gonorrheal origin. My treatment of any acute conjunctivitis is usually introduced by an application of 2 per cent. silver. It is by common consent the proper thing if the case be purulent, and in my opinion the earlier the better. If the case be catarrhal the indication may be less imperative, but it is equally clear.

Yours respectfully,

EDWARD J. BROWN, M.D.

THE forty-sixth annual session of the AMERICAN MEDICAL ASSOCIATION will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9 and 10, commencing on Tuesday, at 10 A.M.

**An Inquiry.**

COLUMBUS, OHIO, Feb. 26, 1895.

To the Editor:—I desire to inquire of those among your readers, who have had experience in neural infixation, to give me the following information, for which I will be pleased to give them due credit.

Date and number of cases operated; cause for operation; method of operating, naming the nerve infixed as well as the nerve in which the implantation was made, also the point at which such infixation was made.

My object is to gather reliable statistics in this class of surgery with a view of obtaining more light on this important subject.

Very respectfully yours,

R. HARVEY REED, M.D.

150 E. Broad Street.

[Exchanges please copy.]

**Florida Health Notes.**

PHILADELPHIA, Feb. 24, 1895.

To the Editor:—I noticed in a late issue of the JOURNAL, that the *Florida Health Notes* will publish a series of papers on "Cremation," beginning with January, 1895. I have been trying to find out the address of the said periodical but did not succeed; hence I write to you to kindly give me same on a postal, as you certainly have copies from which the extracts are taken. Many thanks for your kindness.

Respectfully,

REV. E. H. GERHART.

ANSWER:—Address, Dr. J. Y. Porter, Secretary State Board of Health, Jacksonville, Florida.

**Expelled.**

CLEVELAND, OHIO, Feb. 24, 1895.

To the Editor:—Please publish in our JOURNAL, the following resolution as adopted by the medical staff of the German Hospital of this city, viz:

"Resolved, That Dr. F. D. Brandenburg be hereby expelled from this staff for unprofessional conduct, *i. e.*, the giving of a fulsome certificate to the proprietor of a certain mineral water under the name of this staff, without their knowledge or approval, and which certificate we hereby repudiate."

Yours respectfully,

F. W. WALZ, Secretary.

**ASSOCIATION NEWS.****The Baltimore Meeting.**

At a meeting of the Committee of Arrangements held February 26, the Committee of Transportation reported that the various railroads of the country had granted the customary reduction of rates to one fare and one-third on the certificate plan to the delegates attending the meeting, and their families. The Secretary of the Association will publish detailed instructions for obtaining this reduction, through the columns of the JOURNAL.

Hotel rates to delegates will be given in the next issue of the JOURNAL. The Hotel Stafford will be the headquarters of the Association.

Among the entertainments determined upon will be an evening reception by the Trustees of the Johns Hopkins Hospital. A general entertainment will also be given by the profession of the city, but the details of this are not yet completed.

Excursions at greatly reduced rates will be arranged to the Gettysburg battlefield, to Washington and to Annapolis. Further details of these excursions will be given in future issues of the JOURNAL.

An auxiliary committee of ladies will have in charge the

entertainment of ladies accompanying the delegates during the hours when the latter are occupied at the meetings.

The Committee urges Section officers to arrange for the Section dinners on the evening of the first day (Tuesday) in order not to conflict with the arrangements for the general entertainments on Wednesday and Thursday evenings.

The Committee feels that the primary object of the meeting of the Association is the transaction of scientific work, and that diversion and entertainment must be held subordinate to this. Hence no encouragement will be given to any suggestions looking to abridge the time to be devoted to scientific work and the legitimate business of the Association. The Committee hopes, however, to make the visit of the members, the delegates, and their families, agreeable as well as profitable. It is the earnest wish of the profession of Baltimore that no one coming to the meeting will leave our city with the feeling that his time has been wasted or unpleasantly spent.

GEORGE H. ROHÉ,

Secretary Committee of Arrangements.

**American Medical Association Annual Announcement.**

{ OFFICE OF THE PERMANENT SECRETARY,  
1400 Pine Street, PHILADELPHIA.

The forty-sixth annual session will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday, and Friday, May 7, 8, 9, and 10, commencing on Tuesday, at 10 A.M. Railroad rates one fare and one-third for round trip tickets.

"The delegates shall receive their appointment from permanently organized State medical societies, and such county and district medical societies as are recognized by representation in their respective State societies, and from the medical department of the Army and Navy, and the Marine-Hospital Service of the United States.

"Each State, county, and district medical society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number: *Provided*, however, that the number of delegates for any particular State, Territory, county, city, or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the Association."

*Members by Application.*—Members by application shall consist of such members of the State, county, and district medical societies entitled to representation in this Association as shall make application in writing to the Treasurer, and accompany said application with a certificate of good standing, signed by the president and secretary of the society of which they are members, and the amount of the annual subscription fee, \$5. They shall have their names upon the roll, and have all the rights and privileges accorded to permanent members, and shall retain their membership upon the same terms.

The following resolution was adopted at the Session of 1888:

*That in future, each delegate or permanent member shall, when he registers, also record the name of the Section, if any, that he will attend, and in which he will cast his vote for Section officers.*

Secretaries of medical societies, as above designated, are earnestly requested to forward, at once, lists of their delegates.

**AMENDMENTS TO THE CONSTITUTION AND BY-LAWS.**

[Offered in 1892, and laid over from 1893 and 1894.]

Offered by Dr. C. A. L. REED—Amend Article II, Section 1, of the Regulations, by inserting after the words "United States," "the Dominion of Canada, Labrador, and Newfoundland," and that such other changes be made in the phraseology of the Regulations and By-Laws as to make the same conform to this contemplated enlarged jurisdiction of the Association."

By Dr. I. N. QUIMBY—"That Thursday morning's general session be omitted, and the time be devoted to sectional work."

By Drs. JOHN MORRIS and J. G. KIERNAN.—Amend Section 7 of the Constitution, entitled, "the General Business Committee," as follows: "It shall be the future duty of the General Business Committee to make and present the nominations for the officers of the Association and its standing

committees, and recommend the time and place for the meeting of the Association.

"The General Business Committee of the Association shall perform all duties hitherto performed by the Committee on Nominations, which is hereby abolished. All sections of the Constitution and By-Laws, or parts thereof, inconsistent with the amendment, are hereby repealed."

By Dr. F. F. Dow—Amendment to the Constitution, to be known as Article VIII, entitled: "The Code of Ethics:" "The relations of the physician to the patient, to the public, and to the profession require that he shall be of good moral character, and in his personal and professional conduct without reproach; that he shall avoid pretense and notoriety; that he shall properly qualify himself for professional duty by broad and liberal studies in letters, sciences and arts; that he shall employ reasonable and reputable methods of practice; that he shall respect the laws of the State; that he shall encourage efficient means for the enlightenment of public opinion regarding the responsibilities of medical men and the relation of the citizen to public health, for the cultivation of medical education, for the promotion of the interests, usefulness, and honor of the profession, for the emulation, concerted action, and friendly intercourse among those engaged in it.

"Substituting the Roman numerals IX for VIII.

"All Articles, By-Laws, and Codes inconsistent with this amendment are hereby repealed."

By Dr. J. H. RAUCH—"That on and after July 1, 1897, no one will be admitted to membership in the AMERICAN MEDICAL ASSOCIATION who has not studied medicine for four years, and attended four annual courses of lectures of at least six months' duration."

By Dr. F. F. Dow—Amend By-Law No. XI, relating to the Judicial Council. The second clause of paragraph 3 shall be amended to read as follows: "The decisions of said Council on all matters referred to it by the Association shall be reported at the earliest practicable moment, and shall be final unless revised by the Association."

By Dr. A. B. HOSMER—"WHEREAS, The constantly increasing number of papers on general surgical subjects presented each year at the Surgical Section of this Association, the reading and even restricted discussion of which prohibit the introduction of any considerable number of papers on strictly orthopedic subjects, which might not prove of universal interest to the general surgeon; and

WHEREAS, There are already a sufficient and rapidly increasing number of members of the Surgical Section of this Association especially interested in this branch of surgery to warrant it; therefore be it

"Resolved, To amend Article II of the By-Laws by the addition, under the heading Sections, and after 12, Physiology and Dietetics, the following; 13, Orthopedic Surgery.

By Dr. J. T. PRIESTLEY—"The entire report on Constitution, etc., as offered in the report of Dr. Holton at San Francisco."

#### ADDRESSES.

On General Medicine, by Dr. William E. Quine, Chicago, Ill.; on General Surgery, by Dr. C. A. Wheaton, St. Paul, Minn.; on State Medicine, by Dr. H. D. Holton, Brattleboro, Vt. Committee of Arrangements, Dr. J. J. Chisolm, Chairman, Hotel Stafford, Baltimore, Md.

All members of the Association, and members of the medical profession generally, are urged to attend the Baltimore meeting.

WILLIAM B. ATKINSON, Permanent Secretary.

## PUBLIC HEALTH.

**Tenement-Houses Must Have Adequate Water Supply.**—The New York City Board of Health has recently won a victory in the Court of Appeals over the rich and powerful Trinity Church corporation. The fight has been waged for years with varying success, but it seems that the court of last resort has given the right of way to the Health officers. The following is a paragraph from a telegram dated February 26:

"The church corporation neglected to furnish water on each of the floors of the buildings 77 and 84 Charlton Street and after the Health Department had ordered them to put the water in neglected to do so. The Department fined them \$200 at \$10 a day for every day of neglect after the order was issued. The church trustees contended that the houses

were not tenements, but were built for residences, and although used as tenements now, did not come under the provisions of the act. The case was decided in favor of the city, and judgment of conviction, entailing a fine of \$200 issued. The church corporation asked for a new trial on questions of law and the General Term granted it. The Court of Appeals reverses the decision and denies the new trial."

**Neglect of Vaccination in Italy.**—During the recent smallpox incidence, it was noted that an undue proportion of cases occurred among the Italian contingent of the population. The experience of Dr. James Leishman, surgeon of the steamer *Scandia* of the Anchor Line, throws some light on the cause. He says: "In 1894 I examined over eight hundred Italian emigrants for vaccination according to American law. I regret I did not retain exact figures of results, but many men even of military age had somehow escaped, and more women, while fully half of the children had no marks. On my last voyage, out of 100 children I had to vaccinate over 60. The figures would be more unfavorable if I could subtract those vaccinated just previous to the voyage and those who preferred doing it at home. I was more than surprised to find it is supposed to be universal. These were mainly peasants from the southern half of Italy. While I am writing, I may say that Scandinavians are very carelessly vaccinated, many who have certificates showing no marks; Scotch are rather better, German and Irish are far superior and practically perfect. The Italian lymph is excellent. Other ship surgeons I have no doubt could corroborate me."

**Health of Paris.**—The last official census of the French capital was that of 1891, which fixed the population at 2,424,705, the figures still quoted in the issues of the *Bulletin Hebdomadaire de Statistique Municipale* for 1894. Based on this population, the mortality last year was lower than the average mortality of the previous ten years, being at the rate of 20.20 per 1000 of population. On the same census figures, the death rate for 1891 was 21.55; for 1892 it was 22.49, and for 1893 it was 21.83 per 1000. Since there was an increased birth rate in 1894, this lowered death rate can not be due to loss of population, and the actual number of deaths shows that Paris was unusually healthful in 1894. Last year 48,992 deaths were registered; in 1893, 52,955; in 1892, 54,536; in 1891, 52,262; in 1890, 54,566; in 1889, 54,083. Thus in 1894 the mortality is 4,725 lower than the average. With the exception of short epidemics of typhoid fever and of smallpox, these forms of disease were rare during 1894—during the last six months especially so. The deaths from typhoid fever in 1894 were 695; in 1893, 570; in 1892, 692; from smallpox, 173 deaths in 1894, 260 in 1893. Measles caused most deaths during May; afterward the cases were quite exceptional in 1894; the deaths were 988; in the previous years they were 677 and 909. Scarlet fever 149, the previous years 177 and 158. Whooping-cough 248 instead of 508 and 334. Diphtheria 1,009, instead of 1,266 and 1,403. Deaths from lung diseases were considerably less, and notably contributed to the lowering of the death rate.

**Transportation of Contagious Disease Corpses.**—A case was recently tried before Judge Abner Smith in the Circuit Court of Cook County, Illinois, in which suit was brought against the Chicago and Northwestern Railway Company to recover damages for refusal to carry the dead body of plaintiff's child, the child having died of diphtheria. At the time the corpse was offered, Dec. 26, 1891, the rules of the State Board of Health of Illinois permitted the transportation of corpses of persons dead of diphtheria under certain regulations, placing them in the second class mentioned in the rules. About a year previous to that time the State Board of Health of Iowa and those of several other Western States



changed diphtheria and placed it in the first or prohibited class, so as to forbid absolutely the transportation in public conveyances of bodies of persons dead of diphtheria. When that change was made, the company, as it had lines in many of the States, changed its rules to correspond with the change made by those Boards of Health, and, as a result, at the time the body of the plaintiff's child was offered for transportation the rule of the company forbade its transportation, although such transportation was permitted by the rules of the Illinois State Board of Health. The plaintiff claimed as damages the expense of transportation by carriage from Chicago to De Kalb, Ill., and the extra expense of preparing the corpse for transportation, in all some \$60. The facts being admitted, there was only a question of law involved, and that was—Whether the rule of the company forbidding the transportation of such a corpse was a reasonable one. Judge Smith held, as a matter of law, that it was a reasonable rule which the company had a right to make and enforce, and therefore the plaintiff had no right to recover damages.

**Contagious Diseases.**—The actual extent of the smallpox in Hot Springs and elsewhere in the lower Mississippi Valley can only be surmised; the sole sources of information, in the absence of official reports, are the newspapers and these vary widely—one recent account says there has been only a single case in the popular sanatorium and that convalescent, while, within forty-eight hours after, another asserts that there were forty-one cases under treatment at the beginning of the month. Quarantines are rife in Arkansas and Texas and travel has been somewhat impeded in consequence. The disease continues to spread in St. Louis and is reported subsiding in Chicago, Milwaukee and throughout the territory north of the Ohio River.

Influenza, diphtheria, pneumonia and bronchitis have increased in prevalence and severity since the first of the month. In this country, however, none of the diseases—except, possibly, diphtheria—is so prevalent or so severe as in Great Britain and on the Continent. Especially as to influenza, which, it is asserted, was never so widespread in any previous epidemic. In London, doctors and nurses have been peculiarly stricken, so that it has been almost impossible to secure medical attendance. The New York *Sun* correspondent says that one of his neighbors suffering with the prevailing distemper was attended February 27 by a physician; the next day the physician was ill and sent a substitute; the third day a third doctor attended, because the second had fallen a victim; on the fourth day, a substitute of the substitute sent a substitute, because the first three were all in bed. An Associated Press dispatch of the 2d inst. says the statistics of the Sanitary Bureau of Berlin show that three-fourths of all the sickness in that city at present is due to influenza. It is noted that the complaint, which was at first of a mild character, has grown much more dangerous, and the number of deaths from influenza and its complications during the week has reached several hundred. In the Reichstag the usual attendance dropped to about forty, some one hundred and fifty members either suffering or recovering from an attack. The total number of cases in Berlin is estimated at from thirty to forty thousand. We have had nothing approaching these figures in any American city, although the death roll of "old age" has been largely swollen by the disease.

During the first month of 1895, Asiatic cholera was reported in Austria-Hungary, Belgium, Brazil, France, Germany, Holland, India, Russia and Turkey. There were reported during that time 3,471 cases and 1,893 deaths. Sanitary Inspector Cleary, M. H. S., writes, under date Rio de Janeiro, January 22 (*Abstract of Sanitary Reports*, March 1), that the disease appears to be drawing to a close in the original localities in Brazil and the Argentine States, but is extending farther into the State of Minas Geraes, and down the Parahyba River to the north and is now in the neighborhood of Sao Fidelis, near its mouth. "The authorities are very energetic, and intelligently apply proper disinfections, isolations and removals in all suspected cases, and I believe that it is in consequence of these measures that this town is not as yet afflicted with cholera." Dr. Cleary adds: "I have never known a summer here with so few cases of zymotic diseases as this one; among the shipping there are none."

## BOOK NOTICES.

**A Manual of Diseases of the Ear** for the use of Students and Practitioners of Medicine. By ALBERT H. BUCK, M.D., Clinical Professor of the Diseases of the Ear, College of Physicians and Surgeons; Columbia College, New York; Consulting Aural Surgeon, New York Eye and Ear Infirmary, and the Presbyterian Hospital. Second revised edition, one volume, post octavo, 467 pages, illustrated, with blank memoranda pages at the back, extra muslin, price \$2.50. New York: Wm. Wood & Company. 1895.

This edition of Buck's excellent manual on diseases of the ear is well adapted for the use of students and general practitioners. A new chapter entitled "Analysis of Symptoms" has been added, and the section on chronic purulent inflammation of the middle ear has been re-written. The new chapter on "Analysis" occupies fifteen pages and it will be found extremely useful in diagnosis. "The list of these symptoms," says the author, "is not very long; it comprises impairment of the hearing, subjective noises, the phenomenon of hearing better in the midst of noise, the sensation of something moving in the head when the head is moved, a sensation of fullness in the ear, unnatural resonance of one's voice in the affected ear, pulsation or throbbing, itching, soreness or pain, painful mastication, discharge from the outer canal, dizziness, numbness, and possibly one or two others."

In suppurative disease of the mastoid antrum, the author says: "In all cases of comparatively recent origin, we must not forget one well established fact, namely, that the majority of them will, in one way or another, get well without operation." He admits the frequent formation of fistulae, and those accidents fatal to hearing which supervene on cases left to themselves, and he frankly admits that the chances of recovery without operation are very small in those cases where the cerebral complications are marked. In pyemic cases he considers operative measures urgent. Even in those cases of recovery without operation, convalescence has been so slow and tedious that operation would have been preferable. Explicit directions are given for trephining the mastoid antrum, and the author very properly, as we think, prefers the chisel to the trephine. He mentions after Macewen, accidents that have happened by improper or careless use of the chisel, such as hemorrhage from the sigmoid sinus, and rough fragments, both of which are to be avoided; the one by care and the other by the use of the rongeur to smooth the edges of the bony opening. The danger of opening the sinuss in these cases is not so much from hemorrhage (for that may be easily controlled by gauze packing) but from septic infection direct from the abscess cavity.

**Twentieth Century Practice**; an International Encyclopædia of Modern Medical Science by leading Authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D. In twenty volumes. Volume 1, Diseases of the Uropoietic System. Royal 8vo, cl., pp. 737. New York: William Wood & Company. 1895.

The nineteenth century is now so near its close that not much is probably required to anticipate the particular advances of the next four and a half years, but there is a possibility that there may yet be valuable discoveries added to the glorious record of the present century. This possibility has been recognized by the editor, who explains why, in the arrangement of subjects, the diseases of the uropoietic system occupy the initial volume. He says: "In arranging the order of subjects it has been thought best to reserve the consideration of infectious diseases for the later volumes in the hope that by the time they are published, a solution of some of the problems in the pathogenesis and therapy of these affections as yet but partially worked out, will have been reached."

The contributors to the present volume are Francis Delafield, M.D., LL.D., of New York, on "Diseases of the Kidneys;" Mr. Reginald Harrison, F.R.C.S., of London, on "Diseases of the Kidneys (Surgical) and of the Ureters," also "Diseases of the Bladder;" G. Frank Lydston, M.D., of Chicago, on "Diseases of the Prostate," and "Diseases of the Male Urethra;" Mr. E. Hurry Fenwick, F.R.C.S., of London, on "Diseases of the Urine," and Howard A. Kelly, M.D., of Baltimore, on the "Diseases of the Female Bladder and Urethra."

The tendency of the time toward operative interference in most diseases is here shown, as with the exception of Professor Delafield, all the writers in this volume are surgeons and write from a surgical standpoint. Mr. Harrison gives full credit to Van Hook and Finger, for their luminous expositions of the surgery of the ureters (published in full in this JOURNAL). In speaking of renal hydatids, he quotes Osler, of Baltimore, as saying that "it is rarely met with and in the inspection of over eight hundred bodies only three instances have been found." Hamilton's case (see this JOURNAL, Oct. 7, 1893) is not mentioned. The article of Dr. Kelly gives a full and very clear exposition of the methods of examination of the female bladder, and catheterization of the ureters. Dr. Lydston writes with his customary circumspection; in speaking of castration in prostatic disease he says:

"The most recent operation for the relief of enlarged prostate seems to be meeting with some success. The author has had no experience with it, but it is worth considering, provided the patient's virility has disappeared; otherwise it is better to construct an artificial supra-pubic urethra, with or without operation on the prostate proper. Castration is an operation not to be lightly undertaken as certain historical medico-legal cases have shown. Should future experience demonstrate that it is frequently successful, the surgeon should still exercise the greatest circumspection in the performance of this operation. A patient who appears perfectly reconciled to the loss of his testes may subsequently look at the matter in a different light; there is a suggestion of grim humor in the new procedure; the oöphorectomy craze of the recent past is still a vivid recollection."

#### **Materia Medica and Therapeutics for Physicians and Students.**

By JOHN B. BIDDLE, M.D. Thirteenth edition, revised, rearranged and enlarged, with special reference to therapeutics, toxicology, the physiologic action of medicines, and containing all the preparations and remedies described in the U. S. Pharmacopœia of 1890, to which the work has been made to conform. By CLEMENT BIDDLE, M.D., U. S. Navy, with numerous illustrations. Philadelphia: P. Blakiston, Son & Co. Chicago: E. H. Colegrove & Company. 1895. Price \$1.

So far as a notice can help or harm a book there is no particular use in a journalistic notice of Biddle's "Materia Medica," a book almost as staple as flour, and a title page as familiar to the profession as a picture of the front of the Capitol. It is sufficient to say that the thirteenth edition of this standard work has been revised to conform to the requirements of the new Pharmacopœia, and all its elements of popularity have been retained. We venture to suggest to the compiler of the fourteenth edition, that he give the dosage in the decimal or metric system in the text of the book as well as in the appendix. The publication of a posologic table in an appendix is valuable, as we can not have too much of a good thing, but the text of the articles itself should show this change of system.

#### **A Practical Theory and Treatment of Pulmonary Tuberculosis.**

By FRANK S. PARSONS, M.D., editor of the *Times and Register*. Paper, pp. 77. Philadelphia: Medical Publishing Company. 1895.

The author begins his brochure with the query whether pulmonary tuberculosis is curable, and answers it by saying "undoubtedly." He recommends proper individualization of cases and then oxygenation by hydrozone and glycozone, general treatment by climate, hygiene and exercise, diet

of carbohydrates, et cetera. The author has brought out his ideas in an attractive form, and his conclusions are logical. We notice also that it is being printed as a serial in the *New England Medical Monthly*.

**The Physician's Vade Mecum;** being a Handbook of Medical and Surgical Reference, with other useful Information and Tables. By SEBASTIAN J. WIMMER, M.A., M.D. With additions by FRANK S. PARSONS, M.D., editor of the *Philadelphia Times and Register*. Cl., pp. 483. Price \$1. Philadelphia: The Medical Publishing Company. 1894.

This is a convenient little book of reference for general practitioners and druggists. The "Physician's Interpreter," in English, French and German, is a new feature in a book of this kind, and a useful one. Some acquaintance with those languages is necessary in order to use the dialogue, as unless pronounced properly, the words will not be understood. There are over one thousand prescriptions in the book, all written in the old British system of weights and measures. A posologic table in another place, however, gives the decimal system of dosage.

## SELECTIONS.

**Echinococcus of the Right Ovary with Multiple Echinococci of the Peritoneum.**—According to W. A. Freund and Schatz, the development of echinococcus in the human ovary have not hitherto been proved. The seven cases collected from literature by Schatz are in his opinion not reliable; two other cases found by the writer speak with probability for echinococcus of the ovary. In one case of his own, which was operated on with good result, the writer attempts to prove that there was an autochthonous development of echinococcus in the ovary. The nature of the tumor was manifest from its smooth inner surface which was profusely covered with broad capsules and scolices, also from the daughter and grand daughter cysts inclosed in the tumor. The proof that the tumor was, in fact, ovarian, is derived from its position and its relation to the parovarium and tube. At no point in the tumor wall was ovarian structure demonstrated, a point which the writer asserts is an argument for his position that the echinococcus exercising like pressure on all sides, was developed in the midst of the ovary.—*Centralblatt für Gynäkologie*.

#### **The Practicability of the Murphy Button for Anastomosis.**

Chaput has stated his opinion before the *Société de Chirurgie* on the usefulness of the Murphy button as follows: "On the cadaver the largest sized button in ten cases out of twelve could pass the jejunum only with the greatest difficulty; twice it was altogether impossible. The cause lies in the lumen of the bowel, which, in eight cases, yielded the following figures: 41, 27, 27, 26, 45, 37, 27 and 21 mm., and in four cases, inflated, 100, 70, 73 and 68 mm.; on the other hand, the circumference of the Murphy button shows the following measurements: 66, 78.5 and 84 mm. Accordingly the bowel is absolutely too narrow for the highest two numbers. On the basis of these experiments, Chaput states the following opinion, that the use of the highest two numbers, if it is to pass the jejunum, is directly contrary to common sense and that even the lowest can possibly catch at the end of the ileum.

"In eight experiments on dogs, he had the following results: Four recoveries and four deaths. In two favorable cases the expulsion of the button took place on the eighth day, in two others the buttons remained *in situ* when the animal was killed. The Murphy procedure does not induce stenosis of the bowel. Of the four other dogs, three died of peritonitis with necrosis of the intestine; in the four gastroenterostomies the gut slipped out from the button and the intestinal contents were discharged into the abdominal cavity.

In man, Chaput had the experience once of finding that the ends of the rectum, resected for carcinoma, could not be brought together with the button; in another case, after resection of the ascending colon, the patient died in forty-eight hours, and at the post-mortem the bowel was found almost perforated, and the lumen of the button obstructed by a hard fecal mass.—*Centralblatt für Chirurgie*.

**Cystitis in the Female.**—The *Wiener Klinische Rundschau* has the following abstract of a paper by Dr. Zuckerkandl: "Granting the fundamental fact that, as a rule, the simple admission of pathologic germs into the bladder is not followed by inflammation, but that in some way an abnormal condition of the bladder wall must be created, the writer distinguishes in the female:

"1. Cystitis from hyperemia of the bladder. Between the fundus of the bladder and the uterus there exists a connection in blood supply. Therefore it happens in the gravid state that various inflammatory processes in the uterus and its adnexa, and other conditions which follow congestion, are accompanied as well by hyperemia of the bladder wall. On this soil a cystitis is easily induced, spontaneously, if germs pass from the urethra into the bladder, as quite frequently happens in catheterization. Cystitis also arises from hyperemia of the bladder in conjunction with the operative separation of the posterior wall of the bladder.

"2. Cystitis from insufficiency: *a*, from malposition of the bladder lateral version, prolapsus descensus vesical, and tumors, which render it impossible that the bladder contracts normally; *b*, from retention post-partum in consequence of the softening of the mucous membrane; *c*, from involution of the bladder. In old women who have borne many children, the bladder is dilated, the mucous membrane becomes atrophied, thin and pale and the sphincter and detrusor become insufficient. (Chevalier, in 1891, portrayed a similar condition as prostatism in the female.)

"3. Traumatic cystitis, for example, necrosis from pressure in childbirth."

The writer further made mention of the transmission of pathogenic germs from neighboring organs, for example, the intestines into the bladder, and the possibility of accompanying hyperemia. The spontaneous migration of germs from the urethra naturally does not act as an opposing factor; on the contrary, in doubtful cases an antiseptic injection should follow catheterization.

In the discussion that followed, Dr. Mackenrodt (Berlin) combated the idea of a connection between the bladder and the uterus through the larger arteries, and even a capillary connection; in the separation of these organs from one another, neither any considerable hemorrhage, nor a disturbance of circulation takes place. During pregnancy the blood pressure is increased in all the abdominal organs, consequently in the bladder. As an etiologic factor in cystitis he would further mention the sacculation which is observed not merely after laparotomy, but especially in pelvic peritonitis.

In closing, Dr. Zuckerkandl stated he had at the last moment forgotten to mention in his paper these shrivelling processes, as results of pelvic peritonitis. He insisted that a connection in the blood supply between the bladder and the uterus does exist and is formed through venous trunks, three or four of which, on each side, run backward from the posterior wall of the bladder in the loose cellular tissue.

**The Forty-sixth Annual Session** of the AMERICAN MEDICAL ASSOCIATION will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9 and 10, commencing on Tuesday, at 10 A.M.

## SOCIETY NEWS.

**Kings County (N. Y.) Medical Association.**—I desire herewith to notify you officially of the duly elected officers of the Kings County Medical Association, of New York, for the year 1895: President, J. C. Bierwirth; Vice-President, N. W. Leighton; Recording Secretary, F. C. Raynor; Corresponding Secretary, H. C. Riggs; Treasurer, E. H. Squibb. Elected members of the Executive Committee: Jonathan Wright, term expires January, 1896; J. D. Rushmore, term expires January, 1897; R. M. Wyckoff, term expires January, 1898; T. M. Rochester, term expires January, 1899. H. C. Riggs, M.D., Corresponding Secretary.—The first meeting

of the Southwestern Medical Association was held in Creston, Iowa, February 26.—A regular meeting of the St. Louis Medical Society was held February 23.—The Luzerne Medical Society held a meeting February 20.—The Northern Berkshire Medical Association held a regular meeting at North Adams, Mass., February 24.—The third annual meeting of the Austin Flint Medical Association of Lawrenceville, Pa., was held February 26.—The quarterly meeting of the Onondaga County Medical Society was held February 26, at Syracuse, N. Y.

## MISCELLANY.

**Busy Bacteriologists.**—A Berlin letter of the 20th ult., says that the scientific men of the day who are making investigations in bacteriology are as feverish as were the prospectors for gold in California half a century ago. They all feel themselves on the eve of great discoveries, especially since Behring hit upon his *heilserum*, the panacea for diphtheritic troubles. The laboratories of Pasteur and others of eminence are already crowded, and the young men who go to Paris hoping to gain admittance into such workshops must have done enough in bacteriology to warrant the expectation that they are to become shining lights in the scientific world.

**Mortality by Influenza Influenced by Humidity.**—Sergeant Dunn, of New York City, holds the opinion that a marked relation subsists between the prevalence of certain types of weather and the prevalence of grip. His conclusion is that the weather is an important factor in the mortality of grip cases and that the humidity of the air "seems to be the important element in producing or aggravating the disease." He says: "The fatality is most marked when the humidity is at its maximum and there is a sudden fall of temperature. . . . The higher the humidity and the more sudden the fall of temperature the greater the number of deaths, and it is also observed that when the temperature and humidity drop at the same time there is a sudden decrease of the death rate."

**The Health Officer of New York.**—Dr. Alvah H. Doty, the newly appointed Health Officer of the Port of New York, is probably the youngest man to receive that important command. He was graduated from Bellevue Hospital Medical College in 1878. He was soon thereafter appointed Diagnostician to the Contagious Disease Bureau of the Board of Health; of which he has been Chief Inspector during the past year or two. He has manifested great vigor in the handling of the metropolitan problems in contagious crises. He has acquired a volume of experience that will not fail him in any peril that may approach the great harbor over which he will be sanitary autocrat. Like sundry other sanitarians of his State, he has entered the surgical arm of the National Guard, being Surgeon and Major in the Ninth Infantry Regiment.

**Some New Properties of Pilocarpin.**—Hartcop calls attention in *Les Nouveaux Remedes* to pilocarpin, which, in his opinion, is unjustly abandoned as a medicament. It renders signal service, especially as a sialogogue. He gives it subcutaneously in doses of 0.01 to 0.02 grammes. It can be used with great benefit first in intracranial hyperemia, uremia, commencing meningitis, chronic meningitis; next in affections of the throat and larynx, especially in edema of the glottis; then in acute renal affections, scarlatinal nephritis and in some affections of the cord and peripheral nerves in the initial stages. Pilocarpin also acts as a revulsive. In some cases it is advisable to associate it with iodid of potash or the biniodid of mercury. The author reports several cases in support of his assertions.

**Cleansing the Surgeon's Hands.**—There are three principal methods of cleansing the surgeon's hands in vogue in Germany. The one most commonly employed is that of Fürbringer, which consists in brushing the hands and nails with soap and hot water, then dipping them in an 80 per cent. alcohol solution, and finally washing with a 2 per cent. sublimate of mercury, each part of this proceeding to last one minute. Reinecke, of Leipzig, asserts that a sure disinfection of the hands may be obtained by rubbing them with alcohol only and washing afterwards with pure sterilized water; the alcohol dissolves the sebaceous substance on the surface of the skin, thus enabling the bacteria which adhere to it to be easily washed away. Schleich rejects all brushing, and only washes the hands with a soap invented by himself, which consists of domestic soap (one part), marble powder (three parts), and lysol (4 per cent. of the whole); this soap cleans less by chemist than by mechanical means, the fine marble powder penetrating into all the folds of the skin and rubbing away all dirt and detritus.

**Alcoholism in Russia and Switzerland.**—A new law regulating the sale of alcoholic drinks has been in effect since the first of this year in some parts of Russia. It received the imperial sanction June 6, 1894, and it is believed by the *Gazette Medicale de Liege* that it will undoubtedly diminish the consumption of alcohol. It is now in effect in the provinces of Perm, Oufa, Orenburg and Samara. Committees, comprised of the principal men of the locality who are best acquainted with the habits of the community, are constituted in each village and are to be known as "Guardians of Temperance." Their duties will be to aid the State in reforming the sale of alcoholic drinks, to make the dangers of alcoholic abuse known by local conferences, and to establish temperance cafés where men may find the attractions usually inseparable from alcohol. Switzerland is the best organized country for the contest against alcoholism. On Sept. 30, 1893, the Society of the Blue Cross numbered 241 groups with 11,143 members, 4,118 of whom were reformed drunkards. Its activity is unrivalled, favored as it is by the strict legislation governing the sale of alcoholic drinks in Switzerland. It has founded temperance cafés in Geneva and several other large cities and several have been started by private parties as a speculation.

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**An International Language for Medicine.**—Dr. Manassein, of St. Petersburg, is in favor of adopting French as the international language for medicine, which prompts Dr. Keser to write to the *British Medical Journal* giving some reasons for this adoption. After disposing of Latin, Greek and German he adds: "We are thus limited to English and French. English is a simple and useful language, probably the best for written communications, but it is much more difficult to understand and to speak than to read and write. As a means of international communication orally, English is decidedly inferior to French, the pronunciation is very difficult and the clear production of its sounds requires considerable effort. French is already the universal language of the diplomatic corps. If I may judge by frequent meetings with foreigners, it is in more universal use than English among physicians in Russia, Germany, Spain, Italy, South America, Greece and Turkey. No language compares with it for clearness and precision. The use of French is widespread in England, where it is positively rare to find an educated physician without some knowledge of it. Most of them make excellent scholars without much difficulty." Keser concludes: 1, it is highly desirable in the interests

of science that some agreement should be reached as to the adoption of an international medical language; 2, no language, living or dead, meets the necessary requirements better than the French.

**The "Percentage" Slander Repudiated.**—A member of the New York Academy of Medicine has recently written a letter to the *Herald* of that city, to show how slanderous is the view held by some, that all druggists pay physicians a percentage on all prescriptions. The letter was elicited by an alleged humorous paragraph, in a former issue of the *Herald*, declaring that "the doctor draws a fat commission from the till of his accomplice, the apothecary." As the writer remarks, no good end is met by the publication of slurs of that kind; what little effect they have is all in the wrong channel. They simply tend to confirm an unjust prejudice unwisely accepted by ignorant laymen. The letter states that in two decades of active practice he never met with one such commission-paying druggist. The following is a part of the letter: "I have practiced medicine for more than twenty years and I am happy to say that no such offer has ever been made to me. A physician's reputation and success depends not only upon the skill with which he prescribes, but quite as much so upon the care and accuracy with which his prescriptions are dispensed; and hence he recommends his patient to a certain drug store, or a choice of certain drug stores, where he is sure the conditions will be fulfilled, and he warns them against other stores of a less respectable and frequented class, where unqualified boys are allowed to handle important drugs, where it would be practically impossible to maintain a full line of drugs in good condition and where if they do not happen to have the article called for they do not hesitate to substitute something else."

#### Hospital Notes.

A PUBLIC HOSPITAL at Muskegon, Mich., was organized February 26. Charity clinics will be held weekly, and a training school for nurses will be organized in connection with the hospital.—A new hospital for scarlet fever and diphtheria cases will be established in New York, owing to the beneficence of Mrs. John W. Minturn, of that city, who has given \$25,000 toward the erection of an institution for that purpose.—The annual report of the German Hospital at Kansas City, Mo., shows that 321 patients have been treated during the year.—The executive board of the Buffalo General Hospital have approved the plans for the new hospital building in that city, cost not to exceed \$150,000.—Plans have been prepared for the new St. Joseph's Hospital for the Insane at Asbury, Iowa. The building will accommodate 210 patients and will cost nearly \$75,000.

#### Louisville Notes.

**VITAL STATISTICS.**—Flemming County, Kentucky, is one of the few counties in the State in which there is a law making it compulsory for a return to be made by the physicians, of all births as well as deaths. During the past year this has not been done, and on March 1, warrants were issued for every doctor in the county for failing to register a list of births and deaths during the year.

**LEXINGTON'S SMALLPOX.**—Just when the public mind became at rest over the subject of smallpox in Lexington, there was developed a municipal scandal in regard to the purchase of the pest-house by the city.

**AMBULANCE.**—The importance of a city ambulance is shown by the report of its excellent service for the past month. The ambulance is kept at the City Hospital and is free for the transportation of the sick or wounded to their homes, the infirmaries, or the City Hospital.

**MORTALITY REPORT.**—The fatality of pneumonia during February is unprecedented in this city. It is impossible to gather any statistics as to the death rate of the total number of cases, but this can be conjectured from the fact that only three recovered out of fifteen cases at the City Hospi-



# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, MARCH 16, 1895.

No. 11.

## ORIGINAL ARTICLES.

### SKETCH OF THE MEDICAL BUREAU WORLD'S COLUMBIAN EXPOSITION.

BY JOHN E. OWENS, M.D.

MEDICAL DIRECTOR OF THE MEDICAL BUREAU OF THE  
WORLD'S COLUMBIAN EXPOSITION.  
CHICAGO, ILL.

#### ROSTER.

*Medical Director.*—Dr. J. E. Owens, June 1, 1891, to March 31, 1894.  
*Attending Physicians.*—Drs. N. E. Yeager, June 1, 1891, to Nov. 30, 1893; W. H. Allport, June 1, 1891, to Nov. 30, 1893; S. C. Plummer, August 1, 1891, to Nov. 30, 1893; G. P. Marquis, Jan. 1, 1892, to March 1, 1893; E. T. Edgerly, Feb. 1, 1893, to Nov. 15, 1893.  
*Resident Physicians.*—Drs. J. L. Hillmantel, April 10, to Nov. 30, 1893; D. M. Appel, Captain and Ass't. Surgeon, U. S. A., May 1, to May 17, 1893; W. C. Raughley, May 17, to Oct. 30, 1893.  
*Hospital Steward.*—William Kelly, April 7, to Dec. 20, 1893.  
*Druggists.*—Harry Kahn, April 16, to Sept. 1, 1893; F. C. Cady, Sept. 1, to Nov. 16, 1893.  
*Superintendent of Nurses.*—Mary R. Browne, March 16, to Nov. 30, 1893, (St. Luke's Training School, Chicago).

#### TRAINED NURSES.

Harriet Fulmer, Anne Northwood, March 15, to April 15, St. Luke's, Chicago.  
Karin Eckstrom, March 15, to November 15, Stockholm, Sweden.  
Helen Parr, April 16, to August 1, Louise Richey, August 1 to December 1, St. Luke's Chicago. (Surgical Nurses).  
Bessie Woolfings, May 1, to June 1, Guy's Hospital, London, Eng.  
Emma Dawson, May 1, to June 15, St. Luke's, Chicago.  
M. McDonald, E. McDonald, May 15, to June 15, Boston City Hospital.  
M. Clark, A. Smith, May 15, to June 15, Massachusetts General Hospital.  
Mary Forbes, June 1, to August 15, St. Luke's, Chicago.  
Muriel Moberly, different terms between June 15, to November 15, St. Luke's, Chicago.  
Helen Wiltzie, June 15, to July 15, St. Luke's, Chicago.  
Susan Read, Mary Townsend, June 15, to July 15, Johns Hopkins Hospital.  
Catherine DeWitt, Eliza Moore, June 15, to July 15, Illinois Training School.  
Clara E. Parsons, Marie A. Lawson, July 15, to August 15, Michael Reese Hospital.  
Anna Bartle, July 15, August 15, Toronto General Hospital.  
Alice Cooper, Lockhart Baillie, July 15, to August 15, Bellevue Hospital.  
Bessie Woffendin, August 15, to September 15, Toronto General Hospital Toronto, Canada.  
Alice Buckman, M. L. Van Thynne, August 15, to September 15, Philadelphia Hospital.  
I. C. Mathis, A. N. Bartholomew, August 15, to September 15, University of Pennsylvania Hospital.  
Ruth Williams, Helen Barnard, September 15, to October 15, Johns Hopkins Hospital.  
Martha Munn, Margaret Munn, September 15, to October 15, New York Hospital.  
Virginia Williams, August 15, to October 1, St. Luke's, Chicago.  
Mary Shears, July 15, to October 1, St. Luke's, Chicago.  
Agnes McCoy, July 15, to September 15, St. Luke's, Chicago.  
Gertrude Philipotte, September 15, to November 15, St. Luke's, Chicago.  
Pauline Hollenbeck, Florence Bell, October 1, to November 15, St. Luke's, Chicago.  
Elizabeth Pope, October 1, to November 1, St. Luke's, Chicago.  
Margaret M. Watson, Annie Louise Higgins, October 15, to November 6, St. Luke's, New York.  
Nettie West, October 15, to October 30, Michael Reese Hospital.

*Superintendent of Ambulance Service.*—H. W. Gentes, M.D., April 10, to November 30, 1893.

*Superintendent of Ambulance Corps.*—J. F. Minot, April 10, to November 12.  
*Ambulance Corps.*—C. L. Hammond, W. K. Hammond, H. A. Adams, John T. Hitecroft, C. Brooker, J. S. Brown, Edgar Thomas Lucas, M. E. Wheelan, J. H. Missey, A. M. Schahad, J. M. Smith, L. M. Dunavan, J. C. Egan, E. B. Hutchison, H. G. Graham, H. B. Bartholomew, W. B. Robinson, C. W. Culp, Fred Herr, J. L. Allen, T. H. Little, M. G. Bryan, Morgan Savidge, J. W. Walker, C. E. Downey, L. W. Dunavan, and others.  
*Ambulance Drivers.*—M. J. Sanborn, F. H. Crein, E. J. Pettinger, D. M. Good, J. H. McLernon, J. W. Tarbell, J. E. Price, and others.  
*Orderlies.*—Claus Williams, A. H. Kennedy, Chas. Webster, N. K. Derderian, J. E. Johnson.

*Chief Sanitary Officer.*—D. M. Appel, M.D., May 17, to July 26, 1893.  
*Sanitary Inspectors.*—J. H. Kellogg, Mary Glennon, Anna Byford Leonard.

*Recording Clerk.*—Alexander Goldstein, May 8 to first week of December.  
*Stenographer and Typewriter.*—Anna H. Newton.

*Messenger.*—Frank Frisbie.  
*Telephone operator.*—Robert Rozeine.

*Janitors.*—A. U. Brown, George Blakey, E. Fleming, and others.  
*Ward maids.*—Christine Webster, Anne Boettner, Rachel Ellingston.

#### DEDICATION DAY AND THE DAY FOLLOWING.

Drs. E. T. Edgerly, Jennie Hayner, Bertha Van Housen.

*Trained Nurses for the Hospital (Dedication Days).*—E. Farrow, M. Moberly, E. Dawson, E. Jackson, C. Fowler. *Ward maid.*—Rachel M. Vicker.

*Trained Nurses at the two Substations in Manufacturers Building.*—M. R. Browne, Louise Richey, M. Bryce, R. A. Ellerby.

*Orderlies at Hospital.*—H. T. Haas.  
*Orderlies at Substation.*—J. W. Walker, O. O. Witherbee.

*Ambulance Surgeon.*—Dr. G. F. Marquis.  
*Litter Bearers on Ambulance.*—J. A. Pohliug, C. Ehling.

#### ORGANIZATION.

The last week in May, 1891, the Committee on Grounds and Buildings established the Medical Bureau, and, after a conference with Mr. E. T. Jeffery, Chairman of said Committee, the position of chief medical officer of the Exposition Company was accepted. On May 29 the following general arrangement was agreed upon and approved:

That the title of the chief medical officer should be "Medical Director;" that the appointment be effective June 1, 1891; that the Medical Director shall have authority to appoint, subject to the approval of the Committee on Grounds and Buildings, such assistants as he may deem necessary for efficiency in organization and the prosecution of the work.

The duties of the Medical Director were thus formulated: To organize a medical bureau having jurisdiction over all cases of personal injury occurring in the line of duty; to assume the care of the resident population and visitors, and such other cases as the Exposition Company might be responsible for, or in its judgment should be cared for; to exercise a supervision over all sanitary and hygienic matters connected with the grounds and buildings, and over all matters pertaining to the health and physical well-being of the construction employees engaged in the conduct of the Exposition.

In the pursuance of some of the foregoing objects, it was decided to establish a temporary hospital upon the grounds and afterward, as circumstances might require, and after conference with the Committee on Grounds and Buildings and the Construction Department, to construct a building better suited to meet the exigencies of the Medical Bureau.

The Medical Director was instructed to report to and receive his instructions from the Committee on Grounds and Buildings, and to confer from time to time, as circumstances might suggest, with Mr. D. H. Burnham, the Chief of Construction, or his representatives, in order that coöperation might be secured in accomplishing the purposes in view.

It was agreed that the Medical Director should keep such reports and data regarding his bureau as would enable him to make monthly reports to the Committee on Grounds and Buildings, and a final report at the close of the Exposition.

Blank pay rolls, vouchers and other stationery required were furnished on the order of the Medical Director upon the Grounds and Buildings Committee.

A monthly pay roll for himself and assistants was made by the Medical Director, and the same trans-

mitted to the Committee on Grounds and Buildings; and, at the same time, duly certified bills and vouchers for expenses. The attending physicians treated all cases of illness and injury brought to the emergency hospital, and devoted more or less time to sanitary inspection during the construction period. The grounds were districted in order to facilitate this work.

The large resident population, together with the great number of workmen about the grounds at all times, necessitated the appointment of resident physicians who lived in the emergency hospital. As these gentlemen were required to reside in the hospital they could not, therefore, engage in private practice. The duties pertaining to the office of resident physician consisted for a time in the inspection of grounds and buildings; care of the resident population; they were responsible for the efficiency of the hospital service; for the conduct of the hospital in general during the absence of the Medical Director; they furnished a report of deaths, weekly and daily reports of the work performed and, as occasion required, they aided the attending physicians in the performance of their work.

It gives me pleasure to testify to the ability with which both attending and resident physicians performed their onerous duties; to their loyalty to the service; to the promptitude with which they filled their daily appointments and to the courtesy and helpfulness extended to the sick and injured. All of this largely contributed to the success of this department of the Exposition.

On July 15, 1892, the Medical Bureau was placed under the auspices of Mr. D. H. Burnham, Chief of Construction.

#### BUILDINGS.

For the beginning of the dispensary work, temporary quarters were at once secured in a corner of a room then used by the Construction Department. Soon after, a one-story building was erected, consisting of a waiting room, a sleeping room, an operating room and a store room. This was speedily equipped and occupied July 20, 1891. The hospital was soon after erected, and formed a part of the Service Buildings at Sixty-second Street. Sept. 3, 1892, we moved into this building, but it was at that time mostly occupied by a portion of the clerical force of the Construction Department. Work began here in four rooms. Oct. 19, 1892, the south wards were made available—one for men and the other for women. Feb. 1, 1893, the operating room was secured. April 24 to 28, 1893, the north wards were evacuated by the clerical forces, and still later, the room occupied by the telegraph operators.

The emergency hospital contained on the first floor the following: Two wards of ten beds each for men; one ward of ten and another of three beds for women; Medical Director's office; resident physicians' office; attending physicians' office; office of the Superintendent of Nurses; a diet kitchen; drug room; linen and clothes closet; two examining and operating rooms and closets; reception room and two waiting rooms—one for men and one for women. In addition to the beds above noted, ten rattan lounges were distributed about the wards and corridors. On the second floor were the dormitories for nurses, resident physicians and druggist. No meals were served in the hospital for either patients or staff, but in the diet kitchen the nurses prepared soups, teas and refresh-

ing and stimulating delicacies. It was a rare exception to keep a patient over night.

In cases where transportation of patients to the hospital is rendered difficult or impossible in consequence of dense crowds, temporary substations or portable hospitals should be established. From five to ten beds in each, according to circumstances, would be sufficient in most cases. They answer admirably, provided precautions be taken to prevent the demand from over-reaching the capacity. On such occasions even the passage of carriages through the street on their way to the hospital for the purpose of conveying patients to their homes, railway stations, or hotels, was extremely difficult and time-consuming.

On Chicago Day when there were 716,881 paid admissions, the Exposition being open both day and night, the necessity for these extra provisions was very great.

#### TRAINED NURSES.

The desirability of employing only trained nurses for the emergency hospital was apparent from the outset, but the expenses pertaining thereto would have been considerable at the ruling rates in this city. The scheme finally adopted was as follows: To offer an opportunity to the leading training schools in the country for the representation of their schools by the sending of two trained nurses to serve thirty days at \$25 a month, with allowances, such as board, lodging and laundry service. This offer was readily accepted. The nursing force was placed in the charge of Miss M. R. Browne, a graduate of St. Luke's Training School for Nurses, Chicago. Her title was "Superintendent of Nurses." Her appointment was made effective March 15, 1893. Exclusive of the superintendent, at first there were ten nurses, one of whom was called "the surgical nurse." The latter had charge of the operating room and the preparation of instruments for operations, and when on duty, was always in service at the operating table. Each nurse was on duty eight hours and off sixteen hours. In this way they were able, while giving their schools representation in the work, to study the Exposition and at the same time render us that skilled service which is now so much in demand in our own and other countries. They remained in service from 8 A.M. until 11 o'clock at night. After that hour a sufficient force was always available at the hospital at a moment's notice, however great the demand. The following institutions were represented: Bellevue Hospital, New York Hospital, St. Luke's Hospital, New York; Philadelphia Hospital, Hospital of the University of Pennsylvania, Johns Hopkins Hospital; St. Luke's Hospital, Chicago; Michael Reese Hospital, Illinois Training School, Massachusetts General Hospital, Boston City Hospital; Guy's Hospital, London, England; one in Stockholm, Sweden, and Toronto General, Canada. We had a greater number from St. Luke's Training School, Chicago, than from any other, and made a point of keeping a nucleus of nurses from that institution, familiarized with the work. After the first month, in addition to the Superintendent of Nurses, we never exceeded twelve on duty at one time, except during three or four weeks subsequent to the Cold Storage disaster, when fourteen nurses were required. By common consent four nurses were known as "the pioneer nurses," namely Miss M. R. Browne, Superintendent, and the Misses Fulmer, Eckstrom and Northwood. These, under the guid-

ance of their able superintendent, in a building at that time a notable thoroughfare and well filled with officers and clerks whom we often despaired of dislodging, in the midst of the legitimate professional work then going on, including the examination of many hundreds of guards, without exaggeration, absolutely quarried their way through many obstacles and eventually there appeared a hospital that we believe was pleasing to all.

As attachés of the nursing force there were four orderlies and two ward maids. Their duties consisted of stretcher work, lifting patients, assisting in the examining room, cleaning, etc. In addition to these, four colored janitors took care of the building and kept the drug room in order. Two telephones—one for "long distance" and one for "short distance"—were early found necessary.

When fully equipped, the personnel of the emergency hospital consisted of the following: Two resident and four attendant physicians, a superintendent of nurses, with a corps of twelve trained nurses, four orderlies, a druggist, a recording clerk, a messenger boy, a telephone operator, four janitors and a hospital steward, who had care of the property, records, reports, and who transacted the general business pertaining to the Medical Bureau. For a time daily, and on all special occasions, when the crowds were the greatest and the demands upon the hospital were proportionately increased, Columbian guards were detailed for service at the entrance of the hospital.

All were uniformed—the physicians in navy blue, the orderlies and litter bearers in gray and the nurses in the uniforms of their respective schools, except the superintendent of nurses who wore white.

A general kitchen was not included in the plan, and therefore no meals were served in the hospital. The nurses ate at the officers' mess at hours specially fixed. The diet kitchen was used solely for the preparation of special diet for the sick and injured. It was a rule of the department that patients should not be kept over night. Exceptions were made only when absolutely necessary.

#### AMBULANCE SERVICE.

During the pre-Exposition period the sick and injured were transported in patrol wagons. At the dedicatory and opening exercises, as well as on other occasions where the people were densely massed, invalid chairs, marked with a conspicuous red cross on white background, in charge of trained men, were stationed on the outskirts of the crowd. Sometimes, the location of the chairs was indicated by means of a very large red cross on a sheet on the sides of the building and above the level of the crowd. The work of the ambulance corps proper began on May 1, with the opening of the Exposition. At first, four ambulances were put into service, but the exigencies did not seem to require the fourth one and its use was discontinued. In less than fifteen seconds after a call had been received a wagon was ready for the start. The ambulance corps numbered twenty-five men (litter bearers), exclusive of their sergeant, J. F. Minot, and nine drivers. The latter were not allowed to leave the box. Dr. H. W. Gentles, the superintendent of the ambulance service, received his instructions from the Medical Director. Dr. Gentles thoroughly drilled the ambulance corps in "first aid," and performed his duties in a very able

manner. He had had, previous to his appointment, much experience in this kind of work. The greater proportion of the litter bearers were young medical men who had had more or less experience as hospital internes; some had seen service in the Army Hospital Corps; others were medical students, and all were well fitted for this special branch of the service.

Quick transportation through large crowds was a matter of extreme difficulty. This was avoided occasionally by the use of the Ashford Wheeled Litter, loaned by the St. John's Ambulance Association. This litter and the invalid chairs above mentioned were of great service in moving patients either through large buildings or through dense crowds to points where the ambulances could continue the transportation to the emergency hospital. The principal days on which these precautions were found necessary were the Opening Day, Infanta's Day, the Fourth of July, Rajah's Day, Illinois Day and Chicago Day. The system of communication between the sick and the ambulance was as follows: A friend of the sick person called the nearest guard, who telephoned by means of the nearest patrol box his desire for an ambulance and, if possible, the nature of the case. The call on being received by the central office was transferred to the nearest ambulance station, and the ambulance wagon immediately took the shortest and most unfrequented road to the box. It was the duty of the guard to remain at the box until the ambulance wagon arrived in order to direct the bearer to the case, which was then, after the immediate indications were fulfilled, removed to the hospital. On days when there were especially large crowds, men were stationed at certain boxes marked by large red cross flags. In this way, any person who had a sick friend had no difficulty in knowing where assistance was to be received. After patients had been treated at the hospital the ambulances were frequently called into requisition, either to transfer a patient to his home, to his hotel, or, again being placed in a rattan basket stretcher, he was sent by rail to the point nearest his home or hospital, and there the city police ambulance or patrol wagon completed the transportation. The men remained on duty eight hours, there being three reliefs in the twenty-four hours. The ambulances were in service from 8 in the morning till 11 o'clock at night, and longer when necessary. One wagon, that was nearest the hospital, remained on duty twenty-four hours, so that a constant ambulance service prevailed. Two drivers were assigned to each wagon, with the exception of the hospital ambulance, which had three—two during the day and one at night. Each of two wagons had an assignment of one pair of horses. The hospital ambulance had two pairs, and in the event of any sickness among the horses, substitutes were easily obtained. The ambulance corps had several calamitous accidents to take charge of—three in particular. The fatal Cold Storage fire occurred July 10. On this occasion twenty-two cases were brought to the hospital in a very short space of time. The men also, in addition to their ordinary duty, remained at the scene of the fire and took care of any trivial accidents incident to the occasion, and also supplied coffee, sandwiches, etc., to the workers. On June 28 a floor gave way in one of the temporary buildings and injured a considerable number of people. Thirty of these were taken care of by the ambulance corps. On the occasion of the accident

on the ice railway the sufferers were removed quickly and with dispatch to the hospital. On July 4, 70 calls were answered; in May, 315; in June, 406; in July, 581; in August, 564; in September, 605; on Chicago Day (October 9), 172. One ambulance was stationed at the hospital building; another contiguous to Terminal Station, Machinery Hall, and the Grand Plaza, and a third at the east end of Midway Plaisance, convenient to the north end of the grounds. While there were a number of narrow escapes, no visitor or employee was actually struck by either horse or ambulance. The latter carried, in addition to splints and litter, a bag with all necessaries likely to be called for in an emergency case. Moreover 150 light stretchers, with a single blanket for each, were enclosed in white canvas bags marked, "Stretcher" and placed in conspicuous places in the chief buildings, to be used in the event of a great accident. These were easily obtained.

#### RULES FOR AMBULANCE SERVICE.

1. All calls are to be taken on the telephone by No. 1, who shall repeat the message over again to the operator.
  2. No. 1 shall in all cases inform the driver whether there is any special reason for haste.
  3. On receipt of a call, the wagon is to leave the station in the shortest possible time. All unnecessary bustle and noise is to be avoided.
  4. The driver shall always take the most unfrequented and shortest route to and from an accident. No driver shall use the gong when not necessary, but if path is crowded he is to keep going so that everybody has sufficient time to get out of the road. The gong must always be rung before turning a corner. All guards or guides shall do everything in their power to facilitate the progress of the wagon whether they be on duty or off.
  5. The man on the wagon must always report the name and number of any guard who does not assist in clearing the way for the wagon; also any person, carriage or chair so placed, driven or wheeled as to obstruct the passage for the wagon.
  6. All reports are to be handed in (in writing) as soon as possible to the Superintendent of Ambulance, so that he may investigate the report and forward the result to the Medical Director for instructions.
  7. If, on arriving at the place from which the call has been sent, there is nobody at the box to direct the ambulance men this fact must be reported at once to the Superintendent.
  8. All members of the corps *must* show the utmost consideration to sick and injured persons and their friends, especially ladies. They shall always try to accommodate one of the patient's friends inside the wagon; otherwise nobody is to be allowed to be inside or on the steps of the wagon.
  9. Men off duty are *never* to ride on the wagon.
  10. The ambulance of the Bureau, while engaged in going for or in carrying sick or wounded persons to or from the hospital or substation, shall have the right of way, excepting fire apparatus responding to alarms of fire, against any person, carriage or incumbrance, put, driven or being in streets, and no person shall obstruct said ambulance while so engaged if there shall be an opportunity to get of the way.
- By the courtesy of the Chief of Police of the city of Chicago, Major McLaughry, this rule holds good

outside the grounds, and city police officers have instructions to give ambulances of the Bureau the right of way in the streets of the city of Chicago.

Approved.

JNO. E. OWENS, Medical Director.

D. H. BURNHAM, Director of Works.

#### WATER.

The statistics of the Department of Health of the City of Chicago showed, to February, 1892, a very serious death rate from typhoid fever, the number of deaths from this cause for the year ending Feb. 29, 1892, being nearly two thousand. After this date the water supply of the city was much improved by the extension of tunnels. The general supply of water for the city, contiguous to the Exposition grounds, was obtained from the lake through the pumps at Hyde Park Station at 68th Street. The supply to the grounds was independent of that to the city, and furnished by means of pumps erected at Hyde Park Station by the Exposition Company, and to be taken by the city, after the close of the Exposition. The amount of water which could be pumped was 24,000,000 gallons daily, but the domestic consumption on the grounds averaged about eight million gallons per day. The extension of the tunnel into the lake had not been completed, and pure water for the workmen became a desideratum. As soon as practicable, arrangements designed and constructed by Mr. W. S. MacHarg, Engineer of Water Supply, Sewerage and Fire Protection, were completed for the supply of sterilized water for the use of constructionists and others. The method of preparing the drinking water was as follows: Adjacent to the boiler room at the temporary power house four tanks were set, the number being afterwards increased to seven, graded and elevated so that there was a difference of level between each successively. Each tank was seven feet in diameter and nine feet high and made of cypress. The upper tank was used for cooling, and a coil of inch pipe was placed in it, delivering at the top on a pan from which the water flowed in a thin sheet into the next tank below and overflowed through a pan in the same manner to the successive tank. The water was thus aerated and cooled at the same time. A feed water heater was set in the boiler room, and the water delivered under pressure through this heater into the coil, the steam in the heater being at ninety pounds pressure, and the water supply throttled so that a temperature greater than 212 degrees Fah. was obtained. From the lowest tank the water was drawn off at a point about two feet above the bottom into tank carts for delivery on the ground. At this time there were forty-one barrels or casks in service, with an additional thirty-five for use whenever required by any increase in the force. Each of the barrels was emptied and refilled daily, without regard to the amount of water it may have contained on the arrival of the water cart. Every Sunday the tanks were emptied and washed out thoroughly with a hose. In tank No. 1, where the boiling was done, there was a great deal of mud precipitated during the boiling of the water. There was no mud in remaining tanks. At this date (May 20, 1892), with forty-one barrels, one water cart, and with two men, the service was efficient.

Although we had been boiling the water for the use of the men on the grounds, and so far as in our power



had made it convenient for them to use it, it was with more or less difficulty that the employees were prevented from using hydrant or surface water. We did not at this time consider the untreated lake water safe, and notices were distributed prohibiting the use of water from hydrants and lagoons.

In April, 1893, before the opening of the Fair, the number of barrels in use amounted to about three hundred. It was not intended to carry the use of this sterilized water into the period of the Fair, the filtered water and the Waukesha water (spring water) being intended to serve the general public, but as the number of visitors increased in July and August it was found necessary to revert to the system in order to furnish an adequate supply. Later, the number of barrels was greatly reduced. Consequently, the sterilizing plant, which had been torn down upon the removal of the temporary power plant immediately before May 1, was re-erected in connection with the boiler plant in Machinery Hall, and this service reinstated. City water was used in the barrels previous to the re-erection of the sterilizing plant. August 3, sterilized water was again furnished, and its use continued to the end of the Fair. On certain other occasions, owing to changes in the temporary power plant, it was necessary for several days at a time to discontinue the use of sterilized water, and the barrels were filled directly from the city main. An excess of gastro-intestinal disorders was observed by this Bureau, and the Department of Water Supply, Sewerage and Fire Protection was at once notified. The sterilization of the water was of great importance, and the bacteriologic reports furnished by Mr. Allen Hazen, chemist, proved that it compared most favorably with any water in use during the Exposition.

The Waukesha Hygeia Mineral Spring Company obtained a concession for the exclusive privilege of piping water a distance of one hundred and one and a half miles and delivering it from the Springs in Southern Wisconsin, on the grounds of the Exposition, and there retailing the same from numerous booths at a cent a glass, and also furnishing it to customers at a price not to exceed five cents a gallon. This water was passed through a cooling plant sufficient to reduce its temperature. The machinery had a capacity for reducing 60,000 gallons of water from the ordinary temperature to 40 degrees Fah. in sixteen hours. There were at one time during the summer 167 drinking booths in and outside of the buildings, and 372 private taps for wholesale delivery.

In addition to the sterilized water above referred to, free filtered drinking water was furnished at available points by means of a hundred Pasteur filters, the capacity of each being about two hundred gallons. Four faucets and four cups were furnished each filter. No attempt was made to cool this water, but its quantity and quality, as shown by the bacteriologic examinations by Mr. Hazen, were very satisfactory.

Every endeavor was made to force concessionists, State officials and restaurant people on the grounds to filter all water used for drinking. This was in a measure successful. Filters of many kinds were used by these parties, some of them probably without much benefit. This order did not apply to the Waukesha Mineral Spring Company's supply, piped from Waukesha, Wis.

So much for the efforts of the Exposition Company to furnish innocuous water to its visitors. The

report of Mr. MacHarg, the Engineer of Water Supply, etc., will furnish additional details.

#### SEWERAGE.

The sewerage system of the city of Chicago did not extend into Jackson Park. For the care of the excreta during the construction of buildings, wooden privies with concrete floors were provided, each privy containing thirteen seats, with stalls and galvanized iron pails for solids, and troughs and sumps for fluids, and with a separate urinal trough just above the pails, and also a general urinal trough of galvanized iron along the wall facing the stalls.

An attendant threw into the pails from time to time, as became necessary, dry earth pulverized at the temporary power plant, for the absorption of dampness and the prevention of odor. A solution of copperas was from time to time freely applied to the troughs which led to the sumps, and to all the parts of the privy exposed to contamination.

A tank cart made the rounds at night, and the catch basins were pumped out and washed with copperas and the urinals carted to the nearest city sewer and dumped. The solids were conveyed to the southern portion of the grounds and dug into black earth. This proved most satisfactory except on one or two occasions of very wet weather in the spring of 1892.

Avoiding any system of contract scavenging, the Department of Water Supply, Sewerage and Fire Protection detailed its own men for the care of the privies and the disposal of the excreta. In this way the results of the system proved most satisfactory. This system was continued until the completion of the general system of sewerage and plumbing, which was shortly before the opening of the Exposition. The system last referred to, namely, for the use of the Exposition, was as follows:

All roof water was discharged directly into the lagoons or Lake Michigan, as was most convenient, through pipe sewers ordinarily, brick sewers being required in one or two cases only.

All surface water from walks, whether resulting from rain or from washing, was discharged through a system of vitrified sewer pipes to wells conveniently and economically located, and thence pumped directly to Lake Michigan. This water, while not seriously contaminated, was thought to contain sufficient organic matter to make its discharge into the lagoons undesirable. The sewage proper; that is, the discharge from water closets, lavatories, café kitchens, etc., was pumped by means of fifty-two Shone ejectors through cast-iron force mains and discharged into tanks at the cleansing works, which were located in the southeastern portion of the grounds. Here sewage was treated with chemicals. Most of the suspended matter and a large part of the organic matter in solution were precipitated, and a clear effluent water, from which all highly putrescible matter had been removed, was discharged into the lake. The precipitant commonly called "sludge" was forced into filter presses and pressed into the form of cakes, which were afterwards burned at the crematory in the extreme southeastern portion of the grounds. These cakes came out very hard, having been deprived of about 50 per cent. of the water by pressure.

Garbage and ashes were handled in the following manner: The former was placed in galvanized cans placed outside of the buildings at 11 o'clock each

## WORLD'S COLUMBIAN EXPOSITION MEDICAL BUREAU. SUMMARY OF WORK DONE AT EMERGENCY HOSPITAL DURING THE CONSTRUCTION AND EXPOSITION PERIODS.—CONSTRUCTION 1893.

Exposition Period

	Construc. Period.	May.	June.	July.	Aug.	Sept.	Oct.	Total.
New medical. . . . .	2,555	988	1,137	1,447	1,631	1,641	1,802	11,201
New surgical. . . . .	3,364	489	498	513	443	459	554	6,320
Re-treated medical. . . . .	2,738	474	533	354	406	301	333	5,139
Re-treated surgical. . . . .	3,196	670	798	978	689	586	575	7,492
	11,853	2,621	2,966	3,292	3,169	2,987	3,264	30,152
Employees, male. . . . .		2,439	2,328	2,356	2,023	1,564	1,642	12,352
Employees, female. . . . .		40	110	235	215	225	184	1,011
Visitors, male. . . . .		70	249	990	523	687	752	2,641
Visitors, female. . . . .		72	279	340	408	510	686	2,295
		2,621	2,966	3,292	3,169	2,987	3,264	18,299
Total of male patients. . . . .		2,509	2,577	2,716	2,545	2,251	2,394	14,992
Total of female patients. . . . .		112	389	576	624	736	870	3,307
		2,621	2,966	3,292	3,169	2,987	3,264	18,299
Maximum daily No. of patients. . . . .		123—29th	147—17th	170—4th	149—24th	151—14th	253—9th	
Minimum daily No. of patients. . . . .		35—21st	48—4th	27—23rd	33—27th	31—2nd	38—1st	
Daily average. . . . .		84.54	98.86	106.19	102.22	99.56	108.60	
Deaths. . . . .	32	4	7	15	3	3	4	68
Births. . . . .	1 full	2 prem.	2 prem.	1 full	1 full			7
In-patients, male. . . . .	104	106	188	207	223		245	1,073
In-patients, female. . . . .	35	237	461	489	602		764	2,588
Ambulance calls. . . . .	315	406	581	564	605		790	3,261
Examination of guards. . . . .	5,370	1,072	293	73	288		344	7,757
Highest mean temperature. . . . .		72°—20th	80°—21st	83°—12th	82°—10th	82°—14th	70°—11th	
Lowest mean temperature. . . . .		40°—6th	53°—11th	64°—3d	58°—29th	46°—25th	33°—29th	
Total attendance. . . . .		1,531,984	3,577,831	3,977,502	4,687,708	5,808,942	7,945,430	27,529,400

night, and taken up by the Transportation Department, Mr. W. H. Holcomb, General Manager, and deposited at the crematory.

The ashes and garbage were kept separate. Ashes were utilized for "filling" on the grounds. The quantity was not great, as almost all of the cooking was done by gas.

Inasmuch as a constant fire existed at the crematory, the garbage was disposed of as soon as received. It created no nuisance whatever, and the raw material was very quickly reduced. The crematory was operated by oil as a fuel, and its practicability and efficiency were fully demonstrated.

Creolin-Pearson, in strength of one ounce to a gallon of water, was liberally used to disinfect stables, water closets, urinals, different portions of the grounds and buildings, and proved to be very efficient. Tin hand sprinklers were found convenient for its distribution.

After the opening of the Fair it was found necessary to erect a few free urinals. These were composed essentially of small wooden buildings with concrete floors and with four slate stalls emptying through a trap directly into the sewer. They operated satisfactorily.

The whole system of sewerage was constructed and operated by Mr. W. S. MacHarg, Engineer of Water Supply, Sewerage and Fire Protection.

## SANITARY INSPECTION.

Previous to the opening of the Exposition, the inspection of grounds and buildings was very satisfactorily performed by the attending physicians. The grounds were divided into sanitary districts in order the better to systematize the work. The physicians furnished weekly reports of the condition of their districts, covering privies and closets, water supply and drainage, the condition of grounds, buildings and of population.

Finally, the hospital work increased to such a degree as to necessitate special appointments for the performance of this function.

Inspection of grounds and buildings went on daily, and each Inspector furnished a report to the Medical Director every evening, covering the buildings and localities visited, sanitary condition of the same, with remarks and recommendations. From the reports of the Sanitary Inspectors the Medical Director furnished each day to the Director of Works a condensed report.

## EXPENSES.

	Cr.	Dr.
Expense of Bureau to Dec. 31, 1893. . . . .		\$44,277.17
Expense of Bureau from Jan. 1 to March 31, 1894. . . . .		638.79
Credits: Sale of bedding, furniture, instruments, pharmaceutical implements, ambulance. . . . .	\$2,788.86	
For "first aid" to injured. . . . .	2,116.08	
	\$4,904.44	\$44,915.96
		4,904.94
Net expenditure. . . . .		\$40,011.02

## DEDICATION.

For the exigencies of the dedicatory services on the grounds Friday, Oct. 21, 1892, and of the dedication of certain State Buildings October 22, the following organization was effected:

1. The employment of four nurses and one head nurse, an extra male orderly and a female orderly for the emergency hospital.

2. The establishment of a substation (No. 1) in the north end of the Manufactures Building (west side), divided into three rooms, one bed and a rattan lounge in each of two of these, the reception room being in the center, in charge of Dr. W. H. Allport and Dr. Bertha Van Housen, with two trained nurses and one male orderly. Another substation (No. 2), like No. 1, in charge of Dr. E. T. Edgerly and Dr. Jennie Hayner, was located in the south end of the building, east side. These were otherwise equipped for meeting such emergencies as arose. They were numbered 1 and 2, and also distinguished by the flag of the Medical Bureau. A patrol wagon inside of the Manufactures Building was at the disposal of the medical officers in charge upon application to the guard in attendance, and one of our ambulances was stationed at a convenient point.

3. Four janitors were detailed to take charge of as

many wheeled chairs, designated by a red cross on white background, stationed where they would be most promptly available. Instructions were given to bring the patient to the substations by the shortest available routes. As rarely as possible the ambulance and patrol wagon were called into service for conveying patients from the substations to the hospital. Temporary provision was made for the ambulance service. Dr. G. Paul Marquis, one of the attending physicians, was detailed to accompany the ambulance and to direct and to have charge of the ambulance corps.

4. The southeast and southwest wards in the hospital were equipped, and the Medical Director's office, located between these two rooms, was furnished for the occasion.

5. Telephones were placed in the substations.

6. Certain guards were instructed to coöperate with the medical staff to preserve order, to keep clear space for the cases of accident and illness, to allow free ingress and egress of the medical officers wearing the badge of the Medical Bureau, the ambulance, the nurses in uniform and to facilitate the transfer of patients on wheel chairs or on foot to the substations.

7. Orders were issued to secure as direct a route for the ambulance from the substations to the emergency hospital as the circumstances of the occasion would permit.

8. At the expiration of the service it was the duty of the medical officers in charge of the substations to see that the whole medical outfit was immediately removed to the emergency hospital by one of the patrol wagons or the ambulance.

TABLE OF DISEASES AND INJURIES TREATED BY THE MEDICAL BUREAU, WORLD'S COLUMBIAN EXPOSITION, CHICAGO, ILL.

	Con- struction period.	Ex- position period.	Post ex- position period.	Total (not including post ex- position period.)
Continued and eruptive fevers. . . . .	569	929		1498
Malarial fevers. . . . .	136	291		427
Erysipelas. . . . .	4	2		6
Syphilis. . . . .	4	5		9
Rheumatism and gout. . . . .	30	249		279
Diseases of the nervous system. . . . .	183	1740		1923
Diseases and injuries of the eye. . . . .	198	469		667
Diseases and injuries of the ear. . . . .	7	36		43
Diseases and injuries of the nose. . . . .	39	44		83
Diseases of the circulatory system. . . . .	18	50		68
Diseases of the respiratory system. . . . .	280	367		647
Diseases of the digestive system. . . . .	999	4452		5451
Diseases of the lymphatic system. . . . .	15	7		22
Diseases of the urinary system. . . . .	18	65		83
Diseases of the generative system. . . . .	21	154		175
Diseases of the female breasts. . . . .	1	6		7
Diseases and injuries of bone and periost. . . . .	1	8		9
Diseases and injuries of joints. . . . .	10	8		18
Diseases and injuries of tendons and bursæ. . . . .	13	11		24
Diseases and injuries of connective tissnes. . . . .	23	17		40
Diseases and injuries of the skin. . . . .	299	636		935
Toxic diseases. . . . .	12	47		59
Edema local. . . . .	3	3		6
Abscess (not classified). . . . .	21	34		55
Burns. . . . .	67	126		193
Scalds. . . . .	16	18		34
Sunstroke. . . . .	4	4		8
Exhaustion. . . . .	57			57
Wounds, (incised, contused, lacerated and punctured). . . . .	2373	1568		3941
Sprains. . . . .	230	133		363
Dislocations. . . . .	34	18		52
Fractures of the skull. . . . .	11	6		17
Fractures of bones (other than skull). . . . .	200	86		286
Concussion of brain and spinal cord. . . . .	9	9		18
Ampntations. . . . .	9	8		17
Totals. . . . .	5,919	11,602		17,521
Re-treated. . . . .	5,934	6,697		12,631
Totals. . . . .	11,853	18,299		30,152
Deaths. . . . .	32	86		118
Births. . . . .	1	6		7

\* (4 premature.)

The following notice to visitors was distributed over the grounds and buildings:

WORLD'S COLUMBIAN EXPOSITION—MEDICAL BUREAU.

NOTICE TO VISITORS.

The following stations have been established within the grounds of the World's Columbian Exposition for the gratuitous treatment of those taken sick or injured during the dedication services of Oct. 21 and 22, 1892.

*Emergency Hospital.*—At the southeast corner of the Service Building, near the Sixty-second Street gate.

*Substation 1.*—At the northwest corner of the Manufactures and Liberal Arts Building, facing west toward the Wooded Island.

*Substation 2.*—At the southeast end of the same building, east of the Music Stand and facing the Lake.

These stations will be open continuously on October 21 and 22, and will display the Geneva cross. All employees of the Medical Bureau will display the same emblem.

Invalid chairs belonging to this Bureau and bearing the Geneva cross will be found in the side aisles of the Manufactures and Liberal Arts Building. An attendant will be in charge of each chair and will convey patients to substations 1 and 2.

A chair will also be stationed at the landing stairs on the west bank of the lagoon, east of the Transportation Building.

The Columbian Guards will furnish information as to the location of the stations of the Medical Bureau.

(Signed.) JOHN E. OWENS, Medical Director.

KINETIC THERAPEUTICS IN GYNECOLOGY  
OR THURE BRANDT'S SYSTEM.

BY SOFIE A. NORDHOFF, M.D.

WASHINGTON, D. C.

LATE VOLONTAERARTZ OF THE ROYAL UNIVERSITY HOSPITAL FOR WOMEN, MUNICH (BAVARIA); LATE ASSISTANT OF THE OUT-DOOR DEPARTMENT OF THE HÔPITAL BAUDELLOCQUE, PARIS.

During my recent trip to Europe, I became greatly interested in a method of treatment in gynecology which, it has been demonstrated to me, is peculiarly adapted to a certain class of cases not so readily amenable to treatment by other means. This method is known to most practitioners under the name of Brandt's method or pelvic massage, a term which is not employed by the disciples of Brandt. The Germans call it Thure Brandt's system in gynecology, mechano-therapie—or Mannelle Behandlung—while the French school prefers the name, *kinésithérapie gynécologique* or kinetic therapeutics. It has the warmest advocates among great gynecologists such as Schauta, of Vienna; Schultze, of Jena; Freund, of Strassburg; Profanter, Prochownik, Ziegenspeck, and many other eminent specialists.

It might be interesting to consider for a moment the life of this layman, Thure Brandt, who for so long a time was bitterly opposed by the medical profession, but before whom the faculty now bows in grateful recognition of his valuable services to medicine. Thure Brandt received an education as a gymnast at the Royal Gymnastic Institute of Stockholm, where he was graduated in 1842. He remained several years in this Institute in the capacity of assistant teacher of gymnastics, and became proficient in treating various diseases by Swedish movements. In 1847, that is, five years after graduation, while a sergeant in the army, a soldier was brought to him with a complete prolapse of the rectum. There being no physician in the place, Brandt, in his endeavor to relieve the patient, employed quite an original plan of treatment and meeting with success, this became the nucleus of the present method of kinetic therapeutics.

He placed the soldier in the lithotomy position, with the pelvis somewhat raised, and by vibratory

movements and gentle upward traction upon the sigmoid flexure he succeeded in returning the bowel into the normal position. Having met with such marked success in this case, his attention was directed to a number of women whom he had previously treated at the Institute by Swedish movements, and he reasoned that prolapsed uteri or displaced organs might be restored to their normal position by this same method. He now made a careful study of anatomy and particularly of the female pelvic viscera, but it was not until the year 1861, that is fourteen years later, that a woman with a prolapsed uterus consulted him. The diagnosis of this case was not difficult. For twenty-seven years she had suffered from prolapsus and for the last three years had been obliged to carry her uterus in a bag, outside of the vagina. Fourteen days of daily treatment restored the uterus to its normal position and, what is more, it stayed there until she died, that is for twenty-three years.

The news of this almost miraculous cure spread rapidly and soon Brandt had over one hundred patients daily, most of them cases that had been given up as incurable by gynecologists. He worked daily, from morning till night and became an expert diagnostician. He loosened displaced and adherent uteri; pelvic exudates disappeared under his hands; ovaries that had been imbedded in pelvic masses were freed; enlarged tubes were reduced to their normal size. To this pelvic massage he joined the Swedish movements originated by Professor Ling and having, as he thought, well systematized his treatment, he published a brochure in 1864. Most of the Scandinavian physicians considered Brandt as a quack, and either refused to read a pamphlet on a new treatment in gynecology by a layman, or after reading it had no faith in the wonderful cures reported.

Following the advice of friends Brandt published, four years later, another brochure and this time in French. The translation was very imperfect; the medical terms chosen were those of the sixteenth century; a number of certificates of complete cure, given by the patients themselves, were added; all this would have been sufficient to condemn his work, but *an comble du ridicule*, he put his military honors on the title page. A Major of the Swedish Army, Chevalier of the *Ordre de l'Épée*, captain in the infantry regiment of Skaraborg, inventor of a new treatment in gynecology! Not recognized in his own country, and ridiculed in others he ceased his publications but continued in his practice and in the elaboration of his method.

In 1872 Dr. Sköldberg, of Stockholm, who was very much impressed with some remarkable cures he had witnessed, urged Brandt to settle in Stockholm and promised to assist in giving his method the sanction and publicity which it so well deserved. Sköldberg was professor of gynecology, and after having delivered to the students a lecture on Brandt's system, and having made preparations for practical demonstration, he died suddenly and left Brandt more alone than ever.

After every means of becoming reconciled with the scientific circles had failed, Brandt withdrew from publicity, determined henceforth to do all the good he could in relieving women of their suffering, and resigned that his method should die with him. His work remained obscure until 1885—he had now

reached the age of 67, when by a sudden turn of good luck his method became recognized. The way it happened was thus:

A rich Swedish merchant whose wife and daughter had been cured by Brandt of serious uterine disease, was anxious to have the treatment known outside of its limited circle. While stopping in Vienna he tried to interest in it a young and promising physician, Dr. Profanter, and induced him to visit Stockholm in order to see Brandt and study his method. At first a skeptic, he soon was converted into an enthusiastic believer and published several articles in favor of Brandt's method. The result was, that Germany's curiosity became aroused. The following year 1886, Brandt received an invitation (to come) to Jena in order to demonstrate his method in Schultze's clinic on sixteen well selected cases. A number of German gynecologists were present and all were much impressed by the skillful manner in which Brandt arrived at his diagnoses, which were perfectly correct although he examined without the help of an anesthetic, which can not be said of the specialists. The cases were then submitted to his treatment and a strict record kept. Schultze made some drawings of the worst cases in order to facilitate comparison; one of the assistants who did not look favorably upon this novelty persecuted the patients, thermometer in hand, thinking that sooner or later he would find a rise in temperature especially in the subacute exudates. These sixteen cases were published by Schultze in February, 1887, and he remarks that this new treatment is most valuable in affections of the female pelvis, and that he firmly believes that it is most efficacious in loosening old, chronic parametric adhesions and returning the uterus into its normal position.

Shortly after the publication of this article, seventy physicians not only from all parts of Germany, but also from Austria, Switzerland, Italy and England went up to Stockholm to become pupils of Thure Brandt, and soon after the gynecologic literature was overflowing with articles on this new treatment.

Most writers after eulogizing the remarkable results witnessed, make the assertion that practical demonstration alone can teach a method so full of complicated manipulations—that it can not be learned from books, no matter how elaborate the explanations be; and then immediately they proceed to give a more or less condensed description of the technique. I will not be guilty of the same inconsistency, and refer those who are interested in this treatment to Thure Brandt's book, "*Behandlung Weiblicher Geschlecht Krankheiten*," a work carefully supervised by Professor Schauta, of Vienna, or to Ziegenspeck's brochure, "*Über Thure Brandt's Verfahren der Behandlung von Frauenleiden*," published in the *Sammlung Klinischer Vorträge*, No. 353-354, Leipzig, 1890, or to a small work in French by my friend and instructor, M. Stapfer, late Chief of the Gynecological and Obstetrical Clinic of the Faculty of Paris, who was commissioned by the Minister of Public Instruction to study this new treatment under Thure Brandt and whose work is the report of this mission, read on his return from Sweden before the Académie de Médecine, session July 26, 1892.

Mr. Stapfer is one of Thure Brandt's greatest admirers, and has given up all other practice in order to devote his whole time to kinesitherapy a name which he coined. He is in charge of the outdoor de-



partment of the Baudelocque Hospital, and I was fortunate enough to receive an appointment as his assistant and was enabled to work under his instruction and supervision.

*What is meant by Kinetic Therapeutics?*—It is the art of healing functional disturbances and organic diseases of women, by acting upon the genital organs and their circulation, by direct and indirect movements. The object is to bring about a healthier state of the circulation, lymphatic and sanguineous; to set free the various structures of the genital tract; to reestablish their anatomic and physiologic integrity—without cutting operations, without any surgical appliances, without medication, by manual skill alone.

*What are the indications for Kinetic Therapeutics?*—All functional disturbances such as amenorrhea, dysmenorrhea, menorrhagia, displacements of the uterus and its adnexæ with or without adhesions; perior parametric exudates of sanguineous or lymphatic origin; chronic and subacute inflammation of the uterine parenchyma with its consequences—leucorrhea, hemorrhages, fungosities, ulcerations, oöphoritis, salpingitis—in short, nearly all the gynecologic miseries that fall to the lot of womankind.

*What are the contra-indications?*—Acute inflammation. Pus from any cause. Malignant neoplasms; the two latter points have to be taken in their broadest meaning—including syphilis, gonorrhea, tuberculosis, actinomycosis, diphtheria, etc., cancer and sarcoma.

*Treatment.*—The rules of treatment as observed at the Baudelocque Hospital are, daily treatment,—any prolonged interruption is considered objectionable. The menstrual function does not only *not* interfere, but is considered the best time to work for loosening adhesions. Rectum and bladder must be empty. The patients are assembled in a very large room which serves as waiting and treatment room both; the advantage of this is obvious, and while awaiting their turn they watch the physicians going through the different movements with the other patients, thus having an object lesson which alone serves to teach the sometimes very complicated movements which precede and follow, and thus form part of each treatment. Several couches are in the center of the room and M. Stapfer and his assistants hard at work. The treatment couches are fourteen inches high; the patient lies with her thorax slightly raised, her knees drawn up; the operator sits to the left on a stool on a level with the couch; his left index finger in the vagina or rectum as is usually done in virgins and the right hand on the abdomen. The outer hand does all the work while the left index finger does not move but only acts as a support. The duration of treatment is from ten to fifteen minutes, except in cases of chronic exudates, half an hour to forty minutes.

Strict antiseptic precautions are taken. The hands are disinfected with solutions of bichlorid of biniodid, the latter being more in vogue in the Baudelocque Hospital. Glycerin is always added to these solutions. To anoint the index finger it is not simply dipped into some oily substance, but the right index rubs it thoroughly into the left and far above the metacarpo-phalangeal joint.

The treatment proper consists of three different kinds of movements; vibrations, circular friction and rectal effleurage or stroking. Analgesic treat-

ment always precedes the other, as a diagnosis can only be made when the tenderness has disappeared. This usually is the case after three to five days.

Chronic constipation, this never-failing symptom of retrodeviations is cured in a few days.

The gymnastic exercises originated by Ling and taken up by Brandt as part of the treatment are divided into three classes:

1. Those which deplete the pelvis.
2. Those which increase the afflux of blood.
3. Those which strengthen the muscles of the pelvic floor.

Time is too short to go into the details of the technique, and it would be a hopeless task to attempt giving a clear idea of it without illustrations or practical demonstration. Brandt does not consider his treatment complete without these Swedish movements. The Germans, in trying to improve upon Brandt's method, have done away with the gymnastic exercises on the ground that they take up too much time. The French school advocates them most highly and considers the movements a most valuable adjuvant, never to be omitted; in fact, a great many cases, especially those of amenorrhea and menorrhagia are treated and cured by exercises alone and without pelvic massage. M. Stapfer asserts that the Germans make a great mistake in discarding these muscular exercises, and he made this the subject of a paper read before the International Medical Congress at Rome, April, 1894.

Kinetic therapeutics, on account of the wonderful results obtained, would run a great risk of becoming the prey of quacks and advertising industrial gynecologists, were it not for the fact that a thorough knowledge of the anatomy of the pelvis is required. It is based upon truly scientific principles and herein lies its safeguard. Practiced by unskilled hands it may do a great deal of harm and may even prove fatal in cases of pyosalpinx. It is not sufficient to possess a good general knowledge of the female pelvis, its large nerve trunks and blood vessels, but a thorough study of the lymphatic circulation and of the sympathetic nervous system becomes a necessity. In dealing with an exudate, the operator endeavors to stimulate the lymphatics and promote absorption by working in the direction of the lymph channels. It has to be borne in mind that the lymphatics of the uterus, tubes and ovaries are directed outward, following the course of the utero-ovarian arteries and terminate in the lumbar glands. Should the exudate be near the cervix it has to be remembered that these lymphatics take the direction of the uterine artery and end in the pelvic glands.

The researches of Glax and Klemensiewicz have shown that in the center of an inflamed area, in consequence of the increased transudation, the lymph spaces become overfilled and the outflow is deficient, owing to the compression of the vasa efferentia. The operator therefore has to begin by making room in the lymphatics and by working at the periphery and gradually advancing toward the center, and as soon as the lymph stream begins to circulate he works in the opposite direction, that is, from the center to the periphery, following the direction of the lymphatics. Experiments of Lassar and Mosengeil have proved to the fullest satisfaction that kinetic therapeutics increases the rapidity of the lymph stream.

Lassar (in *Virchow's Archiv.*, vol. LXIX, p. 153). This experimenter by chemic and thermal irritation

produced an inflammation in the paw of a dog, and then introduced a canula into the peripheral end of a severed lymphatic and a few drops of lymph flowed out slowly. But as soon as massage was practiced the lymph was seen to spurt out.

Mosengeil's classical experiment described in the *Arch. f. Klin. Chir.*, vol. xix, p. 428, shows conclusively the value of massage. He injected animal charcoal into the joints of rabbits and considerable swelling took place. One joint thus treated was submitted to massage; the other was left alone. In the first one the swelling disappeared; the latter remained enlarged. On autopsy the swollen joint revealed the black substance still *in situ*, while the massed articulation was free from it. This experiment not only proves the usefulness of kinetic therapeutics, but shows the danger of such a method applied where the quality of the exudate is of an infectious nature.

The nerve supply of the lymphatics is derived from the sympathetic nervous system. This latter is of the utmost importance to the kinetic therapist. I could not help wondering how little is said in the standard text-books of gynecology on the rôle played by the sympathetic nervous system; in fact most of the books on anatomy treat this system with marked indifference. In my opinion kinetic therapeutics is directed chiefly to the lymphatic and sympathetic systems and it is to be hoped that its practice will cause some study in this rather unexplored field, and throw some light on the oftentimes obscure pathology and symptomatology of uterine disease. If we take a case of analgesic treatment we will soon find that we come across certain spots that are particularly painful and in making a careful study of the anatomic relations we can always trace these "points douloureux" to sympathetic ganglia. There is for instance, at the junction of the uterus and Douglas' fold, to the right and left of the posterior vault of the vagina, a most tender point, which when slightly touched makes the patient wince and here we find the uterine ganglia. Occasionally the sacral nerves can be traced back to their foramina at the level of which four sacral ganglia are found, which are united to each other and send numerous branches to the hypogastric plexus. This whole region is in certain affections highly sensitive and causes the intense reflex symptoms so often noticed in uterine disease.

The sympathetic nervous system holds a place far more important than is usually attributed to it, and even a superficial glance at the anatomy of the pelvis will reveal the fact that the pelvic viscera derive their mean nerve supply from the sympathetic system. At times this nervous system becomes one of the most powerful factors in the human anatomy, namely in causing the expulsion of the fetus at term. Obstetricians consider the center of parturition to be situated in the medulla oblongata. How does the impulse reach the uterus? Partly by way of the spinal cord through the sacral nerves, partly through central filaments of the sympathetic nervous system, attaining its maximum of intensity in the plexus uterinus magnus, situated at the level of the bifurcation of the aorta. Four centimeters below, this plexus divides into the two hypogastries, and these, together with numerous branches from the lower lumbar and superior sacral ganglia, form two divisions; the smaller one supplying and surrounding the rectum, and the larger one, after uniting with the

sacral nerves, forms the cervical ganglion, which supplies the whole uterus and especially the cervix.

Now let us travel backward this same road, and many of the obscure reflex symptoms can be explained. If we have to deal with chronic exudates, with the unavoidable pressure effects upon the nervous tissue in the pelvis, the impulse will travel upward to the medulla and on its way produce the various reflex symptoms which are called by Freund cerebro-spinal. We will observe bearing down pains, sensation of fullness in the pelvis, backache, colicky pains, chronic constipation, nervous dyspepsia, vomiting, asthma, pain in the cardiac region, palpitation, globus hystericus, migraine, amblyopia, cataleptic and even epileptic attacks.

Kinetic therapeutics is a valuable auxiliary in curing displacements of the uterus. When might we speak of an organ as being displaced, whose ligaments permit movement in every direction so that there is no one normal position a departure from which would constitute a pathologic displacement? Physiologic displacement is an essential feature of a normal uterus and as soon as it is in the least interfered with we know that something is wrong. No subject in anatomy has perhaps caused such wide differences of opinion as the so-called normal position of the uterus. Great anatomists as Luschka, Braune, Cruveilhier and Henle consider it normal with the fundus in the hollow of the sacrum and according to Schultze, the long axis of the uterus is nearly parallel to the horizon. More recent investigators speak of a normal ante flexion, but who can guarantee that they are right? Post-mortem we see healthy uteri nearly always in retroversion and during life the gynecologist does not often encounter a healthy organ.

We know to-day that deviation of the uterus in itself does not call for treatment, and every gynecologist has seen cases of marked displacement without a single symptom. Some authors have gone so far as to deny that any pathogenic importance whatever attaches to simple displacements without adhesions. It is certain that adhesions give at once a different aspect to the deviation and according to the degree of mobility destroyed we have to deal with the different reflex symptoms, from the multiple neuralgia to chorea (Schröder) and hystero-epilepsy (Sielski). It is the province of kinetic therapeutics to remove the cause of displacements.

Exudates are treated as described above.

Adhesions of parametric origin are disintegrated and worked back into the circulation.

Shortened ligaments are stretched and return to their normal length in a remarkably short time. If the shortening be of a peritoneal nature the operator must be satisfied if adhesions are separated and the uterus regains a relative degree of mobility; the peritoneum if once contracted does not regain its normal elasticity. When we come to treat relaxed ligaments we encounter more difficulty and we have to take into consideration that they consist merely of connective tissue and scanty muscular fibers. These latter not being sufficiently numerous to restore the elasticity of the ligaments. Some enthusiasts of Brandt's method claim to have shortened these supports. The only way in which I could account for their success, which does not otherwise coincide with physiologic laws would be that by mechanical irritation they have produced an inflammation which

naturally resulted in contraction of the ligaments.

I will say one word on the treatment of chronic constipation, although it does not, strictly speaking, belong to pelvic massage. It is perhaps one of the most valuable presents we have received from the hands of Thure Brandt. I have seen cases of habitual constipation where three cathartic pills, together with 3 ss. ol. ric. and an enema were the daily order of things, and such cases have been cured in a few days only by kinetic therapeutics.

The reason of these remarkable results is easily understood. Once more the sympathetic nervous system has to be brought into the foreground. We all know that the physiologic activity of the alimentary canal depends on the proper innervation and circulation. Virchow has shown that in innervation disturbances, in consequence of which the muscular fibers of blood vessels lose their energy and the elastic fibers become relaxed, thus interfering with the physiologic function of the intestine, kinetic treatment is eminently satisfactory in strengthening the muscles of the abdomen, producing peristalsis and in the mechanical removal of skybala from the colon. Another most favorable result is the beneficial effect by reflex action upon the stomach.

Subinvolution of the uterus is cured by this method in so short a time that one can but wonder at it. It is not rare to see cases of enormously enlarged uteri reduced to their normal size in a few days.

Cases of metritis and endometritis respond to treatment in a relatively short time; but should the latter be due to fungosities, curetting would be the more rational treatment.

It is remarkable how quickly all the subjective symptoms disappear even in the most severe cases, while the objective symptoms remain behind, to serve as a guide for the continuation of the treatment, long after the patients consider themselves cured. Kinetic therapeutics is no longer considered a novelty, but holds a high place in the estimation of the leading gynecologists. The most prominent specialists abroad have given it a fair trial and acknowledge that not only did the treatment fully come up to their expectation, but that it rendered unnecessary in many instances surgical interference, particularly such operations as Battey's. If kinetic therapeutics had done nothing more than to give the death blow to Battey's operation this fact alone would suffice to give this method a foremost rank in gynecology.

Alexander's operation for shortening the round ligaments, with its modifications by Adams and Alquié has a dangerous rival in kinetic therapeutics. Most of the disciples of Thure Brandt are of the opinion that ventro-fixation has had its day and will be substituted by the more rational kinetic therapeutics. Ventro-fixation as recommended by Koeberlé, Olshausen, Lawson Tait, Kelley, Sänger and Leopold is at its best a dangerous operation and by no means justified by its results. Laparotomy, the forcible breaking loose of adhesions and stitching of the uterus to the abdominal parietes is a serious undertaking, especially if we think that after all it is only the substitution of an anterior for a posterior fixation and oftentimes a double fixation. The dusting of aristol, dermatol or iodoform over the loosened adhesions, or the application of sterilized gauze, or even gold leaf, has proved inadequate.

The cure of prolapsus uteri is, although wonderful in the hands of Brandt, not universally successful if undertaken by his followers, and Winckel made the statement that colporrhaphy will, together with Brandt's system, be in the future the treatment for such indications. It will easily be seen that where the pelvic floor gives no support whatever, Brandt's treatment alone can not hold the uterus up. In these cases the levator muscle is found to be severed and operations such as devised by Freund, Martin and Winckel will be found beneficial, as they bring about a union of the muscular fibers of the levator and the vaginal wall. Brandt's per cent. of cure of prolapsus is between 70 to 80 per cent. and it is doubtful whether surgical operators have the same good result. There are cases on record where five and more operations did not prevent the descent of the organ and Le Fort's operation for complete closure of the vagina had to be resorted to.

After having taken up so much time in trying to bring out the advantages of kinetic therapeutics, I have to point out its disadvantages. All that can be said against it, even, by Brandt's adversaries, is its troublesomeness, the difficulty of becoming familiar with it—a trip to Sweden or Germany to study with one of Brandt's disciples being indispensable—and last, not least, the long duration of the treatment extending in chronic cases over several months.

Brandt teaches no longer, having arrived at the venerable age of 77 years. Gynecologists from all parts of the civilized world are constantly applying for the privilege of studying under his direction; but within the last year or two he has felt it to be incumbent upon him to transfer the duties of teaching his method to his disciples. After many years of bitter disappointment, harsh criticism and antagonism he now has the satisfaction of seeing his labors appreciated, his method adopted by the scientific world and of having his name handed down to history as one of the great philanthropists of his day.

#### BIBLIOGRAPHY.

- Robert Ziegenspeck, 'Über Thure Brandt's Verfahren der Behandlung von Frauenleiden. Klin. Vorträge, No. 353, 1870.  
Dr. Stapfer, La Kinésithérapie Gynécologique Maloine—Paris, 1892.  
Prof. Schauta, Über gynäkologische Massage, Prag. Med. Wochenschrift, 1887, No. 43.  
Dr. Anton Bum, Wien. Med. Presse, 1889, Nos. 1-2.  
Profanter, Die Massage in der Gynäkologie, Wien Braumüller, 1887.  
1730 H Street N. W.

## SUPRA-PUBIC CYSTOTOMY FOR CALCULUS IN THE BLADDER.

TRENDELENBURG'S TRANSVERSE INCISION—TRANSVERSE DIVISION OF THE RECTI AND PYRAMIDALIS MUSCLES—INCISION OF THE BLADDER WITHOUT INFLATION OF THE RECTUM OR INJECTION OF THE BLADDER.

Read before the St. Louis Medical Society, Dec. 22, 1894.

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The object of this short paper is to bring to your notice an operation, which though described in several works on surgery in the German<sup>1</sup> is not mentioned (so far as I have been able to investigate) in any English or American text-book on surgery, with the exception of the English translation of Kocher's "Operative Surgery" recently published. I do not believe that the technique of this operation as practiced by Trendelenburg, Tillman, Kocher and other

Continental surgeons is generally known or practiced in this country. The operation I have reference to is the operation of supra-pubic cystotomy, by a transverse incision through the skin and abdominal muscles, without previous inflation of the rectum or injection of the bladder. This operation is known as Trendelenburg's method of supra-pubic cystotomy (*sectio alta*) by means of the transverse incision.

This method was first suggested by Günther and carried out afterward by Bruns-Lotzbeck. To Trendelenburg, is due the credit of bringing the operation to general notice in Germany, and perfecting the technique, such as is now practiced by himself, Tillman, Kocher and others. The technique of this operation renders it unnecessary that the rectum and bladder be previously distended, which in the *sectio alta* by means of the median vertical incision is of importance, especially the injection with fluids or air of the bladder. The majority of surgeons have now discarded the inflation of the rectum, but still use some method of distending the bladder, either by fluids or air.

As you are all aware, the object in inflating the rectum or distending the bladder, is to bring the viscus out from behind the pubes, thus rendering it more accessible especially in the adult; also to increase the dimensions of the pre-vesical space by pushing up the peritoneum. It is well known through experience, that inflation of the rectum is at the best unsatisfactory, and has therefore been practically discarded. That distension of the bladder is not always without danger, is also well known; especially in persons of advanced years in whom the bladder walls are friable.

It is true that the Trendelenburg position (elevation of the pelvis), increases the dimensions of the pre-vesical space, but the median vertical incision in this position (with distension of the bladder) does not give as free access to the organ as the transverse incision. This is due to the form of the wound as produced by the median vertical incision. This wound is elliptical when pulled asunder by retractors, with the points of the ellipse at the pubes, and toward the umbilicus, so that the narrowest point of the wound is at the pubes just where the greatest amount of space is wanted for free manipulation of the deeper parts. In the transverse incision the wound is triangular or lozenge shaped, with the base or widest part right at the pubes.

#### TECHNIQUE.

The patient is carefully prepared; pubes shaved, bowels emptied thoroughly. He is then placed in the Trendelenburg position, the pelvis as high as necessary, so as to allow the abdominal organs to gravitate toward the diaphragm. The incision through the skin is transverse over the upper margin of the pubes, in a slightly curved form, convexity of cut over the pubic bone; it is best to carry the convexity of the incision about one and one-half centimeters onto the pubes; by doing this the insertion of the recti can be more easily severed, very close to the bone. The length of the incision extends from over the region of one inguinal canal to the other on the opposite side. The cut is carried through skin and superficial fascia, exposing the pubes and the insertion of the recti muscles. Two Volkmann hooks or retractors are now placed in the skin wound, one

pulling upward toward the penis, and the other downward toward the umbilicus. A few veins may need ligation. A catheter or sound of full curve is now introduced into the bladder and controlled by an assistant, or it may have been introduced before the skin incision is made. The skin wound being held asunder by the retractors or hooks, the insertions of the recti muscles are fully exposed. Their insertions are cut transversely across, keeping the edge of the knife well against the upper border of the pubes. This can be facilitated by pressure of the index fingers of the left hand on the muscles, thereby putting the tendons on the stretch; in this manner both recti may be partially or wholly severed from their insertion as well as the pyramidalis muscles, as the operator may see fit.

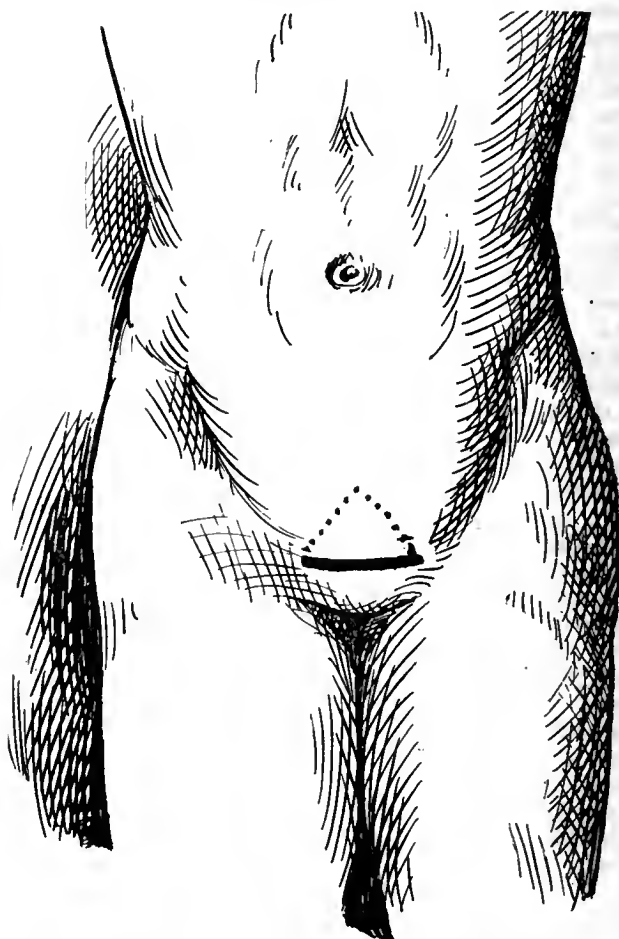


FIG 1.—The heavy line over the pubes shows the transverse incision; dotted lines the form of the wound when held apart by retractors.

The division of the muscles brings into view the pre-vesical space. A hook or retractor is now hooked into the umbilical end of the wound (the instrument must be blunt so as to run no danger of wounding the peritoneum) and traction made downward. Two more hooks are inserted into the pubic angles of the wounds and traction made to the respective sides. This gives us a large triangular wound with the base in the most favorable position for manipulation at the pubes. At the bottom of this wound we find the pre-vesical fat, veins, the peritoneum and bladder. In the adult the lower fold of the peritoneum may dip down behind the pubes, depending on the size and disposition of the fundus of the bladder. By means of rat tooth forceps or a blunt dissector or knife-handle the fat is separated; by a little care the



veins need not be injured, and no bleeding need occur by this manner of blunt dissection. The anterior wall of the bladder is exposed and is recognized by its pinkish color. The anterior wall of the bladder should be well exposed upward and downward. If the operator works skillfully, the peritoneum may not become visible during the operation. It is well at the beginning of the separation of the fat to work well down behind the pubes, for then there is no danger of encountering the peritoneum, and we can, after the bladder wall has been exposed, readily work it upward, along with the veins and pre-vesical fat. At this stage of the work the catheter comes in for its part in the technique; the assistant who has it in charge firmly depresses the ends, thus carrying the point against the anterior wall of the bladder. It can be carried higher into the fundus, or lower, as the operator may desire, and by this means he can clearly outline the extent of the bladder.

The anterior surface of the bladder having been sufficiently exposed, the catheter lifts the wall well up into the wound at any point the operator may determine. By means of a sharp hook, or better, by means of a loop of silk passed through the muscularis, the bladder is fixed; we may, if we choose, put in two loops of silk; the one near the fundus, the other lower down.

The organ is well drawn upward and the tip of the catheter is used as a guide to cut down upon; with a sharp narrow pointed knife we cut down beside the tip of the catheter into the bladder. It is well to begin the incision into the bladder near the fundus and extend the cut downward, so that one or two fingers can be introduced into the interior of the bladder. A gush of urine usually follows the opening of the organ. The interior can now be examined by the fingers, or inspected by means of an electric light introduced into the cavity. If the operation be done for calculus, it is now extracted, or any other procedure that the particular case may require. After the operation is finished, the bladder is irrigated with a 3 per cent. boracic solution. A soft rubber T-drainage tube is now inserted into the cavity of the bladder and the other end passes out of the skin wound. Into the wound and around the tube iodoform gauze is packed. Each outer angle of the wound may be brought together by one or two sutures so as to lessen the size. A suture is passed through the skin and drainage tube, so as to retain it in its place; over this gauze and cotton.

The patient is put to bed and as soon as narcosis passes off is instructed to lie on either side, right or left, so as to admit of free drainage. The tube is left in the bladder one to two weeks. The gauze packing is removed as often as is necessary. The patient is allowed to sit in an upright position as soon as possible after three to four days.

*Case.*—On December 16, Mr. K. S., aged 70, residence Lebanon, Ill., was referred to me by Mr. H., a medical student of the Marion-Sims College. The patient for a year past had suffered from frequent urination. He had been treated by three or four physicians without relief. He was sent to me under the supposition that he was suffering from an enlarged prostate. Patient stated that his appetite was fairly good, he slept well, and did not have to get up very often to urinate, but during the daytime had to micturate very often, and that there was considerable pain immediately after urination. This pain he located over the pubes. Examination of the rectum revealed that the prostate was not enlarged, and could hardly be responsible for his symp-

toms. I introduced a sound into the bladder and it was hardly in the bladder when I came into contact with a stone located on the right side. The introduction of the sound caused him much pain, and he was attacked by a trembling spell, so that I had to desist from further investigation.

I saw him again the next day; he had a slight rise in temperature 100 degrees, and felt unwell. While holding the thermometer in his mouth he had a slight syncope. I advised an operation, and that he should go to a hospital. He agreed to operation and entered the Rebekah Hospital the following day. Urine showed slight trace of albumen.

*Operation.*—Wednesday morning, December 19, the operation of supra-pubic cystotomy was done. The patient had received two good doses of whisky; the one an hour before, the second a half hour before the operation. A hypodermic of 1-6 gr. of morphin was given along with the second dose of whisky. The whisky and morphin were given so as to avoid the necessity of giving much chloroform. The patient was placed in the Trendelenburg position on Edebohls table. A silver catheter was introduced into the bladder and held by an assistant. I had taken the precaution to arrange a stop cock on my catheter, in such a manner that the nozzle of a syringe could be attached, so that I could inject the bladder should I find any difficulty in reaching the same, it not being injected. I made a transverse incision from one inguinal canal to the other; the line of incision was slightly curved, with convexity over the pubes, and carried about one and one-half centimeters onto the pubes. The cut was curved down through skin, fat and fascia onto the recti muscles. There was no bleeding. The recti and pyramidalis were now cut through, keeping the edge of the knife on the pubes. A retractor was placed in the umbilical end of the wound, drawing downward, one also into the pubic angle of the wound, drawing to the respective sides. The pre-vesical (cavum Retzii) space was now freely exposed, especially well the parts behind the pubes; with a mouse tooth forceps and a blunt dissector I cleared away the pre-vesical fat and veins over the anterior wall of the bladder.

I had my assistant press the catheter well up against the pubes as low down as possible, with the point of the catheter as a guide. I was quite safe in my manipulation, and sure that I was below the lower fold of the peritoneum. As soon as I reached the bladder, which could be easily noted by its pink color, I cleared the fat well off from the anterior wall as far as the fundus. The peritoneum did not come into sight, was covered by fat and pushed along with it out of the way. Into the anterior wall of the bladder near the fundus, I inserted a loop of silk, passing it through the muscular coats. This loop I used to fix the bladder previous to the incision. I now had my assistant crowd the point of the catheter well against the anterior wall of the bladder near the fundus. I found that it was an easy matter in this case to penetrate the bladder wall with the catheter tip. I did this, and then used the catheter as a guide, alongside of which I inserted a narrow pointed bistoury and enlarged the wound downward so that I could introduce two fingers into the bladder. The catheter was now withdrawn. I could readily feel a large, oval, flattened calculus in the right segment of the bladder. Passing a stone forceps in alongside of my fingers, I readily seized it. I found that the bladder wound was quite small for the stone to pass through; by means of a rotary motion I pushed it out of the bladder through the wound without enlarging the same.<sup>2</sup>

The bladder was thoroughly washed out with a 3 per cent. boracic acid solution. A soft rubber T-drainage tube was inserted in the bladder, the other end passing through the skin wound. I fastened the tube into the skin wound by a single suture through skin and tube. The depth of the wound around tube was packed with iodoform gauze, the ends left in the upper part. The outer angles were closed, each by two sutures. Into the top of the protruding drainage tube, I inserted a T-tube of tin ore, over each arm of which a rubber tube was passed. The rubber tube extended over the abdomen of the patient, well over each side. The dressings were applied so as to have the ends of these tubes protrude. The patient by this arrangement can lie on either side and the urine is carried by means of these tubes into a urinal or dressing, and thus the wound is protected, in a measure at least, from the effect of the escaping urine.

The operation occupied about half an hour. I could have done it in about twenty minutes, but a

<sup>2</sup> Mulberry calculus, 1 $\frac{3}{4}$  inches long, 1 $\frac{1}{2}$  inches wide; weight 1 oz., 2 drachms.

little time was lost on account of a hitch on the part of the assistants. It can easily be accomplished in a careful manner in fifteen to twenty minutes time. The patient reacted well from the operation. Not a tablespoonful of blood was lost. Twenty-four hours after the operation the temperature was 100, which, however, in the next twenty-four hours fell to normal.

On the third day the dressings were changed and the packing removed. Tube left undisturbed. Patient is doing well; rests and has no pain; urine escapes through tubes as above described.<sup>3</sup>

*Remarks.*—The experience gained by an operation by a new method in a single case can not usually be taken as a criterion of the value of a method, unless its merit has been established by other operators. Its decided advantage over the median vertical incision was, however, clearly demonstrated and especially the ease with which the pre-vesical space is laid open, and the lessened danger of wounding the peritoneum. This is easily understood when we bear in mind that in the transverse incision, we cut parallel with the lowest fold of the peritoneum, as it is reflected over the fundus of the bladder and in a direction that is oblique to it, or in other words away from it.

In the median vertical incision the opposite obtains, as here we cut directly at right angles to the peritoneum, and directly over it in the umbilical end of the wound.

Based on the experience of others, and my own in the case reported, I would offer the following conclusions:

1. That the transverse incision is more easily executed from a technical standpoint.
2. That it affords more space in which to work in the depths of the wound than the median incision, and hence superior for any exploration of the bladder, for whatever condition.
3. That there is less liability to injury of the peritoneum, because the knife is used parallel with and on a level below its lowest fold.
4. That it is unnecessary to inflate the rectum.
5. That it is unnecessary to inject the bladder, and consequently, the risk of injury to the organ is avoided, which in the aged is an element that should always be considered.
6. That the catheter in the bladder is a safe guide to the location of the fundus and anterior wall.
7. That with the catheter as a guide, the bladder can be incised with ease and facility.

### A PUNCTURE WITH A BONE OF A LIVING FISH IN THE WEST INDIES, FOLLOWED BY LEPROSY IN A CAUCASIAN SUBJECT.<sup>1</sup>

BY ALBERT S. ASHMEAD, M.D.

LATE FOREIGN MEDICAL DIRECTOR TOKIO HOSPITAL, JAPAN.  
NEW YORK.

I have had an opportunity of examining a case of leprosy in this city, which has been first seen by a medical friend of mine, who knowing that this dis-

ease was a subject in which I had always been deeply interested since my sojourn in Japan and that I had published a number of articles about it in the medical papers, has been kind enough to let me study the case.

C. G., aged 35, but looking 50, of more than average intelligence, of intemperate habit, born in Germany, of German ancestors, came when 2½ years old from Germany to the port of New York; has been married twenty years; has five living children all healthy, one a married daughter, who has a child of 7 months. He says he was healthy until six years ago. The following is his history: He lived in New York until he was 18, when he went to Brazil, as an engineer's storekeeper; the trip occupied two months. He left there and went to Aspinwall as waiter and chief cook on a ship belonging to the Pacific Mail. He remained in this service two and one-half years when he changed to the Savannah line, as cook, and remained in that service four years. Then he was employed by the Ward line running between New York and Havana, Matanzas, Tampa, Tuxpani and Vera Cruz. He was with that line one year. He then worked six months on a steamer running to Santiago, Cuba, Nassau, Cienfuegos. He went then to the Clyde line, running between New York, Charleston and Jacksonville, where he remained one and a half years. After that he entered the service of the Red "D" line, running between New York and Curacao, Puerto Cabello and La Guayra. During all this service his family lived in New York, and his employment on his trips was always that of cook, storekeeper or waiter.

Six years ago he was on board a steamer running between Tampa, Key West and Havana, on which he had been employed during the preceding four months. Just as he was leaving Havana, from which the run to Key West is only a night's trip, while cleaning a red snapper, a fish which among sailors has the reputation of possessing a poisonous fin just behind the gills, he punctured with the bone of that fin the tip of the thumb of his right hand, through to the bone. The next morning he felt no pain in his hand, but the arm was beginning to swell; it continued to swell for some days, then the swelling subsided, the whole process lasted a week. At the climax it was about three times its natural size, the swelling extending to the shoulder. The man was under the treatment of the U. S. Marine-Hospital surgeon at Key West, and gradually recovered. Immediately afterward an eruption appeared on the front of the chest, the head and face. Watery vesicles appeared, which broke and formed huge scabs.<sup>2</sup>

Dr. Daniel M. Burgess, U. S. Marine-Hospital Inspector at Havana, treated him for this, but he did not define the case as having any relation to leprosy. When these eruptions were cured, after some months, there remained red blotches which crossed his nose and cheeks, and appeared symmetrical on his forehead over the eyebrows. Nothing appeared on the chest, where the eruption had been localized. These red blotches gradually thickened, hardened and became nodulated. He first noticed this on the sides of the nose. None of the blotches had at that time shown on his ears. This condition continued increasing; his ears became tuberculated, and six months ago Dr. Burgess of Havana, first declared the case to be one of leprosy. Soon after the first outbreak of blotches,

<sup>2</sup> A vesicular or porriginous eruption is, in China and Japan, frequently the initial lesion of leprosy.

<sup>3</sup> February 20. Wound closed. Urine passing per viam naturalem.  
<sup>1</sup> This case has not been reported before. It has been in charge of the physician who now attends it, for two years. His diagnosis of leprosy was not made until three months ago, when another physician at the Presbyterian Hospital, N. Y., discovered the leprose bacilli. The first diagnosis of leprosy, as was afterward learned, was made in Havana six months ago, by Dr. Burgess. My own diagnosis of leprosy is the third in the case.

the patient had discovered a numbness in the ulnar side of his forearms; he had no numbness in the feet until two years ago, at a time when my medical friend treated him for pleurisy and pneumonia. The hardness and hypertrophy about the wings of his nose, cheeks, eyebrows and ears was gradual; it began three years ago.

*Present Condition.*—February 17, nose hypertrophied, three times its natural size, tuberculated, nodulated; both ears hugely hypertrophied, tuberculated and pendulous; the whole forehead hypertrophied and nodulated; cheeks, upper and lower lips, fingers of both hands hypertrophied and nodulated; the back of both forearms, tuberculated. Color of skin, face, neck, hands and forearms, a deep tawny hue. The tongue can not be bent from right to left; it is bent over to the right side. He has the well-known leonine face expressive of leprosy. The patient has a feeling of stretched numbness in the ulnar side of his forearms. The toes of both feet have been numb these two or three years. Ulceration on the tips of the three larger toes of both feet. He has just returned from a trip to Venezuela, which lasted twenty-five days, and is now laid up on account of the sores on his feet. He has no history of any disease, except chagres fever, seven years ago, and of pneumonia two years ago. I saw four generations in his house; his mother apparently in good health, his married daughter and his two sons, aged 5 and 7 years, and the married daughter's infant son seven months old. The married daughter is of a strikingly pearly white complexion. Both sons present a similar complexion. The infant grandson is in robust health. There is no history of leprosy in the family in any preceding generation. I cut one of the tubers from the third finger of his left hand, and from sections made with the microtome, stained with carbol fuchsin and methylene gentian violet, found lepræ bacilli in abundance, spherical accumulations of bacilli or bacilli heaps, the so-called "leprosy cells."

Here we have, then, a man who had been exposed to the influences of leprosy countries for at least eleven years; who received a wound from a fish caught in what we may call leprosy waters; the wound is peculiar in that it was anesthetic at the start; when it healed, the consequent swelling abated; there supervened a peculiar vesical eruption, which on breaking forms huge scabs. When he recovers from this, there appears with complete evidence the erythema or the plaques of leprosy, followed by hypertrophy and nodulation, these also characteristic of leprosy. From this moment, beyond doubt, the case was manifestly leprosy, although the truth had not been recognized in the earlier stages.

Now these questions arise:

Did the patient have leprosy germs latent in his system at the time of his accident?

Was he inoculated with leprosy at that time?

If there were such latent germs, would they have remained latent had not such an accident occurred?

Is it necessary, when leprosy germs are latent in the body, that an exciting cause intervene to develop them into activity?

Is it the case in leprosy as in tuberculosis, that germs may remain latent always?

I must remark here that everything seems to show that there are fewer chances of evident inoculation of leprosy germs than of tubercular germs, and that

therefore there is greater probability of latency of leprosy than of tuberculosis.

There has always been a suspicion, for obvious reasons, that fish has something to do with leprosy, and I believe myself in intermediary marine host function. Can the case in hand be considered as corroborative of this opinion?<sup>3</sup>

Hansen himself says that leprosy if not contagious, can at least be inoculated. The patient in question is living in fond relations with four generations, in a tenement house containing twenty families, in a non-leprosy country. He is a New York man, having come here at 2½ years of age; and therefore not to be shipped home, as might a Chinaman. What is our duty to the community, to the inmates of the tenement, to the man's family, and to himself, under these conditions? If he is reported to the board of health he has only to expect the utmost rigors of charity; he will be put in a tent on some island, and condemned to perfect isolation; his family will suffer by the report.

If this patient is not reported and isolated, according to Hansen's belief, sooner or later, some member or members of his family may become inoculated. (His married daughter and his two boys have now the peculiar pallor which, in the East, is considered as premonitory of the disease.) If they do become inoculated with leper germs, or if they are already inoculated with them, and yet escape the outbreak, may we not suppose that being in a non-leprosy country, and no incident like that which originated the disease in our patient occurring, the germs will remain forever latent? My own belief as to the contagiousness or the inoculability of leprosy is that the measure of danger is in the individual, the race and place of residence. There is much more danger of leprosy here in New York from the cohabitation and breeding of a leper with a healthy woman, (a child was born to our patient's wife one year after his outbreak of leprosy) than from contact or any such relationship. The Oriental law is that a leper shall breed with his own generation of leprosy; a leper belonging, let us say, to the second generation, that is being the son of a man or woman in whom the disease first appeared, will be allowed to marry the daughter of a man or woman in whom the disease first appeared, and so for the other generations. In this way the susceptibility to leprosy becomes extinct in the fourth generation and the leper germs will always remain latent afterward in that family.

## A CASE OF GUMMA OF THE CEREBRUM.

Read before the Chicago Pathological Society, Dec. 10, 1894.

BY D. R. BROWER, M.D., AND D. D. BISHOP, M.D.

CHICAGO.

This is a case of syphiloma which is in some respects very interesting. I have no regular report of the case but will simply recite the symptoms that were present, and Dr. Bishop will show his very carefully prepared specimens.

The patient, aged 52, was brought to me by his family physician, October 23. At that time he had epileptiform attacks of the left upper extremity, the attacks beginning in the little finger and ring finger and gradually involving the hand, fore-arm and arm.

<sup>3</sup> Kaurin and Beaven Rake are of opinion that there is possibly some intermediary stage, through which the bacillus passes, or some undiscovered host in whom it undergoes a further development ere it can reproduce the disease, which has so far eluded our observation.

But when the paroxysm began in the little and ring fingers the patient could, by a strong mental effort, especially when aided by his grasping something, stop the paroxysm at that point, and it was a very uncommon thing for the attack to get beyond the muscles of the fore-arm or possibly the arm. But if he failed by this effort of the will to arrest the paroxysm, then the facial muscles and afterward the lower extremity were also involved in the movement. Consciousness was perfectly maintained during all of these convulsive seizures, except the first one, which occurred while he was in Wisconsin fishing, and he fell down then in the boat. That probably was a general movement. These attacks were very frequent, fifteen or twenty occurring in the course of the day. His arteries were very much degenerated, especially the radial. I expressed the opinion that we had a localized brain tumor or a meningitis probably in the arm center of cortex. I advised him to go to the Presbyterian Hospital for observation and later on, if necessary, an operation could be made. We immediately placed him on large doses of iodid of potassium and after three or four days the convulsive seizures disappeared. He remained here until November 5, that is about two weeks. The paroxysms had entirely stopped and I sent him home, supposing he had recovered from his illness. I advised him to

operating room, that it was an abscess and not a gummata, and the brain was explored in every possible direction for pus, but it was not found. Dr. Senn then cut into the mastoid cells expecting to find a mastoid abscess, but failed. The dura mater was thickened and adherent, as though he might have had a pachymeningitis some time previously.

This case serves to illustrate again the fact that you can not locate Jacksonian epilepsy on the external aspect of the hemisphere, always, even when you have a typical Jacksonian epileptic paroxysm, for sometimes it is due to a lesion beneath the centers, involving the centrum ovale, and again, you may have an extensive abscess in the petrous portion of the temporal bone and no cerebral abscess accompany it. The location of the tumor is such that the arm center must have been irritated first and then with the extension of the tumor paralysis came on.

Dr. Bishop will give us the results of his careful pathologic and microscopic examination.

#### NECROPSY.

Nov. 23, 1894, by Dr. D. D. Bishop. Save for the incisions over the right mastoid and right molar regions, made for operative purposes, no abnormal conditions were found in the scalp or skull.

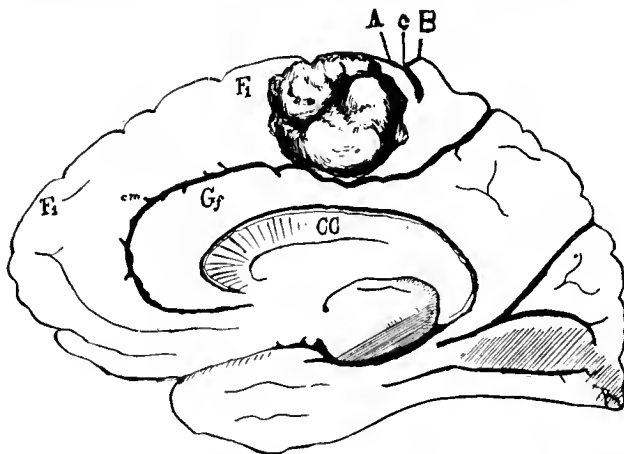
**Dura mater:** This and its falciform process were adherent over the external and internal surfaces of the right cerebral hemisphere at the motor area.

**Brain and pia mater:** The dura removed, a growth is seen projecting into and rising above the superior longitudinal fissure, and apparently growing from the interior of the right hemisphere. Upon removal of the brain and more careful examination the following conditions were noted: The growth projects from the internal and superior surfaces of the hemisphere, pressing aside the cortical substance. The presenting surface is elliptical, the long axis corresponding with that of the cerebrum. The surface measurements are six by five c.m. Its posterior margin is one and one-half c.m. in front of the depression marked by the junction of Rolando's fissure with the superior longitudinal fissure, while its anterior margin extends well forward into the ascending frontal and superior frontal convolutions. But very little was visible upon the superior surface of the hemisphere. The inferior margin reaches externally as far as the gyrus fornicatus.

Upon section, the growth seems to spring from the centrum ovale and is about four c.m. deep. It projects into the superior and ascending frontal convolutions and gyrus fornicatus, bulging out through the collosomarginal sulcus. It is covered upon its unattached surface by the pia mater which is only slightly adherent, blending off at the borders of the growth into the surrounding pia mater of the unaffected brain. At no point does the pia seem to be in close relation to the growth as one would expect to find if the origin were in that structure. On the other hand, it springs out firmly from the centrum ovale, bulging out through the brain substance as before stated.

The pia mater over the convex free surface of the growth is thickened and its vessels engorged.

The interior shows a central area of white softening, about this a slightly yellowish zone, while the periphery is light gray in color and presents numerous distended vessels, some of which are distinctly



INNER SURFACE OF RIGHT HEMISPHERE. (GRAY).

The portion occupied by the gumma is shaded. A, ascending frontal; F1, superior frontal convolution; c, Rolando's fissure; cm, collosomarginal sulcus; Gf, gyrus fornicatus pushed downward by the growth.

continue the iodid of potassium. On November 17, twelve days after he left, his physician wrote me that there was hemiplegia of the side that had been the seat of the convulsive seizures. I at once wrote to the physician to bring him back in order that an operation might be made. He was accordingly brought back, and died four days afterward.

The seat of the tumor was not cortical, as I supposed it to be, but subcortical. It involves the paracentral lobule and extends deeply into the centrum ovale, and doubtless began there. I think there can be no doubt that it began by making pressure upon the fibers that come from the upper extremity center and gradually extended until it produced complete paralysis. The external aspect of the hemisphere is perfectly intact. When the operation was made by Dr. Senn, failing to find anything abnormal we concluded the diagnosis was wrong, and inasmuch as there was a history of an ear abscess that began fifteen or twenty years ago, with an occasional discharge, we rather jumped at the conclusion, in the



thrombosed. The mass then blends off insensibly into the deep cerebral tissue. The petrous portion of the temporal bone was necrotic and contained some inspissated pus, but there was no extension to the mastoid or other contiguous structures.

The basal vessels were apparently normal, the ventricles empty and no changes in the basal ganglion. Save for some paleness there were no changes in the thoracic nor abdominal viscera. Cultures on glycerin agar and nutrient gelatin from the interior of the growth remained sterile.

Microscopic examinations of the cerebral growth: Specimens were hardened in alcohol and sections made, including some of the surrounding brain and the new tissue down to the area of necrosis. There were found, engorgement of and exudation about the pial vessels. The brain structure about the growth shows the ganglion cells well preserved, some edema and a slight cellular infiltration of the perivascular spaces. Here there seems to be no increase of connective tissue. In the outer portion of the growth proper there are numerous thin-walled blood vessels, many of which are distended with blood corpuscles, and in not a few are leucocytic thrombi. At some points there are small areas of hemorrhage. About the vessels there is quite a marked emigration of polynuclear leucocytes, some round cells with solid nuclei, and a considerable number of cells containing rounded or oval, clear, vascular nuclei of variable sizes; only a few are spindle shaped. These latter cells are most numerous just outside the vessels, although some are remote from them, and are most likely proliferated endothelial cells arising from the perivascular lymphatics. Such an interpretation is born out by the pressure of collections of similar clear nuclei here and there, having an arrangement much like the nuclei of giant cells of tuberculosis, but upon close examination there is no cell body, while a central lumen is present around which the nuclei are radially arranged. They would seem then to be proliferated endothelia of lymph vessels. The multipolar ganglion cells are present in the growth, showing a location in the brain rather than upon it. They are often necrotic, presenting nuclear fragments. The portion nearer the central softening is more edematous, there are fewer vessels and the exudative and proliferative cells are less numerous. Here the nuclei are often absent or faintly stained, the cells staining diffusely with eosin.

There are no caseous areas nor giant cells so suggestive of tuberculosis. It is also worthy of note that there is little attempt of fibrillation of the connective tissue cells and consequently slight production of connective tissue fibers.

To sum up: The growth consists of granulation tissue which is edematous and necrotic in the interior, while in the outer portion the tissue approaches more nearly the adult type of connective tissue, there being less edema and necrosis and some attempt at fibrillation of cells. Sections stained in fuchsin-anilin water, decolorized with 5 per cent. sulphuric acid and alcohol. Contrast stain with methylene blue, and examined with one-twelfth oil immersion lens and No. 3 eye-piece, Leitz, showed no tubercle bacilli or other organisms. In the absence of any structure suggestive of tumor, likewise the absence of tubercle bacilli or tuberculosis in any of the organs, it seems one is justified from the findings to say that cerebral gumma is the most probable diagnosis.

## A CASE OF CEREBELLAR ABSCESS, SINUS PHLEBITIS, AND SUPPURATIVE OTITIS MEDIA.

Read before the Chicago Pathological Society, Dec. 10, 1894.

BY JOHN L. MORRIS, M.D.

CHICAGO, ILL.

Olof J., age 27; Norwegian; admitted to Presbyterian Hospital Oct. 4, 1894; occupation clerk; family history negative. Previous illnesses: When 14 had tonsillitis which lasted six months, ending in a tonsillar abscess, which was ultimately lanced. Three times during the past year he has fallen down in a "faint," as he describes it. These spells would last about five minutes, after which he would recover and be enabled to resume his work. Present illness began four weeks before admission to the hospital, by sudden pain in left ear followed by a chill. The earache was persistent, but for two days he continued his work, when he was obliged to take to his bed and consult his physician. Next morning he had a sudden exacerbation of pain followed by a discharge of pus from the left ear. On this day he first noticed a slight frontal headache which has gradually increased in severity. On this third day of his illness he vomited his dinner. Subsequent to this he had vomited about once each day. Four days afterward he had a second chill, after which he was delirious, the delirium lasting about ten days. During this delirium he had four or five chills at irregular intervals. At this time, owing to the masked symptoms presented, a diagnosis of probable typhoid was made by his physician. Up to the time of admission to the hospital he had had no dizziness, earache or other subjective symptoms; was constipated, but had good appetite.

On admission to the hospital, his condition was as follows:

Pulse 66, temperature 90, respiration 20; countenance pale, drawn and anxious; breath, fetid; tongue foul and extremely red; eyes closed, as patient explained, to exclude the light; intellect slightly dull and sluggish, but perfectly rational when addressed; eye and face reflexes normal; no tender points discoverable about ear or cranium; abdomen boat shaped. An extremely foul odor emanated from the left external auditory meatus; discharge slight if any. Internal jugular on left side was palpable as a whip-cord-like structure, and seemingly much engorged.

Urinary analysis: Specific gravity, 1020, trace of albumen, extremely foul odor, and large quantities of biliary coloring matter.

During the first eight days after admission into the hospital, temperature from 98 to 94.6 degrees F.; pulse ranged from 70 to 50, respiration 20 to 16. Enematas were always necessary; urination free and sometimes involuntary; vomited almost regularly once each day and always after eating a few mouthfuls; vomit would be projectile and sudden.

Patient when placed upon his feet would stand steadily with eyes open or closed; no ataxia; knee jerk normal; fundus of eye was not examined; at regular intervals would suffer extreme exacerbations of frontal headache, which would always be followed by a fall of temperature to 95 or less, and by more or less drowsiness.

A diagnosis of abscess of the brain was made, but from lack of focal symptoms its locality could not

be determined, and it was deemed unwise by the consulting surgeon to operate immediately.

On October 12 convergent strabismus and diplopia were recorded; left external rectus paralyzed; left pupil irregular in outline. Patient was much brighter mentally.

On the night of October 12 the pulse went up to 120; temperature to 100 degrees and respiration to 24; patient suffering extreme pain. Under narcotics patient fell asleep about 3 A.M. At this time the pulse was regular, 94; temperature 96; respiration 16. For the next two days, with the exception of pain being more severe than formerly, patient's condition was the same as during the first eight days of his stay in the hospital.

On October 15, at 9:45 A.M., patient was examined by a member of the house staff and his condition seemed unchanged. Pulse was regular and of good quality, ranging about 70 or 75. Fifteen minutes later, patient expired very suddenly and quietly.

The autopsy was conducted by Dr. Bishop and myself. It gave the following information: Meningeal vessels much injected, no external bulging; ventricles negative. On lifting the brain about an ounce of pus escaped from under the cerebellum from the vicinity of the left lateral sinus; although great care was used in delivering the brain it was impossible to state whether the pus was free or not. In the anterior part of the left hemisphere of the cerebellum an abscess about the size of an English walnut was found in the substance of the cerebellum. The meninges evidently formed the inferior wall of the abscess. The groove for the left lateral sinus was filled by a plastic phlebitis for about the distance of an inch above and below the abscess. Any connection between the abscess and the internal ear was undiscoverable. The interior of the petrous bone was found to be filled with inspissated pus and osteo-porotic cancellous tissue. All organs and contents of thorax and abdomen negative. Stab cultures from the escaping pus, from the interior of the lateral sinus and from the abscess cavity were made. Bacteriologic investigations of these cultures were conducted by Dr. Weaver who was unable to demonstrate anything more than a putrefactive organism. The organisms from the three sources were demonstrated to be the same.

## A CASE OF NODULAR TUBERCULOSIS OF THE CEREBELLUM.

Read before the Chicago Pathological Society, Dec. 10, 1894.

BY E. R. LE COUNT, M.D.

CHICAGO.

Clinical history kindly furnished by Dr. F. J. E. Ehrmann, Resident Staff, Cook County Hospital:

Wm. B., single; white; age 28; English. Admitted to service of Dr. Earle August 19, 1894. Stated that he had been out of work since March, on account of persistent neuralgic pain in both fore-arms. Of late, has complained a good deal of headache; tenderness over occipital region. Had gonorrhea three times; chancre three years ago. Mental condition apathetic; sleeps most of the time and only with difficulty aroused. Eyes, pupils dilated and react slowly. Eye grounds show distended veins on each side. Tongue broad and flabby. Chest, examination negative. Abdomen, negative. General condition good; well nourished. When aroused, answers questions intelligently. Headache worse on motion; no pain

elsewhere. Pain in occipital region radiating toward frontal region. Urine amber colored, acid, 1015. no albumen. Temperature varied between 96.4 and 99.4; as a rule, was below normal. Pulse 64 to 80; respiration 20.

Patient continued in this condition until September 23, when death occurred. Gradually apathy merged into stupor, a semi-comatose condition, and full coma.

### NECROPSY.

Necropsy showed several (six to eight) nodules the size of small hazel nuts in left cerebellar lobe, some separate entirely from others; some deeply seated, and others in connection with the meninges. On section, these showed softened centers. There was also tuberculosis of the lungs; exact form and degree not stated.

Microscopic examination: Well marked necrosis; non-staining centers to all nodules examined; surrounding zone of round cell infiltration not very marked; very few giant cells and those not typical of those seen in tuberculosis elsewhere; tubercle bacilli found by staining with carbo-fuchsin and methyl blue—not numerous, found only in periphery areas of necrosis in the zone of round cells.

Conclusion: Tuberculosis of the cerebellum, corresponding to what is known as solitary tubercle. But there were more than one, and some were isolated from others and therefore the term, nodular tuberculosis, meaning areas of tuberculosis larger than the usual forms of tubercles would perhaps not be inappropriate.

### DISCUSSION.

Dr. A. R. EDWARDS—I was especially interested in the case Dr. Le Count reported, because of the fact that Dr. Ehrmann, of the house staff, and myself, had an opportunity to study the case clinically and make an ante-mortem diagnosis of the tumor, as well as its location. There are several points in the clinical history that were not recorded on the history sheet, of which I have notes. Although the patient was markedly paretic on both sides of the body, there was absolutely no localized paralysis in any member. Furthermore, there was no disparity between the two sides, the ocular muscles were perfectly normal and the reflexes were but slightly increased. There was no persistent vomiting, the patient vomited only once. We noted, from time to time, that there was never a slowing of the pulse. The patient complained of vertigo, even when he sat up in bed; "saw things moving around," as he expressed it. Regarding the ophthalmoscopic examination, not only were the retinal veins greatly engorged but the arteries were decidedly small, and there was, in addition, a small patch of choroiditis in the right eye. Here and there through the retina was a reddish color, and even opalescence of the disk, so that the condition was illustrative, not only of choked disk but also of optic neuritis and retinitis. Besides that there was one feature among the few focal symptoms which put us in the direction of making the local diagnosis; the fact that motion, so far as the head was concerned was perfectly free from side to side, but it hurt him considerably to throw his head in a forward direction. That suggested some affection in the posterior fossa. Then with the vertigo and ataxia, the marked choked disk and this stiffening of the muscles of the neck, as well as the localized tenderness there, the diagnosis was made of a cerebellar tumor. As to the nature of the tumor, an abscess was thought of. The patient declared that he had never had any venereal disease. Examination of the ears showed nothing abnormal. He had no temperature, and nothing in the periphery of the body or in the heart that would make us think of metastatic abscess. Syphilomata are not as frequent in the cerebellum as elsewhere. His gait was ataxic.

A careful and thorough anti-syphilitic treatment was instituted; two careful inunctions being given, one in the morning and one at night, and he was given large doses of iodid. That was continued three or four weeks, with absolutely no improvement up to the time the patient died.

Dr. F. J. EHSMANN—I have nothing to add to the report,

except to say that the patient died unexpectedly; how that can be accounted for I do not know; it might have been caused by pressure on the medulla.

DR. SANGER BROWN—These cases have certainly been very interesting to me. In the case of Dr. Le Count it seems to me very rare discrimination was displayed in arriving at the diagnosis by exclusion and in other ways, but I think I should hardly have felt warranted in being so certain as to the position of the tumor as they seem to have been, inasmuch as the ataxia does not seem to have been strictly a cerebellar ataxia. It would seem to me, from the description given, that it might have been accounted for by the vertigo. It is a generally conceded fact that the cerebellar gait or cerebellar ataxia does not occur unless the middle lobe of the cerebellum is affected, and it appears that the middle lobe of the cerebellum was not affected in this case. It seems, in fact, that the symptoms were more particularly due to irritation than to pressure. Another point might be mentioned in this connection, and that is that in tumor of the cerebellum the knee-jerks are generally absent, and they were not absent in this case. A few months ago we had at the Post-Graduate Medical School a case of optic nerve atrophy and blindness, with persistent turning to the left and a cerebellar gait where the tendency was to sway. She did not complain particularly of vertigo. The knee-jerks were entirely absent. I made a diagnosis from the history, and for various reasons, of cerebellar tumor and the post-mortem justified the diagnosis. Within two or three weeks we had a case very similar in many ways, in which there were no focal symptoms but optic nerve atrophy and loss of the knee-jerk, and again I diagnosed cerebellar tumor. There was evidently a growth within the cranium somewhere, but the autopsy showed a large cerebral tumor in the anterior lobes, so the diagnosis in that case was entirely wrong. It appears, however, that at the operation, after I had made my examination the operator was given a history of some sensory symptoms in one side of the face and in one arm, and he operated on the supposition that there was a tumor adjacent to the motor area, and he was right.

It was noted in the case reported by Dr. Morris, which was extremely interesting, that there was no ataxia, and yet the disturbance in the cerebellum must have been very much greater than in the last case. The variations in temperature and the subnormal temperature I think were very interesting, and it ought to be recorded as an interesting clinical fact for which at present we can offer no sort of reasonable explanation.

The case reported by Dr. Brower, of gumma of the cerebrium, was to me exceedingly instructive, and I do not think we would be warranted in regarding Dr. Brower's diagnosis as a mistake. I can imagine how very much surprised he must have been, with that array of symptoms, to find nothing on the surface of the brain, but the growth was just beneath the surface involving the tissues and the fibers passing off. I did not learn in that case the condition of either the knee-jerk or the fundus.

DR. BROWER—The fundus was normal. The knee-jerk was slightly exaggerated.

DR. BROWN—It would not be necessary, with the symptoms that were present, to examine the fundus in order to make a diagnosis, but it is always interesting to have the examination as complete as possible. I did not learn whether great pain in the head was complained of or whether there was vomiting.

DR. BROWER—There was no vomiting and no special pain in the head after the onset of these symptoms; the man had had headache for several years previously.

DR. BROWN—I should think that would make the case very much more interesting, more unique. How could such a tumor have existed (and it must have been a considerable time in forming) without producing one or two of the three cardinal symptoms in cerebral tumor, that is the focal symptoms, the paralysis or convulsions, the vomiting and the choked disk or optic neuritis. Those are considered the three cardinal tests for cerebral tumor.

DR. H. T. PATRICK—These cases have been very interesting and I wish to add just a word. Bruno, several years ago, called attention to the fact that large tumors in the frontal lobes do cause the cerebellar gait and other symptoms attributed to the cerebellum. Regarding the case of Dr. Brower, I beg leave to take exception to what I understood to be the meaning of Dr. Brower and Dr. Bishop as to the place of origin of the tumor; that it sprang from the centrum ovale. I think the position of the tumor, as well as the origin of most cases of gummata would lead us to sup-

pose it sprang from the meninges of the surface and grew inward, which illustrates a very important point, not sufficiently emphasized, that cortical epilepsy, so-called, is often produced by subcortical lesions. This is of importance, not only in making the diagnosis but in the treatment of these cases by operation, because I think it necessitates a large opening of the cranium and if nothing is found in the cortex, at least on the surface, it is advisable in most cases to make a free incision in the brain. This has been shown to be not a serious traumatism; if the incision is made parallel to the fibers leading from the surface, it adds little risk to the operation, does small damage to the patient and increases the possibility of finding a lesion. In this case I think such a procedure would have led to the discovery of this tumor because just beneath the cortex, in the arm center, which was the suspected location, was an area of secondary softening due to the tumor which would have been found and probably have led to the discovery and removal of the tumor. In connection with this, in cases of Jacksonian epilepsy, the fits may be caused by a very small lesion in the center corresponding to the fits, or a larger lesion in the neighborhood, so that in many cases the lesion is not to be sought for, necessarily, in the center corresponding to the convulsions. Another point I would call attention to, is that in many of these cases the symptoms are not due to the growth but to a secondary vascular trouble, softening ordinarily, and the hemiplegia in Dr. Brower's case was due, not to the increase in the size of the growth, but to the secondary softening which was easily perceived beneath the tumor, interfering with the motor fibers. For this reason I think it is particularly important to make a diagnosis as early as possible and to be on the lookout. I have a case now under observation, of a man who suffered for a couple of months from severe and constant headache. There were no focal symptoms whatever except slight numbness on the right side, followed by a very slight weakness which did not incapacitate him from work, and shortly before I saw him a very slight degree of aphasia. He was seen by two excellent physicians; the first recognized no cerebral trouble, the other did very promptly, but he did not examine the man's eyes or he would have found a choked disk and could have submitted him to an active specific treatment which would have saved time later. Two days afterward the man had a sudden attack of right hemiplegia, right hemianopia, right hemianesthesia and very marked aphasia, assisting very greatly in localizing this trouble which indicated a large area of destruction. The question at once arose whether the man should be operated upon immediately or whether we should wait. The hemiplegia almost passed off in two days, and the question was still whether we should operate at once or submit the man to specific treatment and wait. We decided to wait, put him on large doses of iodid and two days later he had another attack, a very extensive softening with complete right hemiplegia and he is now in a most deplorable condition; whether syphilitic or not he has very little to gain from an operation of any kind.

DR. H. N. MOYER—I would like to make one remark relative to the case of Dr. Le Count. It seems to me that is a case of rare interest and one very well stated. It has been customary to regard the lateral lobes of the cerebellum as not being concerned in the production of the ataxic gait when they are involved; that is, if the middle lobes and middle peduncle remain free there is commonly no ataxic gait. But I think we shall have to recede from this position somewhat. A case has been published recently, of sclerotic patches in the lateral lobes of the cerebellum, with the typical ataxic gait, the middle peduncle or angles of the root remaining entirely free from any involvement in the process, it being confined entirely to the cortical regions of the lateral lobes. This is a case almost parallel to Dr. Le Count's case. I think it of rare interest as it serves to help clear up some of the doubtful and obscure pathology of the cerebellum.

DR. EDWARDS—As to the size and weight of the tumor in Dr. Le Count's case, although it did not grow in the portion of the cerebellum spoken of by Dr. Brown, when divested of all cerebral tissue it weighed forty grammes, and from the fact that the tumor was nearly the size of an egg, it does not seem hard to understand how, although anatomically it did not originate in the part of the cerebellum which is supposed to produce ataxia, yet by secondary pressure it could cause true cerebellar symptoms.

DR. BROWN—I had a wrong idea of the size of these growths. I thought they were small and not capable of causing such pressure as the Doctor speaks of. But since he speaks of the

tumor being nearly the size of an egg, it is easy to understand how the functions of the middle lobe might be seriously interfered with.

DR. BROWER—There are one or two things that suggest themselves to me in the further consideration of this gumma. I think the growth was a very rapid one. Some of the speakers thought it was a slow growth but I think it was very rapid. The first symptoms of any great brain disturbance, except headaches which he had irregularly for many years, occurred on October 19, and he died on November 23. He had his first convulsion, in which he lost consciousness, on October 19 and as soon as possible after that his physician brought him to Chicago for further advice in the case. I saw him on October 23, the fourth day after he had his first convulsion and I doubt very much whether there was any growth to amount to anything there at that time. As to the origin of the growth that is a matter of speculation, but I am very much of the opinion of Dr. Bishop that it is a growth beginning in the centrum ovale, rather than in the meninges, because I believe if that growth had begun at the cortex in the leg center where it is located, we should have had more disturbance of the lower extremities. Except in his first attack, when the convulsions were general, it was very uncommon for this spasmodic movement to extend beyond the muscles of the hand and the fore-arm, rarely involving the face and very seldom indeed the leg. I suppose I saw him in a dozen of these attacks in the ten days he was here and I noticed no spasmodic movement of the face and none of the leg. It seems to me if this tumor had had its origin at the cortex in the leg center where it was located, and involved the fibers from the arm center secondarily, that the symptoms would have been somewhat converse; we ought to have had more spasmodic movement in the leg and less in the arm, but so far as my observations were concerned there were no movements in the leg at all. The hemiplegia began with the arm and in the course of thirty-six hours involved the entire side of the body. So taking the array and succession of symptoms, I should be inclined to suppose that it began in the centrum ovale. There was no improvement in the hemiplegia after it began. All the symptoms disappeared under the use of large doses of iodid of potassium. I am quite sure the tumor must have made rapid growth.

DR. LE COUNT—In regard to the size of the cerebellar tumors, there were eight of these tumors found and they would average a centimeter to a centimeter and a half in diameter, so that would make quite a mass in the left lobe that certainly could cause pressure upon the middle lobe of the cerebellum. These tumors were more or less spherical, and it was for this reason that I gave the title of nodular tuberculosis, which does not seem to me to be inappropriate. Tuberculosis may affect the cerebellum or the cerebrum. The usual form is tubercular meningitis. We have very rarely a diffuse tuberculosis throughout the substance of the cerebellum or cerebrum, and occasionally this form of nodular or solitary tuberculosis. As there was not a single area, I thought the title of solitary tuberculosis was not appropriate. The discussion, as usual, has taken mainly a clinical aspect. I would have been glad if it had to do with the etiology at least of these cases. The consideration of the primary focus in the cerebrum and cerebellum is considered very conservatively by most authors. Osler mentions it as occurring. Simon, of Nancy, last year made twenty-seven post-mortems in cases of tubercular meningitis and in twenty-five was able to demonstrate a primary focus elsewhere. The primary focus in this case was probably in the lungs. The bronchial glands were found enlarged. The next question that arises is, What is the course taken by the infection to reach the cerebellum or cerebrum? In the majority of cases certainly by way of the lymph vessels, as Weigert has shown in investigating the location of tuberculosis. Then what is the route of the infection in a case of this kind? If we are to presume tubercle bacilli in the lymph vessels, why not a tubercular meningitis and death before we have time to obtain such gross areas as this. On the other hand, if we suppose infection by way of the blood vessels, we must take into consideration the fact that there are probably but few bacilli in the blood vessels and they locate at one point and in this way we have time for the development of large gross or nodular areas of tuberculosis. Concerning extension by way of the lymphatics, the most usual route, I have been unable to find anything in the literature.

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## ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Continued from page 366.)

### CHAPTER VII.

#### CONSTITUTION AND CHANGES OF THE BLOOD IN YELLOW FEVER.

*Recapitulation.*—Facts illustrating the changes of the blood during the active stages of yellow fever. Alterations of the chemical and physical properties of the albumen and fibrin. In many cases complete disappearance of the fibrin. The disappearance of the fibrin appears to be due, not so much to the action of ammonia, which is so often found in the blood of yellow fever, as to the direct action upon this element, of the febrile poison. Character of the blood in the cavities of the heart after death. The alterations in the physical and chemical properties of the fibrin and albumen, lead to transudations through the excretory structures of the kidneys. While the colored blood corpuscles are not specially diminished in yellow fever, they present under the microscope certain peculiar appearances which are referable to the action of certain extraneous excretory matters in the blood. Extractive and fatty matters increased in yellow fever blood. Bile accumulates in the blood, in consequence of the profound lesions of the liver induced by the febrile poison, and in consequence of the failure in the excretory power of the kidney. The serum presents a golden yellow color in yellow fever. Accumulation of the urinary constituents, and especially of the urea and phosphoric acid, sulphuric acid, chlorid of sodium and carbonate of ammonia, in consequence of the profound lesions induced by the febrile poison and its products upon the kidney. Breath alkaline from presence of ammonia. Blood corpuscles rapidly dissolved, after the abstraction of the blood. Blood of yellow fever undergoes rapid putrefaction. Cases illustrating the changes of the blood in yellow fever. Observations illustrating the changes of the organs in yellow fever and in malarial paroxysmal fever. The colored blood corpuscles are not specially destroyed in yellow fever, as in malarial fever. The nervous symptoms of yellow fever referable chiefly to the presence of bile and the constituents of the blood in the urine. Causes of death in yellow fever. Microscopic character of black vomit. Relations of the variations of temperature and circulation to the changes of the blood. Observations and cases illustrating the relations of the pulse, respiration and temperature. Observations of various observers, as Rush, Devoe, Currie, Caldwell, Samuel Jackson, Lewis, Arnold, Chalmers, Lining, Daniel Blair, John Davy, Faget, Leighton and Lyons. The cause of the rapid rise and declension of the temperature in yellow fever must be sought chiefly in the changes induced in the blood, and in the organs upon which the circulation and integrity of the blood depends. Neither the rapid rise, nor the sudden declension of the temperature can be referred wholly to the effects of the yellow fever poison upon the nervous system. Discussion of these propositions.

That the blood undergoes profound changes during the period of febrile excitement of yellow fever is manifest even to the casual observer, in the impeded capillary circulation, purplish, jaundiced and dusky hue of the surface, livid blotches, passive hemorrhage from slight abrasions, leech bites, blistered surfaces, and hemorrhages from the ears, eyes, mouth, gums, and gastro-intestinal mucous membrane, which in some cases are characteristic of the succeeding period of calm or exhaustion.

Although after the subsidence of the fever, at the end of from two to five days, the skin becomes cool and pleasant, the tongue shows a disposition to clean, and the tips and edges are less red, the thirst abates, and appetite for food returns, and the anxiety and morbid fear of death, which may have been great, subside, and both patient and bystander may regard convalescence as established; nevertheless, a careful examination, will show that the circulating fluid has



been altered during the preceding stage of febrile excitement; the eye loses its glistening appearance and assumes a condition of chronic vascularity, of a dull orange red; the flushed countenance gives way to a bloated appearance and dusky, dirty complexion; the sclerotic of the eye is jaundiced, the forehead presents a dusky appearance, which extends also over the neck and chest, the languor of the capillary circulation is indicated in the purple and lobster red condition of the skin, and by the pale marks left by pressure over the forehead, cheek, abdomen, or surface of the extremities; the matters vomited, which at first may be tinged with bile, change to a clear, acid, mucous fluid, and become discolored by small dark specks and flocculi of blood. The further changes of the blood are indicated by an increase in the purplish or yellow suffusion of the surface, and by such a loss of vitality and of the fibrinous elements as manifests itself in the raw claret-colored surface of blisters, in epistaxis, ecchymosis, bloody oozings from the mouth, ears or anus, excoriation of the scrotum, the copious ejection of dark altered blood from the stomach, with little or no apparent effort, copious stools of black altered blood, and by the foul fetid alkaline breath containing ammonia.

It appears to be an error to treat of the changes of the blood as confined to the latter stages of yellow fever, thus regarding the disease as manifesting only two grand stages, viz: that of reaction, irritation and fever, and that of unhealthy subsidence or contamination, characterized most prominently by exhaustion of the nervous system, slow pulse and passive hemorrhages.

*The changes of the blood appear to be continuous, from the time of the introduction of the poison to the fatal termination;* these changes being increased, and their character being modified as the disease advances, not only by the direct action upon the constituents of the blood by the poison, but also by the addition of certain noxious substances, as bile, urea, carbonate of ammonia, sulphates and phosphates and extractive matters.

Certain constituents of the blood, as the albumen and fibrin, are not only altered physically and chemically in the early stages of yellow fever, but as the disease advances, from the cause just specified, certain excrementitious matters, which in a state of health are continually eliminated accumulate in the circulating fluid, and by their direct action upon the elements of the blood, and upon the nervous system, and by their disturbing action upon the processes of digestion and nutrition still further alter the physical, chemical and vital properties of this fluid.

As far as my observations extend, the alterations of the blood in yellow fever consist chiefly in:

1. Such an alteration of the chemical and physical properties of the fibrin and albumen as leads to the transudation of the latter through the excreting structures of the kidney.

2. Various degrees of alteration and diminution of the fibrinous element.

In some cases there is an almost entire disappearance of the fibrinous element. This disappearance of the fibrinous element appears to be due not so much to the action of ammonia, which is so often present in abnormal amount in the blood of yellow fever, but in the direct action upon this element of the febrile poison. From this alteration in the amount and character of the fibrinous element it re-

sults that the blood coagulates imperfectly in most cases, and the clot is voluminous and soft. The amount of serum formed is small, and upon standing, the clot frequently dissolves, leaving a thick, non-coagulable grumous blood. The blood taken from the cavities of the heart and large blood vessels after death is frequently black and fluid; and if, as is sometimes the case, fibrinous concretions are formed in the cavities of the heart, they are small, soft, and of a bright golden yellow color, and much smaller in size and less firm than is usual in attendant diseases near the fatal issue, with similar retardation of the circulation in malarial fever. In the latter disease the formation of firm, light colored blood clots is, as I have shown, by a large number of observations, not only frequent, but also a cause of death in certain cases of pernicious malarial fever.

3. While the colored blood corpuscles are very slightly diminished in yellow fever, they present under the microscope, certain peculiar appearances, which appear to be referable to the action of certain extraneous matters in the blood.

4. Increase of the extractive matters of the blood.

5. Increase of the fatty matters.

6. Accumulation of bile in the blood, in consequence of the profound lesions of the liver induced by the febrile poison, and in consequence of the failure of the excretory function of the kidneys. Many of the changes of the blood, as well as certain cerebral symptoms, may be dependent upon the presence and action of the biliary constituents. Even the nausea and vomiting, as well as the depression of the pulse, and the nervous agitation, delirium and coma, may to a certain extent be referred to the same cause. The serum presents a golden color in yellow fever. This condition of the serum is due to the presence of bile and may be present also in grave cases of paroxysmal malarial fever. If a drop of yellow fever blood be allowed to fall on a piece of bibulous paper the center will appear of a brilliant scarlet, while around the central accumulation of colored blood corpuscles extends a ring of bright golden colored serum.

7. Accumulation of the urinary constituents, and especially of the urea and phosphoric acid, sulphuric acid, chlorid of sodium and carbonate of ammonia, in the blood, consequent upon the profound lesions induced by the febrile poison and its products upon the kidneys. Not only is the blood alkaline in many cases of yellow fever, but the blood contains ammonia, resulting from the decomposition of the urea, the presence of which may be rendered evident by various means, as by the addition of potassa, soda or lime; and in some cases the ammonia is so abundant as to be demonstrable without resorting to these reagents. As the phosphoric and sulphuric acids are retained in the blood when the function of the kidneys is embarrassed or suppressed, they unite with the ammonia and thus diminish the alkalinity of the blood and render the addition of potassa or soda or lime necessary in certain cases for the demonstration of the ammonia. The reaction of the yellow fever blood is alkaline during life, but it rapidly changes in some cases to the acid reaction after death, from the rapidity of the putrefaction, and also from the development of numerous forms of low organization.

8. Rapid dissolution of the colored corpuscles, after the blood is abstracted from the body, either



Patient.	Age.	Referred by	Principal Symptoms.	Diagnosis.	Free HCl.	Lactic Acid.	Total acidity	Principal germs found.	Remarks.
B. F. D. . . . .	22	Dr. Newman . . .	Vomiting, gas, pain.	Stenosis, dilatation. . . . .	1 hr. after meal.	Ether ext., Uffelmann's. +	60	Sarcinae in great quantity . . . . .	Sarcinae found in fasting stomach, forming a great mass.
Mrs. McC. . . . .	45	Dr. Newman . . .	Diffuse pain, great distress after eating, depression. . . . .	Gastritis, beginning atrophy. . . . .	—	Ether ext. +.	40	Micrococci, short and long rods. . . . .	Great number of wedge shaped colonies of micrococci.
Mrs. J. B. . . . .	47	Dr. Bacon. . . . .	Prickly sensation in stomach, headache, anorexia. . . . .	Gastritis, beginning atrophy. . . . .	—	Ether ext. +.	32	Small rods like bacilli coli com. yeast, lactic acid germs. . . . .	Could not exclude carcinoma at first; after two years patient showed no signs and HCl .11% . . . . .
Annie S. . . . .	31	Dr. Martin. . . . .	Pain in epigastrium, dizziness, headache	Chronic parench nephritis. . . . .	—	No lactic acid by Boas' method.	15	Nothing marked beyond a few rods; no cultures made. . . . .	Gastric symptoms so severe to mask all disturbance; albumen traces hyalin and gran. casts.
Dr. . . . . .		Dr. Martin. . . . .	Distress 1 hour after eating, depression, loss in weight. . . . .	Tuberculosis pul (?) . . . . .	—	Ether ext. + faint. . . . .	30	Large number of tubercle bacilli. . . . .	The tubercle bacilli appeared in contents of S. drawn off.
Wm. B. . . . .	46	Dr. Hall. . . . .	Paroxysms of gastric radiating; nervous unrest. . . . .	Neurosis . . . . .	+	—	90	Mixed variety, few microorganisms, no cultures. . . . .	As only the usual appearance of a few germs distributed here & there, no bacteriologic study was made.
M. P. . . . .	43	The General Medicine Clinic . . . . .	Uneasiness in region of stomach, anorexia, loss in weight, night sweats. . . . .	Carcinoma of the pylorus. . . . .	+	Extract with ether, with Uffelmann's reagent. ++	55	Lactic acid forming bacilli; long and short rods, threads; curved bacilli. . . . .	Four exam. made 9 mos. after HCl negative; tumor pylorus; patient left city, reported dead.
Mrs. D. H. . . . .	38	Clinic. . . . .	Rapid loss in weight, gastralgia. . . . .	Withheld for further examination.	+	Boas' method .05+; two analyses made.	35	Few lactic acid germs. only appeared in milk and starch culture. . . . .	First attempt no lactic acid forming germs appeared, on second attempt few found.
Chas. W. C. . . . .	39	Clinic. . . . .	Vomiting as soon as he took food, loss in weight . . . . .	Chronic interstitial gastritis . . . . .	—	—	Very weak pepton	Staphylococcus and streptococci, short rods like bacilli coli communi. . . . .	Stomach just below costal arch by gyromele exam. held only 350 c.c. water.
Mrs. C. S. . . . .	37	Dr. Sanger Brown.	Bloating, dyspnea especially at night, headache. . . . .	Gastro-enteroptosis . . . . .	+	—	43	Black and red yeast colonies, gas forming. . . . .	Symptoms disappeared after disinfection.
A. L. B. . . . .	34	Dr. Kirkpatrick. . . . .	Distress shortly after eating, rapid emaciation, pale, approaching cachexia.	Carcinoma ventriculi. . . . .	—	Boas' method 0.95% by Dr. Wesener. . . . .	...	Lactic acid bacilli, threads, short rods, micrococci. . . . .	Diagnosis not confirmed, laparotomy advised.
Mrs. M. W. . . . .	61	Dr. Ayers. . . . .	Pain in epigast. region radiating to the right side. . . . .	Gastro-enteritis, chronic, with atrophy. . . . .	—	Boas' method 0.055% . . . . .	20	A number of colonies of bacilli like the coli communi. . . . .	The cultures gave culture medium an acid reaction.
Mrs. B. R. . . . .	32	Dr. Brower. . . . .	Late gastric symptoms of tuber. pul.	Tuberculosis pul.	—	Uffelmann's (negative) . . . . .	9	Tubercle bacilli in great numbers in stomach contents. . . . .	Could not determine colonies, only what might be swallowed.
Mrs. L. . . . .	54	Dr. Babcock. . . . .	Cardalgia, belching, pyrosis, headache, insomnia. . . . .	Gastroptosis; gastritis gland. chron. . . . .	—	Uffelmann's —	69	Several forms yeast, gas forming; wedge shape colonies of micrococci, lactic acid only in one milk culture. . . . .	Great number of leucocytes.
Mrs. H. S. . . . .	28	Dr. Newman . . . . .	Burning sensation in stomach, gas, emaciation, stagnation of food. . . . .	Gastritis gland. chron. stenosis, dilatation, gastroptosis. . . . .	+	—	60	Sarcinae ventriculi, many other forms but masked by the sarcinae. . . . .	Hyper. of pylorus operation, pyloroplasty advised.
F. S. . . . .	24	Dr. Gehrman. . . . .	Dull heavy feeling after eating, remnants of food 20 hrs. after eating. . . . .	Stenosis (?) (no marked extension) hypersecretion. . . . .	+	—	80	Cladotrix. Algae (rivularia, nostoc communi) cultures in water. . . . .	Stomach contents were a rich dark green; after filtering and introducing the algae into the gastric juice, developed rapidly.
Flora S. . . . .	21	Dr. Newman . . . . .	Headache, gas, gastralgia, emaciation.	Dilatation. . . . .	+	—	50	Same as above yeast. . . . .	Light green contents found at night after washing S. in morning; nothing eaten during day.
J. S. McC. . . . .	27	Dr. Sanger Brown.	Constant pain in epigastrium emaciation.	Dilatation, hypersecretion. . . . .	+	—	70	Algae gelatinous fronds in unicellular masses, threads and spirillae; yeast. . . . .	First exam. dark green, after two treatments light green contents from empty stomach.
G. K. . . . .	23	Dr. Melms. . . . .	Constant pain in epigastric region. . . . .	Dilatation, constant flow. . . . .	+	—	112	Similar to above; develop in water a drop dil. ammonia; will not develop when HCl .1% added to water. . . . .	Green fluid; removal by use of liquid soap, and gyromele; lavage retards but green color returns in a day or two.

The work here presented, represents cultivations made over a period of two and a half years.

There seems to be a law in the growth of germs in the stomach as in artificial cultivation, viz., those colonies will take precedence and predominate when

the culture media and other conditions are most favorable for the development of these special classes and varieties. Sarcinae grows best in a dilated stomach with benign stenosis, even where an excess of HCl is formed, whereas outside the stomach the

sarcinæ grows better in an alkaline medium. The fact of the HCl being in excess can not be considered as a reason, but the culture medium is so fertile for the growth of sarcinæ that they rapidly develop in vast numbers, even in this acid medium. It may be that these and other microorganisms that develop with the sarcinæ may excite and cause hypersecretion and the excess of HCl. In the dilated stomach, without stenosis, are often found algæ, cladotrix, and various saprophytes which grow with great rapidity, while other microorganisms take second place. Many forms of yeast thrive well in these cases of simple dilatation many of which are gas forming and differ from sarcinæ ventriculi. In carcinoma, the lactic acid forming bacteria seem to thrive best, and though found in other conditions, yet as sarcinæ thrive best in benign stenosis, the lactic acid microorganisms like better a malignant stenosis.

It is impossible at present to consider infection of the stomach as due to any specific microorganisms. Gastritis glandularis chronica is an inflammatory process excited by various etiologic factors and the process is kept up so long as conditions permit certain groups of microorganisms to colonize. When stenosis occurs, one class seem to predominate, viz., sarcinæ ventriculi, of which there are five varieties. Sarcinæ are found in other diseases besides benign stenosis, but in this class they seem to have the best possible conditions for rapid development. In some cases it seemed as if the entire contents, measuring from 100 to 500 cc., were made up of these packet-shaped microorganisms.

In carcinoma, especially of the pylorus, the lactic acid forming bacilli take precedence. The other varieties are present; in fact an inflammatory process is set up, in all appearances of an infectious nature, but when the experiments and bacteriologic evidence present so constantly the presence of the lactic acid microorganisms in a greater number of colonies than are found in the other diseases of the stomach, it presents startling evidence of considerable diagnostic value, as markedly at least as sarcinæ found in benign stenosis.

I have observed five varieties: Small rods, rounded ends; long threads, unequal lengths: a short slightly curved bacterium; micrococci, and a macrococcus. There are a great number that can produce lactic acid when the media is suitable. There is one class of infection in the stomach which seems to markedly alter the glandular tissue by direct irritation as a chronic inflammatory process. Another class in which the stomach acts as an incubator, producing no great disturbance to the gastric wall, but the absorption of the products formed produce profound general poisoning. Both of these conditions may be present at the same time, or one may overshadow the other.

In experimenting with lactic acid cultures in the stomach of animals the results are not very brilliant. In the dog it is very difficult to grow them—whereas the sarcinæ and the red and black yeast will grow in the stomach if a certain condition is produced.

#### EXPERIMENTS ON DOGS.

Experiment 1: Introducing three tube cultures of sarcinæ into a healthy dog's stomach. No sarcinæ could be found after the lapse of forty-eight hours.

Experiment 2: Tying off the pylorus enough to produce marked stenosis, but not complete.

Introducing three cultures: 1, sarcinæ; 2, red yeast; 3, black yeast.

Result: The microorganisms were found within forty-eight hours, but by no means proliferating.

Experiment 3: Introduced tannic acid into a dog's stomach, applying to the entire wall with the gyromele daily for one week. As this is the first step in the experiment to produce artificial gastritis, I introduced the contents from the stomach of patients suffering from chronic gastritis. As soon as the animal showed signs of loss of appetite, refused to eat meat, and grew thin, the pylorus was tied off as in the other experiments. Here sarcinæ developed rapidly.

Experiment 4: The contents drawn off when introduced into a sterilized milk and put at 37 degrees C. for forty-eight hours showed lactic acid by Uffelmann's reagent +. Did not secure any pure cultures of lactic acid bacilli.

Experiment 5: Introduced algæ from cultures made in the filtered contents of stomach of patients in which algæ was found. The algæ died out.

At present it is impossible to consider algæ pathogenic. The algæ is found in a great many cases of dilated stomachs with HCl+ and hypersecretion. The Germans frequently note a green color of the stomach contents, some alluding to it as bile, but it may be that by more careful microscopic examination of the green colored contents, algæ will be found present, and by careful observation a large number of these cases can be found and classified.

In this work I can only call attention to the presence of algæ in certain dilated stomachs, for the purpose of comparison and grouping the class of microorganisms found in each particular disease. In another work devoted to this subject, I shall give the results of cultivation and classification.

Algæ require quietness and rest to develop well. When cultures are made in small bottles, carried in the pocket, the movements of the body prevent the development, whereas the same culture in a resting condition (as on a shelf), develops rapidly.

The dilated stomach in which the organisms are found shows a great lack of "muscle tone," and may act like a swinging hammock, so that comparatively little disturbance is caused in the body movements. Stagnation exists. This same condition exists in the growth of the microscopic algæ in nature. A running brook is not in as good condition for the growth, as a pool. In cleansing the stomach thoroughly until the water ran clear, and allowing the patients to fast for twenty hours, the green color appeared again in the secretion, which was found, on microscopic examination, to be due to the algæ. This was demonstrated in six cases.

To formulate a satisfactory classification of microorganisms found associated in each class of pathologic conditions of the stomach, is a most difficult undertaking. There are over thirty varieties of pathologic and non-pathologic microorganisms that can develop in the human stomach. Many are found in health and are also found shortly after birth.

(To be continued.)

THE forty-sixth annual session of the AMERICAN MEDICAL ASSOCIATION will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9 and 10, commencing on Tuesday, at 10 A.M.



## SOCIETY PROCEEDINGS.

## Proceedings of the First Meeting of the American Academy of Railway Surgeons.

Held at the Grand Pacific Hotel, Chicago, Ill., Nov. 9 and 10, 1894.

(Continued from page 367.)

## SHOULD A RAILWAY SURGEON BE REQUIRED TO PROCURE A HISTORY AS TO THE CAUSE OF AN ACCIDENT OVER THE SIGNATURE OF THE INJURED?—REASONS OPPOSING SUCH REPORT.

BY DR. GEO. CHAFFEE.

SURGEON LONG ISLAND R'Y, BROOKLYN, N. Y.

It is understood that papers presented before this body are not written to advertise either the writer or this institution.

There are in railway surgery, as we find throughout the broad domain of medicine and surgery, many disputed points, many unsettled questions.

That stalwart fellow—the engineer—who, for hours at a time stands at his post on the engine, while the vestibule flyer is being hauled across great stretches of our country, knows very well the character of the track before him, the nature of the different grades and curves. So too, the captain of an "ocean greyhound" must know well the course over which his vessel must pass, to insure his passengers comfort and safety.

The railway surgeon, in turn, should not only have a fair knowledge of medicine and surgery, but he should as well know something of medico-legal questions; for the course over which his bark may drift is often quite rocky.

One object of this institution is to seek for Truth; another, is to see that Justice be allowed to sit supreme on her throne. If this institution should ever adopt a motto, let "Railway Surgery, Truth and Justice," compose not only the framework, but the entire front, from the ground floor, up. Let us, then, ever be found ready to aid in working out difficult problems, in sifting the good works of others, in selecting truths and valuable facts for the advancement of railway surgery. I have said that in this line of surgery we have disputed points. Reference to our program will show that the topic under discussion is one of them, or this paper would not have been written.

Now I assure you, that the grounds I shall take, and the effort I shall make in the discussion of this question, are not for the purpose of outdoing my opponent in any respect. It is simply with a desire that we may after sifting, secure enough grain to establish a standard by which all may be guided in the future. I shall first follow a line of reasoning, or rather of inquiry, looking in the direction of the injured person.

## THE INJURED PERSON.

Railway surgery compels us to give our first aid to the injured. So we will first consider the injured man. Now is it policy for corporation and surgeon to combine and place their work on paper and on the records of the court against an injured person? I think not.

So far, I have found little trouble in securing the full confidence of the majority of my patients, and, in the course of a few days, when they are able to talk, usually succeed in drawing from them a full and satisfactory history of their case, and this too, in a legitimate way.

In case of slight injury where the surgeon may detect a disposition on the part of the injured person to magnify his trouble and bring suit, is it not possible for him while taking the history of the case, to include in a general way, a statement from the patient as to the cause of the injury—to get the truth, which should be all he will require for the treatment of the case, for a clinical record, and for use as a witness? I think so.

One truth sworn to by either surgeon or patient, and corroborated by the other, is worth more than a thousand affidavits secured under pressure. Suppose the injured party testifies that he has refused to give his signature, and that he resented the kind offer of the surgeon? What effect will such testimony have with the jury? Granting, then, that a signature has been procured by the surgeon, what effect will it have on the injured person? Will he not think that his surgeon is unduly exercised over his case, and will it not arouse suspicion, and at once suggest to his mind litigation? Will not such a course create a prejudice in his mind against the corporation, and will it not call forth unjust and unnecessary criticism from both friends and the public?

Having signed a paper and coupled with it delay, will he not feel or perhaps imagine that he has entered into bonds, or been drawn into a contract whereby he may have been taken advantage of, that perhaps his injury is even of a more severe character than he has been taught to believe, and, as a result—in some cases—may we not get anxiety, worry, and possibly a deranged condition of the mind? May we not aid in developing traumatic neurasthenia, or a hysterio-neurasthenia, which will place the case in the hands of the neurologist, and which alone might eventually be the means of his bringing suit for many times the amount of the original injury? I repeat, that in some cases I believe it is possible for such a turn of affairs to take place.

I am aware that the last question which I have raised carries our investigation into a delicate field. Not only does it take up the physiologic element of the topic—the effect of grief, anxiety, worry and suggestion upon the mind, which in itself would furnish material for a paper, and which I do not care to discuss further, but it also involves the economic principle of compromise.

I will, however, offer in support of the opinion which I have advanced in regard to the psychologic and economic element of this question, a brief quotation from Dr. W. B. Outten's valuable paper on "Traumatic Neuroses:" "Compensation," as viewed by the writer, "does not possess the incidental elements of worry and harassment that obtain when litigation is indulged in. We are free to confess that in our views, the influence of compromise is great. It relieves the individual of all the attendant worries incident to litigation; its influence is in the direction of mild, normal and unruffled action."<sup>1</sup>

Again, granting that the surgeon has himself procured the signature of the injured party, suit is brought and the surgeon takes the witness stand with a history of the case over the signature of the plaintiff before him, and gives his testimony accordingly. Now, what effect will this surgeon's testimony have with the jury? I think the effect will be most damaging, both to surgeon and corporation.

Having, for the time being, disposed of our injured person, let us turn whatever power we may have left in our searchlight upon the corporation, and what shall we find? We shall find among the officers of the company a surgeon, an attorney, with some a claim agent, and with others, an adjuster.

## THE DUTIES OF EACH.

Now for what purpose are these gentlemen employed?

1. The surgeon is employed to do surgical and medico-legal work.

2. The attorney or counsel is employed to do legal work, to try cases in court, to give legal advice, etc.

3. The claim agent, or adjuster, is employed to investigate all claims, to ascertain the causes of accidents, to visit witnesses, to secure all the information possible from various sources for the use of himself and the attorney, and last, but not least, to pay off claims.

I have briefly but clearly outlined the duties of surgeon, attorney and claim agent. Is it right, then, for a corporation to ask its surgeon to do the work of claim agent? The surgeon is employed, remember, to do surgical and medico-legal work. But I know you will ask, Is not this medico-legal work? Not strictly so. On the other hand, the procuring of a signature is a strictly legal procedure, having no medical status whatever; hence this fact carries the question under discussion outside of surgical and medico-legal lines, placing it in the hands of the company's attorney, or claim agent, where it justly belongs. The cause of an accident may be classed as surgical or medico-legal; but the procuring of a signature is quite another thing. It is purely legal and the work of the legal side.

I do not wish to be understood as taking the ground that it is wrong and never necessary for the company to secure the signature of an injured person. Far from it! In certain cases it may be highly essential. That, however, is for counsel to decide, and, having decided, let him do his own work, and let the surgeon keep right on "sawing wood," or rather bones, if necessary. When a surgeon lays aside the agents placed in his hands for the practice of surgery he should, for the time being, lay off the title of railway surgeon, for he virtually steps across the line from surgery to law when he assumes the task of procuring the signature of an injured person. And although his pathway while doing this work may apparently be strewn with roses of the brightest tint and sweetest perfume, I am certain that he will find upon the witness stand a chair well upholstered with the sharpest of medical legal thorns.

<sup>1</sup> R'y Surg., Vol. I, No. 7.

## TREATMENT OF BURNS OF THE CONJUNCTIVA.

BY D. C. BRYANT, M.D.

OCULIST UNION PACIFIC RAILWAY, OMAHA, NEB.

In order to come to any rational conclusions in regard to the treatment of any certain class of injuries, it becomes necessary to inquire into the nature, cause and results to be expected from the kind of wounds under consideration.

A brief glance at the causes and the conditions usually found in burns of the conjunctiva, and the consequences following them, will therefore be proper before entering into a consideration of their treatment. Before doing that, however, I will say that on account of location, direct continuity of tissue between the cornea and ocular conjunctiva, and the constant apposition of the palpebral conjunctiva with the cornea, these membranes are usually both involved in all burns of any consequence, hence in this paper the cornea will be included in the consideration of burns of this region.

Railroad employees, from the diversity of their work, take in nearly all the trades known to mechanics, and consequently are liable to any or all of the accidents common to men engaged in these pursuits and, among other injuries, burns of the conjunctiva and cornea are very common and arise from many different causes.

Among the most common agents are molten metals as iron, lead and Babbitt metals; hot metals (not melted) in the shape of scales or chips of iron, chemicals either alkaline or acid, gunpowder in many forms, hot water, steam, hot ashes, hot cinders, in fact anything possessing the requisite amount of heat or caustic properties and coming in contact with the conjunctiva or cornea. On account of the quick closing of the lids, when danger approaches the eye, only a small portion of molten metal usually reaches the conjunctiva. Be this amount large or small, unless it has become so cooled in transit as to prevent, it is immediately spread out over the anterior surface of the eyeball by the tight gripping of the lids which the sufferer is unable to prevent. While this spreading of the hot metal increases its surface, and the extent of the injury, by its allowing quicker cooling of the foreign body, it diminishes the depth to which the destruction of tissue extends. Molten metal flying some distance before striking the conjunctiva, may become cooled and hardened sufficiently to retain its shape and yet be possessed of enough heat to produce a burn capable of bringing about the most disastrous results.

The burns from scales and chips of hot iron are usually more limited in extent than from liquid metal, but often extend to as great a depth. The most common among chemic caustics is lime in some form, usually in the shape of mortar, though I have seen a number of injuries from dry pulverized lime being blown or thrown into the eye, and quite recently have seen a case where one eye was destroyed and the other seriously burned by the lime in a so-called whitewash mixture. This accident happened in one of the Union Pacific shops where three of the employees were whitewashing with a steam apparatus used for this purpose. One of the pipes burst, throwing the lime into the eyes of all the men around the machine at the time, but destroying only one eye, as above stated. The burns received by the other men, though painful, involved only the superficial layer of the cornea and were not serious.

Of the acid caustics strong sulphuric, nitric, muriatic and nitro-muriatic acids are the most common. A very small drop of either received in the conjunctival sac is capable of producing very serious consequences to both cornea and conjunctiva, before it loses its destructive power from dilution by mixing with the fluids of the conjunctival sac.

Powder in all of its forms, from the common black gunpowder to the most powerful nitros, are used in different ways by the men in the employ of the railroads, and accidents of all kinds arise from the careless handling of them. Burns from this cause range all the way from the slightest injury of the conjunctiva or cornea to the complete destruction of both these membranes.

Whatever the agent in the case may be, the amount of damage done and the results to be expected to follow will depend upon the location, extent of surface over which, and the depth to which the destructive process has extended. If the injury implicates the cornea the damage to vision will depend upon the depth and location of the burn, as if it extends deeper than the epithelial layer a scar is sure to be left whatever the treatment may be. If the injury be small and situated in the center of the cornea great damage to vision will be done, and if of large size—involving all or nearly all of the surface of the cornea—the vision will not

only be lost but the extent of the scar will preclude its restoration afterward by any operation. The burns situated in the conjunctiva are not of so much importance, if the destruction be confined to either the ocular or palpebral portion alone, but as this rarely happens where the wound is at all extensive, we usually have to deal with two raw surfaces constantly in apposition. The result of the healing process in these cases is the more or less close and extensive union of the lid and eyeball, and in some cases the union is so extensive as to entirely destroy the conjunctival sac.

From this hasty review of the cause, effects and final results of these injuries, it becomes apparent that a rational treatment, to meet all conditions, should be divided into three stages; the care of the injury itself, the management of the healing process, and operations for the correction of bad results. The first would include the time from the receipt of the injury through the first few days following, until the dead tissue has all separated and sloughed away. The second stage would extend from the end of the first period to the point where the healing process has been entirely completed, and the third and last would be after the completion of the second stage when the skill of the surgeon may be called upon to remove or rectify the results of the injury, or of the healing process, or of both.

The treatment in the first stage will include the checking or relieving the pain, the removal of the foreign substance, and the cleansing and dressing of the injured parts.

Relieving the pain is purposely put before the removal of the cause in these cases, for the reason that it is almost impossible to even examine a patient suffering from these injuries, let alone the removal of foreign material from their eyes, before the pain is relieved. With many patients, and in the less severe cases, cocaine applied locally will be found a very effective remedy in relieving the pain, so that the further steps of treatment in the first stage can be proceeded with without hindrance, but in severe cases and with the more timid patients a general anesthetic, as chloroform or ether, will be found necessary. While under the influence of the anesthetic the injured parts should be carefully examined and everything of a foreign nature removed. If the burn be caused by any of the metals, or lime, all small particles should be carefully sought out and removed, and this is sometimes a very slow and tedious process where many small particles are embedded in the substance of the conjunctiva or cornea or both, but this part of the work must be thoroughly done, for the minutest portion of foreign substance left will certainly act as an irritant and increase the amount of inflammation and ulceration to follow. After every particle that can be found has been removed, the conjunctival sac should be freely washed out with some aseptic fluid, one of the best of which is sterilized water, either pure or with the addition of boric acid. When the cause of the burn is some liquid substance, thorough washing will be sufficient unless the agent be an acid and the patient seen very soon after, or at the time of the injury, when a weak alkali added to the water would no doubt be of some service in neutralizing the acid remaining in the conjunctival sac.

In dressing these wounds, after cleansing, the chief principle observed in the dressing of burns in other parts of the body should be observed; that is, the exclusion of air. Burns in this locality are very favorably situated for the carrying out of this principle, as the mere closing of the lids does this pretty effectually. Although the lids are of service in this respect they are capable of causing much damage in other ways. The continual rubbing of the palpebral conjunctiva on the cornea or the ocular conjunctiva, in winking, would seriously interfere with the healing of any broken surface on either. To obviate this difficulty, as well as to add further protection from air, a light compress of borated cotton and a gauze bandage should be applied. Before applying the bandage a little vaselin, olive or castor oil, should be dropped into the conjunctival sac to act as a lubricant, and also to separate the broken surfaces to a greater or less extent. Of these agents, I find the castor oil is the most bland and the least easily absorbed.

If the burn is extensive and the cornea involved, atropia should be added to the oil, both for its effect on the cornea and to prevent or subdue the iritis which is pretty sure to follow any severe burn of the cornea. The dressing can be removed and the drops repeated every four or five hours as needed, and at such times all pus and sloughs should be wiped away with pledgets of cotton soaked in saturated solution of boric acid. For the first forty-eight hours after the receipt of the injury, I have found a small bag of broken ice applied over the bandage, the greater part of the time, to be

of the greatest service in limiting both the swelling and the inflammation. To control the pain following these burns, a hypodermic injection of morphia or morphia by the mouth should be given. No reliance can be put on cocaine as recommended by some writers for this purpose. The careful cleansing with aseptic lotions, and the complete rest procured for both the lids and the eye itself by the use of the bandage, and the atropia and application of the ice-bag, comprise about all that can be done to check the inflammation, limit the ulcerative process so liable to follow or attend the sloughing of the dead portions of cornea or conjunctiva, and hasten the beginning of the second or healing stage.

With the beginning of the second stage the treatment changes to a considerable extent, as the objects to be attained here are very different from those in the first stage. Here we desire to hasten the healing process, check further destruction of tissue by ulceration and prevent as far as possible the formation of adhesions between the lids and eyeball. The use of the bandage should be continued, as well as the oil and the careful cleansing of the granulating surfaces. Just how much can be done to prevent the formation of adhesions is something of a problem.

My own experience in these cases, and I have seen many of them, has taught me to believe that little good is accomplished by any of the methods given in the text-books to prevent this dreaded result, except in the cases where the burned surface is not large or is situated near the margin of the lids. In these mild cases the breaking up of the adhesions by passing a strabismus hook around them and forcibly separating the adhering surfaces at each dressing has, in several cases that have come under my care been of great benefit, in some cases preventing union entirely and in others making the uniting band so small as to be very easily removed by operative procedures afterward. Of late, however, I have adopted a plan that in my hands brings about much quicker and better results than any that I have seen advocated. It may have been used by many others before me, but if so I have failed to find any mention of it in print. This plan consists in treating the burns in the ocular conjunctiva, (at the end of the first stage) the same as any other wound causing a solution of continuity of that membrane would be treated, that is, separating the conjunctiva from the sclera round about the burn to an extent sufficient to allow of the bringing of the edges of the conjunctiva together and uniting them with stitches. The unbroken surface presented by the shifted portion of the ocular conjunctiva prevents any union between that and the denuded surface of the palpebral portion of that membrane, which is then left to itself to heal by granulation. The loose connection between the conjunctiva and sclera allows of very great displacement of this membrane and one is often astonished at the size of the wounds that can be covered in the way above mentioned. Time and trouble are saved to both patient and surgeon, and fully as good if not better results obtained than would be by following the old rule of letting the adhesions form and then removing them by plastic operations.

In cases where the amount of conjunctival tissue destroyed is so great that the above method can not be used, I have for some time been in the habit of employing skin grafts to cover the denuded surface not, as suggested by text-books, at the end of the healing stage, but at the beginning. As soon as the dead tissue is cleared away, the conjunctival sac is thoroughly cleansed with warm boric acid solution and Thiersch's flaps or grafts applied to the raw surface. The compress and bandage are then re-applied and left undisturbed for twenty-four hours when the dressing is carefully removed and the lids separated sufficiently to allow the escape of whatever fluid may have collected in the conjunctival sac.

As every one knows who has tried skin grafting in this region, the chief cause of failure is in the amount of moisture or secretion that collects in the conjunctival sac. This is less at the beginning of the second stage than later, when the denuded surface is covered with more luxuriant granulations, hence the propriety of using the grafts as early as possible.

If the first set of grafts die wholly, or in part, another attempt should be made with as little delay as possible. By freshening the granulating surface, (by scraping) these attempts can be repeated until success crowns the effort, or the healing process shuts out any further opportunity.

In many of these cases the grafting will prove successful and the formation of adhesions be prevented, but in those cases where this part of the treatment proves a failure it

leaves the conditions no worse for the third stage than they would otherwise have been.

The treatment in the third or last stage aims at the correction of the defects produced by the injury or the healing process following. These conditions may be such as to call for an enucleation to stop the constant irritation caused by adhesions between lids and eyeball, or to prevent sympathetic trouble where the burn has involved the deeper structures of the eye; an amputation of the anterior part of the globe so that a shell can be worn to cover up unsightly scars; an iridectomy to improve vision; a plastic operation to remove adhesion between eyeball and lids or between the lids themselves; or for an operation to correct an entropion. In these cases each individual one is a study in itself and no certain rules can be laid down for their management. The skillful operator can here have his ability and patience tried to the utmost, and then after bringing all known resources into use may still score a failure. But with patience and perseverance in the performance of whatever operation the particular case in hand may call for, the results in many cases are sufficiently good to satisfy both the patient and surgeon.

Even if the vision of the injured eye is lost, many dollars can be saved the railroad company, and the patient himself be much better satisfied, if a fair appearing result can be obtained. Nothing enlists the sympathy of the jury more, and consequently increases the amount of damages awarded, than an unsightly appearance presented by the complainant. For the benefit of both the patient and the company that foots the bill, as well as for his own reputation, the railway surgeon should treat these cases with patience and perseverance, even when no benefit except from a cosmetic point of view can be expected.

#### DISCUSSION.

DR. PECK—In connection with this paper I desire to report a case which was interesting to me, and one which I consider unique. The case was that of a miner who was standing directly in front of an exploded dynamite charge, and received the full force of the explosion in his face and upper extremities. Both hands were burnt off to the wrists, and there were serious burns on the face, head and eyes. As a result of the burns of the cornea, there was extensive sloughing of both corneæ and in one of them there was perforation with disorganization and extrusion of the lens and escape of both aqueous and vitreous, so that when I dressed his eyes one day, I found the entire anterior segment of the eyeball inverted in a conical or funnel shape. To my surprise, after a few days the perforating ulcer healed, the contents of the eyeball filled out again to its normal shape or nearly so, and the man had perception of light with that eye.

DR. HARNDEN—I have received a good deal of comfort from this paper, for the reason that some years ago in a plastic operation of the face for a burn, there was cicatricial contraction, and I adopted a measure for which I received a great amount of censure from some of my confrères. I stitched the lids of the eye together, and I stitched the upper lip down to the chin, drawing them down by sutures, and to my surprise there was cicatrization. I did a plastic operation which healed without the usual contraction, but I made incisions, separated and dissected out the tissues, leaving a pedicle, and the sutures held the lid which had been drawn down to an unsightly condition, and the upper lip having broadened out to the margin of the ala of the nose, great deformity was prevented. The man was a banker, and with the exception of a false mustache which he has to wear on that side to match the other side, you would scarcely notice that he had been so seriously burned. Compared with the deformity he had, it was a great improvement. I was blamed for doing this operation, as it was considered by some an unprofessional act.

(To be continued.)

**The Forty-sixth Annual Session** of the AMERICAN MEDICAL ASSOCIATION will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9 and 10, commencing on Tuesday, at 10 A.M.

### Louisville Academy of Medicine.

The regular meeting of the Academy was held Monday evening, March 4, Dr. W. L. Rodman in the chair.

DR. I. N. BLOOM—I wish to report three cases of interest. A gentleman was sent me by an oculist three months ago with request to examine him for suspected syphilis. There was an ulceration on one tonsil, which had not progressed for four weeks, and the examination was requested with the hope that I could elicit symptoms which would show the ulcer to be the result of secondary syphilis. On stripping the patient nothing was found, and I telephoned that I could find nothing indicative of syphilis. The history was perfect; he stated that three months had elapsed between the last intercourse and the appearance of the trouble. The oculist was satisfied with the examination, and later discharged him. I examined again in a week with negative result.

This gentleman went to Philadelphia, saw a throat specialist and his diagnosis was chancre of the tonsils. On last Friday another oculist was in my office in search of some literature on chancre of the tonsil. I told him of the case I had seen in my practice four days before, and at that time a physician's card was on my table, who had called to consult me, but whom I had not seen on account of illness. This physician had a chancre of his tonsil. The oculist had not left my office more than an hour when the first patient returned and detailed the history of the development of the chancre in Philadelphia. A general outbreak occurred; there was a macular exanthem and general glandular enlargement, but when I examined him there was, except for slight cervical enlargement, no enlargement of the glands.

I was consulted by an actor who had a macular eruption and a chancre of the tonsil. He had a maculo-papular syphilide. In these cases the cause of the trouble was looked for. In women the bestial habit is the most common cause.

The gentleman who went to Philadelphia is entirely reputable, and the only tracable cause is from smoking a cigar or pipe, or drinking from an infected glass.

The possible cause in the actor, which, however, is of little scientific value, is given by him as follows: In his part in the play he impersonates a tramp, and steals a cigar from another actor and smokes it. Now the actor who first smoked the cigar had lost his hair and there were sores on his head. Actors are a class of people who are well versed in the common symptoms of these troubles. I merely offer this as a possible source of infection. The statistics which I looked up for the physician who came to me in quest of them, I remember generally without remembering them in detail, but I know chancre of the tonsil is sufficiently rare for me to report these cases which I saw in so short a time.

DR. LOUIS FRANK—As to the possibilities of infection I saw one of these cases, that of the physician, and am absolutely sure that his word can be relied upon. There is no possible way that it could be contracted from a prostitute. He practices in the country and knows of but one case of syphilis in the surrounding country and he had not seen that one for some time. The possibility is that the infection occurred from a cigar. The chancre had existed for three weeks before coming to the city. The glandular enlargement was considerable.

DR. WATHEN—I would like to ask Dr. Bloom if he can positively diagnose a primary from a secondary sore when it is situated on the tonsil.

DA. BLOOM—I failed utterly in the first case mentioned; the oculist who saw him first tried to establish a past syphilis with secondary development on the tonsil. The results show that it was a primary lesion. The young man had positively no sore on his body before going to Philadelphia.

DR. FRANK—I would further state that the doctor whose case has been reported, was seen by six and possibly seven physicians, and without asking a single question the diagnosis was made.

DR. BLOOM—But in the case alluded to there was present the secondary eruption which assisted in the diagnosis.

DR. LOUIS FRANK—I wish to report a case which shows the difficulty to be met with in the diagnosis of appendicitis, in the person of a patient at the City Hospital a week ago. The patient was admitted two or three days previously in a critical condition, with a temperature of 103 degrees, and the diagnosis was made by the resident staff, of appendicitis. When admitted to the medical ward she had a rapid pulse,

and a temperature of 103 degrees, distension, and dullness over the right iliac fossa. She denied uterine or venereal disease. When first seen she was in a condition of shock, her abdomen was distended, due to rupture of something in the abdominal cavity. She rallied somewhat under treatment and an operation was done. A median incision was made, and the belly was filled with pus, fully two quarts, which was most abundant in the pelvic cavity,—especially in the right iliac fossa, which pointed to a rupture having taken place here. The colon was bound down by a mass of adhesions. The pain had radiated from the right hip to the umbilicus. (This should have been mentioned earlier.) She died fourteen hours after the operation. At the autopsy the condition was found to be a ruptured tubo-ovarian abscess, at the junction of the tube and uterus. Both tubes were filled with pus, and the adhesions were not very dense. There was not very much pus in the uterus. Before operation the diagnosis of some pelvic trouble was made out by examination. There was present on the posterior vaginal wall a large chancroidal ulcer. Cultures made from the pus in the abdominal, pelvic and uterine cavities were found to contain the staphylococcus pyogenes aureus.

DR. McDERMOTT—The absence of pain in the case reported recalls a case of appendicitis which occurred in my practice. The patient, a robust man, was sick three or four days, and the physician, temporarily in attendance, had thought it a case of pyelitis or typhoid fever. I found a tumor in the region of the appendix and thought there was appendicitis. Dr. Roberts was called in consultation. The patient had had malaise, chills and a fever of 100 degrees. When I saw him his pulse was 110, his features composed; I prescribed tablets of morphia 1-6 grain with 1-150 of atropia, and only one was taken. He lay with his limbs flexed, as these cases generally do. He died in five days, having had a comfortable night before he died. This case staggers me, and I feel more like advocating operative procedures in the future. The autopsy showed pus in profusion but no general peritonitis; there was sepsis without pain or rigors. In all the other cases I have seen, the pain has been one of the most prominent landmarks; and the tumor has been well marked. In this case the appendix had sloughed off and could not be found. Operation had been considered each day but the condition did not seem to warrant it, as all indications pointed to a rupture in the bowel.

DR. FRANK—I would add that in the case in which I performed necropsy, the head of the colon was found displaced higher up than the umbilicus, the appendix up and behind, embedded in adhesions, was between one and two inches long.

DR. WATHEN—On several occasions I have protested against indiscriminate operations. I have been considered, from my reported discussions and from my writings, a conservative surgeon. The neglect and delay in operating upon the two reported cases indicates that doctors are sometimes too slow in deciding that an operation should be done. In Dr. Frank's case, if the patient had been examined when the pelvic symptoms first presented themselves, the pus tubes would have been detected, the operation for their removal done, and the woman might have recovered. She was not referred to the abdominal surgeon; she went on in ignorance of her condition until too late for relief. Dr. McDermott's case, to my mind, presented subjective and objective symptoms which suggested laparotomy, and had it been done soon after the tumor was noticed, it probably would have been successful. There is no doubt that too much operating is being done for appendicitis, and there are cases not operated on which should be. Studying the cases from the standpoint of the radical who is always ready to operate, and from the conservative, who perhaps waits too long, the happy medium is the correct one. The physician who operates on every case, and the one who never operates should be criticised. In all cases where there are symptoms indicating appendicitis, a consultation should be had with one who is doing this work. When no tumor is detected it is difficult oftentimes to make a diagnosis. When a tumor is outlined in the region of the appendix, occurring with a rapid pulse and temperature between 103 and 104, an operation should be done and the appendix or accumulation of pus evacuated, but many cases should be operated on even when there is no tumor.

DR. H. M. GOODMAN—I have heard many discussions on both sides of this subject, but can not get any clear indications as to the time operative procedures are demanded. Dr. Wathen, speaking of the operation being indicated when there is a tumor, recalls to my mind the case of a young lady—about two years ago,—which occurred soon after a case I



had in which Dr. Vance was associated with me, and in which the appendix sloughed off and an abscess formed; there was an opening in his back, abscess discharged, and the man recovered. The young lady's history is as follows: It was a sudden attack with pain over the appendicular region, and a fever of 100 to 101 degrees. Examination showed that about the region of the appendix there was a line of marked tenderness, the tumor being the size of two fists. I strongly advised an operation, but the family protested; medical treatment consisting of salines and sufficient opium to control pain, diet and frequent poultices, was carried out. In thirteen days an irritative diarrhea developed, which was due to the pus discharging in the bowel. The important point is, When do these cases cease to be medical and when do they become surgical? We may represent the case as cured by operation, but it perhaps would have gotten well without it.

DR. J. L. HOWARD—It is my opinion there is not enough operating done in appendicitis. Whenever the diagnosis is made the operation should be done. I know that if I had an attack of even catarrhal appendicitis I would have the appendix removed; there is no harm done, the operation is simple and almost devoid of danger; but if the surgeon is not called in until the patient is in collapse we do an injury to the good name of surgery by operating then, and run the risk of lowering our statistics.

DR. WM. BAILEY—I have said so much on this subject already that I hardly know what to say. Each time that I see cases I am in dread that they will die without a surgeon, yet many get well without a surgeon. I confess I do not know what to do. In the large majority of the cases which we see and in which the diagnosis is made, a tumor shows. But I do not want to say anything more about when they are surgical and when medical. I do not know.

DR. J. B. BULLITT—I am not quite so modest as Dr. Bailey, for I do want to say something on the subject under discussion. Fowler, in his excellent monograph on this subject, says that in the majority of cases in which a surgeon is *prescribed*, the surgeon labors under a disadvantage by being called too late. He should be called early and watch the progress of the case. There should be no question as to when the trouble ceases to be medical; it is always surgical. There is no such thing as a medical case of appendicitis. Oftentimes when the surgeon casts about in his own mind as to when a case should be operated on he is at sea; but each case should be one unto itself. The most dangerous are those cases with a falling temperature and a high pulse rate.

DR. W. F. BOGGESS—The general practitioner seems to be in the minority here to-night. I, for one, am not a believer in indiscriminate operations upon cases of appendicitis. As I sat here this evening, I could recall nine cases of appendicitis occurring in my practice; six cases were not operated on and got well, three cases were operated on and of these three, two died. One of the cases was a young man of 20 years. There was a tumor present the size of a goose egg. He had a septic tongue, temperature of 104 degrees, pulse 140, and I asked Dr. Dugan to see him with me. It was then late and he made arrangements to operate in the morning. The next morning the temperature was 100 degrees, pulse 96, the tumor gone, and the pus discharging through the bowel. There is too much operating on appendicitis, and I do not agree with the statement made that cases should be operated on as soon as diagnosed. And I believe that there were fewer cases long ago, who died from peritonitis and perityphlitis than die now from appendicitis, even though operated upon.

DR. VANCE—I believe that the physician can not tell, if patients get well, whether they have had appendicitis or not.

DR. SCHACHNER—All appendicitis cases are surgical, but it is impossible to lay down any certain rules as to when an operation should be done, and for this reason the surgeon should be constantly in attendance to determine the point when the operation should be done.

DR. FRANK—The general practitioner has as much right to assume that he has a case of appendicitis as the surgeon. The cases operated on are cases of recurring appendicitis, as a rule. When pus is present we should operate, not wait until it ruptures into the bowel. It is criminal to wait till this occurs. I believe, however, that appendicitis is surgical.

DR. McDERMOTT—I am sorry that I precipitated this discussion by the few remarks I made, but I merely want to say that cases of appendicitis, as a rule, are found by the doctor long before the surgeon sees them. The cases of appendicitis which occur are those which had diffuse peritonitis from the beginning.

The paper of the evening was read by DR. AUG. SCHACHNER, on "The Murphy Button; an Unsuccessful Case of Cholecystoduodenostomy."

## SOCIETY NEWS.

**The Kentucky State Medical Society** have issued the following circular:—The fortieth annual meeting of the Kentucky State Medical Society will be held in Harrodsburg, beginning Wednesday and continuing Thursday and Friday, June 12, 13 and 14, 1895. We desire a large attendance and a full program. Harrodsburg, the oldest town in the State, will not be outdone by any of her sister towns who have entertained the Society. The Committee of Arrangements will do all in their power to make the fortieth annual meeting the most popular and successful one in the history of the Society. Reduced railroad and hotel rates will be secured. We invite every member to attend, and bring with him an applicant for membership. Our location is central and easily reached by rail from all parts of the State. Address Dr. Steele Bailey, of Stanford, Ky., Permanent Secretary, for further information. E. M. WILEY, M.D., Chairman Committee of Arrangements.

**Tri-State Medical Society of Iowa, Illinois and Missouri.**—Preliminary announcement and program. The next meeting will be held in St. Louis, April 2, 3 and 4, 1895.

Officers: President, Dr. James Moores Ball, St. Louis; Senior Vice-President, Dr. Bayard Holmes, Chicago; Junior Vice-President, Dr. L. A. Malone, Jacksonville, Ill.; Treasurer, Dr. Charles S. Chase, Waterloo, Iowa; Secretary, Dr. Frank P. Norbury, Jacksonville, Ill.

Committee of Arrangements: Drs. W. B. Outten, George W. Cale, H. W. Loeb, A. J. Steele, E. H. Gregory, C. H. Hughes, J. H. McIntyre and James A. Close.

The Secretary announces the following papers:

Medical Evils, W. R. Allison, Peoria, Ill.; The Influence of Malaria in Rhinological and Laryngeal Work, J. R. Ash, Brighton, Ill.; The Open-Air Treatment of Consumption, Robert H. Babcock, Chicago; President's Address: The Anatomical Renaissance, James Moores Ball, St. Louis; Use of the Lever in Club-Foot, C. W. Barrier, St. Louis; Treatment of Trachoma and Trachoma Sequela, Charles H. Beard, Chicago; Tuberculosis of Bones, D. C. Brockman, Ottumwa, Iowa; The Uterine Sound and Curette, W. M. Catto, Decatur, Ill.; The Treatment of Functional Dyspepsia, J. M. G. Carter, Waukegan, Ill.; Address: Recent Advances in Therapeutics, David Cerna, Galveston, Texas; Food Adulteration—Its Cause and Prevention, Charles S. Chase, Waterloo, Iowa; Report of a Herniotomy, J. J. Conner, Pana, Ill.; Inflammation of the Anal Canal, George J. Cook, Indianapolis, Ind.; Diagnosis of Intra-Abdominal and Pelvic Pathologic Conditions, A. H. Cordier, Kansas City; What is Scrofula? A. C. Corr, Carlinville, Ill.; Study of a Family of Four Degenerate Children, Richard Dewey, Chicago; Injuries to the Pelvic Floor, F. B. Dorsey, Keokuk, Iowa; Pleurisy with Effusion, H. C. Eschbach, Albia, Iowa; Pathology and Treatment of Appendicitis, A. H. Ferguson, Chicago; Treatment of Stricture of the Rectum, S. G. Gant, Kansas City; Parasitic Nature of Cancer, Heneage Gibbs, Ann Arbor; Mucocoele of the Frontal Sinus, W. E. Guthrie, Bloomington, Ill.; Rabies, H. A. S. Hartley, Keokuk, Iowa; Some Forms of Mastoid Operation, R. C. Heflebower, Cincinnati; Indications for Laparotomy, W. O. Henry, Omaha, Neb.; Some Thoughts on Elimination, T. E. Holland, Hot Springs, Ark.; Osteal Tuberculosis Without Arthritis, Bayard Holmes, Chicago; The Economics and Ethics of Reproduction, W. Hutchinson, Des Moines, Iowa; Nocturnal Pollutions and Spermatorrhea, Henry Jacobson, St. Louis; When Shall We Amputate? Webb J. Kelly, Gallion, Ohio; Professor W. W. Keen, of Philadelphia, will hold a surgical clinic; Brain Tumor and its Surgical Treatment, Emory Lanphear, St. Louis; Ununited Fractures and Bone Lesions, E. R. Lewis, Kansas City; To Spray or Not to Spray, H. W. Loeb, St. Louis; Excision of the Rectum vs. Colotomy, J. M. Mathews, Louisville; Excision of the Elbow-Joint in Children, Samuel E. Milliken, New York; Address on Medi-

cine; The Relation of Infection to the Nervous System, H. N. Moyer, Chicago; Electrotherapy of Sexual Neurasthenia, F. P. Norbury, Jacksonville, Ill.; Professor Charles A. Oliver, of Philadelphia, will hold an ophthalmic clinic; Hysteria and Organic Disease of the Nervous System, Hugh T. Patrick, Chicago; Gastric Neuroses; Their Diagnosis and Treatment, H. E. Pearce, Kansas City; Puerperal Eclampsia, A. D. Price, Harrodsburg, Ky.; The Stigmata of Nervous Diseases and Their Utility in Diagnosis, John Punton, Kansas City; (a) Epilepsy—Removal of Cerebral Cyst; (b) Typhoid Ulcer, Perforation, Operation, Merrill B. Ricketts, Cincinnati; Address on Gynecology; Observations in the Peritoneum in Fifty Autopsies, F. Byron Robinson, Chicago; Ophthalmia Neonatorum, E. Orrin Sisson, Keokuk, Iowa; A Clinical Report on Thyroid Extract, Edwin Walker, Evansville, Ind.; Narcophilia, W. F. Waugh, Chicago; Treatment of Chronic Suppurative Middle Ear Disease, M. F. Weymann, St. Joseph; Tumors of the Eyeball, with Specimens, Wm. H. Wilder, Chicago; The Hysterical Element in Joint Diseases, Wm. E. Wirt, Cleveland, Ohio; Address on Surgery, John A. Wyeth, New York.

The sessions will be held in the Planters' Hotel. Reduced rates will be given on all railroads. Gentlemen should secure certificates from the local agent. An elegant banquet will be tendered the visiting doctors by the medical men of St. Louis. Remember the date, April 2, 3 and 4, 1895. Come early and stay late.

## SELECTIONS.

**Treatment of Favus With Heat.**—Culture experiments have shown that a temperature of 45 to 50 degrees destroyed favus fungus. This fact has been applied in the treatment of four cases of favus. A compress of sublimate of gauze (1-4000) was placed on the head and over this double current coils of tin tubing, through which water at about 50 degrees was continuously passed. In three cases recovery resulted in eight to fourteen days.—*Archiv. für Dermatologie u. Syphilis in Centralblatt für innere Medizin.*

**Laceration of the Liver.**—The *Province Med.*, 1894, No. 46, recounts the fall of a bricklayer from a staging 2 m. high and his striking, in the region of the liver, against the rim of a mortar bucket. After comparative recovery from the first shock, he died on the following day, after an attempt to leave the bed to go to stool. On the post-mortem an enormous laceration was found, 17 cm. long and 7 cm. deep, which had almost severed the lower portion of the right lobe.—*Centralblatt für Chirurgie.*

**Operative Removal of a Tumor from the Neck of a New-born Infant.**—An infant was brought in with severe dyspnea and cyanosis, the cause of which proved to be a large tumor which was situated on the anterior surface of the neck and which as a vast struma interfered with the air passages. The swelling, which was larger than a hen's egg, appeared hard and firm, rough and nodular, and extended from the chin even under the sternum. It was covered with integument (which was movable) fascia, and the superficial muscles of the neck, and embraced the hyoid, larynx and trachea on the anterior surface. On account of the poor prognosis that would attend a simple tracheotomy in so young a child, and because this operation could hardly be accomplished alone from the extent of the tumor, the whole mass was removed without anesthesia, yet not without considerable hemorrhage. A part of the thyroid was left. After the operation the respiration was at once free and the child cried aloud. The course of the wound was favorable. On section the tumor was shown to be solid with many small pin-head to pea-sized cysts. Under the microscope there were found in the midst of a connective tissue, vascular and rich in nuclei, solid and hollow epithelial plugs and cysts lined with cylindrical epithelium. The presence of undoubted cartilage was striking. The tumor was regarded as congenital struma. Virchow in the discussion pronounced the tumor a teratoma.—*Centralblatt für Gynecologie.*

**Therapeutics of Actinomycosis of the Skin.**—A Staub, in the

*Therapeut. Monatshefte*, October, 1893, reports the recovery of two cases of actinomycosis in which an operation was impossible. His experience with chrysarobin-resorcin, and chrysarobin-resorcin-ichthyol plasters, (with which salicylic acid was mixed), and with iodid of potash showed that actinomycotic infiltrations could be favorably influenced by anti-bacterial means. Extensive infiltrations gradually disappeared. Recent and long-standing areas showed a difference in the effect of local means, the former reacting slowly, the latter with remarkable rapidity. The thickening disappeared, and the skin became pale and healthy. For the deeper parts of the skin, scarification must precede antiseptic measures, and the same is true for recent infiltrations.—*Centralblatt für innere Medizin.*

**New Method of Staining Micro-organisms in the Blood.**—When there are few microorganisms and especially such as do not take a distinctive color by the Gram method, there is danger of concealment in masses of red blood corpuscles. The coloring matter attacks the hemoglobin; if this is removed, then the blood corpuscles remain unstained. Let a thin layer of blood on a cover-glass dry at ordinary temperature or only slightly elevated, treat for one-half to two minutes with the following:

5 per cent aqueous solution of carbolic acid . . . . .	6.
Saturated solution Na Cl . . . . .	30.
Glycerin . . . . .	30.
Filter.	

This fluid frees the hemoglobin, does not change the form of the red corpuscles and makes no deposit. Pour off, wash in distilled water and stain with carbol methyl blue to which 1 to 2 per cent. of aqueous solution of methyl violet is added. This method is also useful in demonstrating plasmodium malarie.—*Gazette Med. de Paris.*

**The Regulation of the Diet in Chronic Affections of the Heart.**—(Glax in *Internationale Klin. Rundschau.*) As far back as 1880 he had alluded to the favorable effect from strict limitation in ingestion of fluids in the treatment of chronic heart disease. Four years later, Oertel's book on the therapy of disturbances of the circulation appeared, in which, as well, deprivation of fluids was maintained. In two very instructive works on clinical medicine, Glax has summed up his experiences of many years in these two statements: The restriction of the ingestion of fluids is one of the most powerful measures in the treatment of chronic heart diseases, and alone is often sufficient to bring about compensation. In many cases, in which the strength of the heart is already compromised, its efficiency is renewed, as soon as the ingested fluids are regulated to correspond with the excretions.—*Centralblatt für innere Medizin.*

**Actinomycosis in the German Army.**—Düms in the *Deutsche militärärztl. Zeitschrift* states that only seven cases have been reported up to 1890, six in 1884-88 and one in 1888-89. Four of these were of undoubted oral origin, two appeared as inflammation of the lower jaw, and two as parotitis. All these patients became disabled for service. In the three other cases an entrance was effected in other ways, one apparently through the skin in the axilla, one by the lungs (mixed infection with tubercle), one by the abdominal cavity, breaking through into the right lung.

The writer adds three hitherto unpublished cases, one of the lungs resulting in death, two of the jaw; both recovered and remaining well until now, a lapse of three years. It is to be specially noted that in the last two cases the microscopic investigations were made by Karg, and that, in both, he found a variety different from the usual cladotrix form of Bostrom, and resembling the form described by Hesse in the *Deutsche Zeitschrift für Chirurgie*, 1890. The threads were thicker and longer; the usual culture procedures were unsuccessful. Finally, he succeeded in growing a whitish gray colony of clouded cladotrix threads on a blood-serum agar plate, which had been kept in an atmosphere of hydrogen at broad temperature. It was therefore a cladotrix form, difficult to cultivate out of a living body, and anaerobic. The successful treatment consisted in curetting the abscess, and irrigating with sublimate and boro-salicylic solutions. The relative rarity in the army is decidedly striking.—*Centralblatt für Chirurgie.*

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00

SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,  
NO. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.

W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, MARCH 16, 1895.

LEGIBLE HAND WRITING.

"A damn'd cramp piece of penmanship, as ever I saw in my life. I can read your print hand very well. But here there are such handles, shanks and dashes that one can scarce tell the head from the tail. . . . It's very odd I can read the outside of my letters where my own name is well enough. But when I come to open it, it's all—buz. That's hard, very hard; for the inside of the letter is always the cream of the correspondence."—*She Stoops to Conquer*.

We sincerely hope that none of our readers will regard this particular quotation as personal, but we are warned by experience that it is extremely easy to give offense where none was intended, and therefore we premise that the reflections are directed solely to those who write for the scientific press generally and for the dispensing pharmacist as a daily occupation. We sometimes imagine, as we have now and then caught a glimpse of a manuscript (in the office of some other medical journal) that we were fast returning to the customs anterior to the days of CADMUS and EUROPA, when men wrote their epistles in hieroglyphics, with thick ink.

Ideographism represents a picture of the object the idea of which is to be conveyed, or a symbol which by consent represents the object. This differs from Phonetism which seeks by arbitrary letters to represent the sounds of a spoken language, and which in conveyance of the idea leaves less to the imagination.

It is therefore somewhat in the nature of an appeal (in behalf of the management of other journals) that the ideograph be relegated to the Egyptologists along with the bones of the antediluvians who used pictures instead of writing when they wished to convey either instruction, sentiment or emotion to their fellow men. When we attempt to read an article written in hieroglyphics we are much embarrassed, for we think of many things a given

hieroglyph may represent, and if the author is a plain matter-of-fact scientist, he may become angry when he is represented in clear but modern type as saying something quite different from what he would have said, had he used the more common characters of the alphabet. A lively imagination, then, in the translation of hieroglyphs, is to be held severely in check, if either the peace of mind of the translator or the choler of the author are considered.

When the unimaginative drug clerk attempts the compounding of a prescription written in hieroglyph, there is little trouble, for as he is a man of one idea he fills the prescription on that basis, but as there is many a "mute inglorious MILTON" engaged in ordinary pursuits, so the prescription writer in hieroglyph may find to his sorrow when the medicine is delivered that he has to administer a witches' broth as hot as the good DOMINIE SAMPSON was forced to swallow from the ladle of MEG MERILLIES, or a poison as potent as those used in the days of the DE MEDICI.

Even more unfortunate are those extremely busy men who, although using the characters of the common alphabet when writing an article, forget to add a part of the letter or the last part or syllable of the word; for the hieroglyph did mean something if one only knew what it was, whereas the blank represents only vacancy—mere space—which may be filled by anything.

It is not necessary in conveyance of ideas by writing, that one be artistic, although to their credit be it said that there are many physicians whose handwriting is beautiful in its clearness, graceful curves and delicate tracery; but careful and close adherence to the accepted forms of the letters will, in the long run, be the surest way to prevent misunderstanding and accidents, and if by nature one can not acquire the necessary handicraft, he should use the typewriting machine or employ some one to use it in the translation of his manuscript.

We were moved to this excursus apart from the field of medicine, by the reception of an extremely ill-natured anonymous communication reflecting upon the manner of a foot note appended to the letter of a valued correspondent. In that foot note we pointed a moral really addressed to the whole medical division of the great Republic of Letters.

THE FIFTY-THIRD CONGRESS, THE ARMY AND  
NAVY MEDICAL SERVICES AND THE  
MARINE-HOSPITAL SERVICE.

The Medical Department of the Army is in an efficient condition. Its officers have the rank, pay and emoluments of other officers of like grade. They exercise command in their hospitals and over Hospital Corps detachments, and have control of their medical and hospital supplies. The Department asked for nothing from the Fifty-third Congress but to have money appropriated for its current expenses. Its

estimates, however, were pared down considerably in both years. Instead of \$185,000 estimated for the year ending June 30, 1895, and \$175,000 for the following year, the appropriation bills carried only \$160,000 in both instances. The estimate of \$10,000 for the Library was cut to \$8,000; but the appropriations for the publication of the Index Catalogue and for the Army Medical Museum were approved without reduction.

In the first session a bill was introduced which would have seriously crippled the Corps by reducing its number in those grades which are the rewards for long and faithful service; but as passed and approved, the bill merely prevented the appointment of young men to fill vacancies until the number of assistant surgeons became reduced from 125 to 110. This reduction was felt the less on account of the abandonment shortly afterward of nine or ten military posts; but notwithstanding this it is not unlikely that certain Army Medical officers failed to get a leave of absence this year for want of some one to take their place, and that some detachments may have to go into the field during the coming summer without competent medical attendance. The number of assistant surgeons at present on the roll is 115, so that 6 vacancies will have to occur before any new appointment can be made.

The amount, \$60,000, estimated for the annual needs of the Medical Department of the Navy, was duly appropriated; but outside of this our naval confrères have to be thankful to Congress less for what it did than for what it did not do. A bill to reorganize and increase the efficiency of the personnel of the Navy and Marine Corps was reported from the Committee on Naval Affairs with a recommendation for its adoption; but it did not get beyond this stage of its existence. This bill was intended to overcome a stasis in promotion from which the Navy has suffered more or less since the war, and to place in positions of responsibility and command, officers of the line who would otherwise have to pass the best years of their active service as subordinates. To accomplish this it was proposed to sacrifice the interests not only of the Medical and other staff corps, but even of many line officers, particularly those who saw service during the war and who now stand between the younger men and the coveted rank and position. To judge from the language of the Naval Committee's report the bill ought to have been favored by every medical officer in the service: "Comparing the present status of the Naval Medical Corps with that proposed by the bill it will be seen that the titles have been changed substantially as asked for; that positive rank has been given, and that a considerable number of officers have been given an advance in rank." Yet singularly enough the friends of the Medical Department were unanimous in their opposition to its passage, and in sym-

pathy with their wishes this JOURNAL fought the bill to the best of its ability. The bill, however, is dead for the time being, so that it is unnecessary to dwell further on the injustice of many of its provisions.

The status of our Naval Medical Department, compared with that of the British service or with that of our own Army, is such as to cause depression of spirit in those who belong to it. When they entered in their youth they were encouraged to face existing conditions by the hope that the evolutionary processes of the age would speedily effect a satisfactory reorganization of the Corps. Such a reorganization is what the Department needs to give energy to its present membership and enable it to fill its vacancies with the highest grade of medical graduates. While the competition for place in the Army is considerable, the Navy has not been able for many years to fill its vacancies, nor will it be able to do this until a bill has been passed removing the objectionable features of its medical service. Few graduates of medicine competent to pass the Examining Boards would elect to enter the Navy with the rank of ensign or second lieutenant and a bunk in the steerage for three years, when they can enter the Army as a first lieutenant and have selection of quarters over all officers junior to them in rank. Again, the rank of each naval medical officer should be determined by his position in his own corps and not be dependent as now, on that of his co-mate in the line. The framers of the existing law appear to have considered that it would be disastrous to naval efficiency for any staff officer to be promoted to a higher grade until after the promotion of all those of the line having the same date of prior commission. In fact, by the present law, the line officer may be represented as saying to his medical shipmate: "If I can't be promoted, you sha'n't!" Medical officers of fifteen years' service are thus tied down to the rank of junior lieutenants, a grade through which the Army Medical officer passes in five years. Longevity pay, a 10 per cent. increase, granted to passed assistant engineers at the end of every five years, should be given also to the corresponding grade of the Medical Corps; and provision should be made for voluntary retirement at the end of thirty years of service.

It will be seen from what we have said, that the Naval Medical Corps requires much to give it a standing similar to that of other military medical services. Its friends should claim this for it. It is well for them to protect the Corps, as they have been doing lately, from harmful legislation, but they should not rest content with this. A bill to reorganize the Corps when brought before the Fifty-fourth Congress, should be supported by the influence of the whole of the medical profession.

The Marine-Hospital Service has fared well, although the appropriations are much less than the



estimates. The general expenses of the Service are met by permanent annual appropriations of so much of the tax on tonnage as may be necessary, and in consequence no specific appropriation is asked for this purpose.

The total appropriations for repairs and alterations of the hospitals amount to \$27,700, and for repairs and alterations to quarantine stations, \$15,300, and for the maintenance of the Quarantine Service, \$125,000. This amount will give an ample appropriation for the efficient conduct of the Quarantine Service.

#### BACTERIA IN WATER.

The Third Report to the English Royal Society Water Research Committee, by PROFESSORS PERCY F. FRANKLAND and H. MARSHALL WARD, has just been received. In Part I the latter scientist reports a number of experiments on the influence of light in retarding the development of *B. anthracis*. The light used was the direct solar rays, reflected light and light filtered through various media, the results showing that it is the actinic end of the spectrum which is efficient. Similar experiments manifested a well marked inhibition of growth of the bacteria of Thames water and particularly of certain of the liquefying forms in the water. To the influence of sunlight is attributed an enfeeblement of the vitality of the bacteria in the summer water. In some cases it is certain that forms obtained in August, and which afterwards turned out to be identical with forms found in the winter, at first grew so feebly that their characters on the plates led one to put them down as distinct species or varieties.

Part II of the Report is a study of the behavior of the typhoid bacillus and the *B. coli communis* in potable waters, by PROFESSOR FRANKLAND. As bearing on the longevity of these microphites, which has been stated by different observers at from five to one hundred and eighty-eight days, the experiments reported have considerable practical value. The results obtained by KRAUS in his study of Munich waters artificially infected with the bacillus of typhoid, suggested the destruction of this bacillus at the end of a few days, coincident with the extensive multiplication of the ordinary water bacteria. FRANKLAND, however, took exception to this on account of the likelihood of overlooking the presence of the typhoid bacillus when scattered among the other colonies of the plate culture; and in his own experiments he eliminated the ordinary water bacteria by the use of PARIETTI's phenol broth culture for the development of such typhoid or colon bacilli as might be present. His special tests for the differentiation of these were cultures in sterile milk and in ordinary gelatin peptone; the colon bacillus coagulates the milk and yields gas bubbles in the gelatin, while the typhoid

bacillus gives neither of these reactions. [THEOBALD SMITH's fermentation tube, which permits the evolved gas to be measured and analyzed, is a great improvement on the gelatin entangled "bubble."] Ordinary Thames water artificially infected with typhoid was still found to contain living typhoid bacilli twenty-five days after infection; thirty-four days after infection they were no longer demonstrable. These results were obtained whether the water was preserved at summer or winter temperature; but there was some evidence that on the last day of their detection the bacilli were present, either in larger numbers or in a more active state in the water maintained at the winter than in that at the summer temperature. The *B. coli communis* persisted for forty days, and probably for a much longer period as no later examination was made, and on the occasion of their last detection they did not appear to have lost any of their original vitality. The typhoid bacillus persisted longer in deep well water than in that of the Thames or Loch Katrine. The addition of salt to the water increased the multiplication of the water bacteria enormously and diminished the duration of life of the typhoid bacillus. When water sterilized by steam was infected with typhoid no multiplication of the bacilli took place. This result was obtained irrespective of the amount of organic matter naturally present in the water used for the experiment. In steam sterilized water, however, the bacilli persisted for a longer time than when the ordinary water bacteria were present; but the greater bactericidal power of unsterilized water was found from some experiments to be not apparently due to the multiplication of the water bacteria and a struggle for existence between them and the typhoid bacilli, but rather to the elaboration of products by these aquatic bacteria, and possibly also by other vegetable life present in surface waters which are inimical and prejudicial to the welfare of the typhoid bacillus. We commend this report to the Water Committee of the American Public Health Association, since the Fifty-third Congress failed to take final action on the bill to appoint a commission to investigate the subject of the pollution of rivers and other natural sources of water supply.

*We want a Department of Health to attend to the prosecution of such investigations.*

#### HYPNOTISM AND MARRIAGE.

The forensic relations of hypnotism are coming to the front very rapidly. Within a few days, word has come from a small town near Grand Rapids, Mich., that one PETER BLANKSMA was arrested for non-support of his wife, whom he had married two months before, and two days later had left her. He admitted the desertion and said "he would have left her sooner had he known that he had married her." He further averred that he had never spoken of

matrimony to the woman, had no thought of getting married and that he could not remember anything of the matter. He alleges that she always exercised great control over his mind and that he was hypnotized and made to marry.

We fear that this subject of hypnotic influence must have other important defects than simple "tone deafness" which was so characteristic of the late TRILBY O'FARRELL. He naïvely remarks that he would not have remained with this woman two days if he had known that they were married. His mind being a blank on this important subject, he was left to act as a free moral (sic) agent. But was this actually the case? Was he not actually forced to stay there against his will by the power of hypnotic suggestion? This latter hypothesis is not tenable, because he pleads total amnesia regarding the marriage, while the fact that he lived two days with the woman is quite vivid in his recollection. If one circumstance of a given abnormal psychologic state is remembered the others must be. We would rather refer this episode to the domain of "auto-suggestion." We will not, however, speculate as to their character, merely premising that they must be within the experience and the education of the individual.

In the name of all that is good, why did this woman ever allow her husband to come to a knowledge of his miserable matrimonial estate? Why did she not forever keep from him the fact that he was a benedict? For two days she kept him in profound ignorance of his unfortunate position. Surely, with her commanding powers, and the intimacy of married life she could have prolonged the suggestion that he was a single man indefinitely and then they might have lived happily ever afterward. He, in the happy thought that he was living with a woman not his wife. She, with a husband so kind and obedient that not only was her every word a law, but also a suggestion.

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#### THE JOURNAL TRAIN.

The JOURNAL train will leave Chicago this year *via* the Pennsylvania route. A vestibuled train with all the modern improvements. Due notice will be given.

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#### CORRESPONDENCE.

##### A Letter to an Aspiring "Abdominal" Surgeon.

*Dear Doctor:*—After you left, in thinking over the case, I questioned myself if I did right in encouraging you to operate, for although such cases are sometimes easy, as a rule they are complicated and difficult, and for any one to attempt such an operation who has never seen or assisted at any, is a very serious matter. To do abdominal surgery, you must prepare yourself, you must have assisted at a great many operations, to see the difficulties you will encounter and find out how to meet them. To operate on a case is a very serious matter if you are not prepared and have not

the facilities to meet emergencies. The great abdominal surgeons in this country—those who have done hundreds of cases, still go around from one city to the other to see other operators and get pointers from them. They are never satisfied with their ability; they are always on the lookout to pick up new points in the technique.

Abdominal surgeons are products of evolution; they have all been general practitioners for many years; they have especially paid attention to diagnosis. Some of them, as the result of environments, became expert obstetricians and consequently also gynecologists. Their general practice they gradually gave up; and as gynecology grew, they had finally also to give up the practice of obstetrics, and so became exclusively, gynecologists.

The gynecology of the past consisted in smearing a little iodine on the cervix and inserting a pessary for retroversion; with an occasional operation for vesico-vaginal fistula or lacerated perineum. But gynecology grew, and it was found that the tubes or ovaries were the cause of the trouble in many cases. They were removed, and the gynecologist became a pelvic surgeon.

Pelvic surgery frequently requires the repair of injured intestines and of the bladder; sometimes a mistake was made in the diagnosis and what was supposed to be a pus tube, was found to be a diseased appendix, or the enlarged spleen was mistaken for a fibroid tumor, and the pelvic surgeons found themselves obliged to operate on all the abdominal organs and thus they became abdominal surgeons.

Another class of general physicians seem to have a peculiar gift in treating fractures and dislocations, and in operating, and thus became general surgeons; as general surgeons they also had to remove tumors of various kinds; they had to open the abdominal cavity, treat diseases of the liver and kidney, and operate for hernia and so became familiar with abdominal surgery. They gradually gave up general practice, some of them even gave up general surgery and became abdominal surgeons, pure and simple. Thus, my dear doctor, you see that the so-called abdominal surgeons have gradually been evolved from the general practitioner. They have tried to master all the branches of medical science; they have developed medical skill in every direction; they have studied pathology and etiology; they have kept abreast with the wonderful progress made in bacteriology, and with our improved knowledge of the diseases of the nervous system and of reflex neurosis.

In short, they have tried to master a fair knowledge of the general practice of medicine and they tried to become expert in the technique of operations, so that they could diagnose a case which required operation promptly, and make few mistakes, and if the patient required an operation they could perform it quickly and safely.

Then for you to attempt such an operation without any training whatever, and without even knowing what the trouble really is, I would consider reckless; in fact, it would be unjust to the patient. You have no right to trifle with human life in that manner, no matter if the patient trusts you and the family will not blame you if she dies. The question before you is, Are you doing the *highest ultimate good to the patient as you have sworn to do by the Hippocratic oath*? Do you think that you can operate as well as some other persons who have had more experience? I think you would not say, yes. You must admit that such a patient has 500 per cent. more chance to live if she goes to a hospital and is operated on by an experienced man, than if you operate on her without the facilities that a hospital offers. This is simply the moral aspect of the case. When it comes to the low, common, commercial view, it is a very poor investment on your side. In your letter, which I have just received, you say that your future success depends upon the result of this

operation. You certainly risk a great deal on the cast of the die. You know that this case may do you a great deal of harm; your competitors will call you reckless, for there are always plenty around who will do backbiting as you well know, so that you run a very great risk, as you say, of injuring your reputation. Now what do you gain? Why, absolutely nothing. The patient probably can not pay a cent, and if you should be successful and the patient lives, who will know anything about it? Who will ever hear about it? The few people with whom the woman is acquainted do not amount to anything. Your competitors will belittle the operation if she gets well, and say it did not amount to much. You will neither pick up any new business nor get any new cases, because they are few and far between. If the woman gets well, few will know about it; if she dies, everybody will hear of her death; they will inquire about the cause and find out all about it, and that certainly will not help your reputation; really the game is not worth the powder. Such isolated cases as a general practitioner gets of this kind do him absolutely no good. They waste more money in buying instruments than they get for the case.

If you want to become an abdominal surgeon, come down for a couple of weeks and I will show you all the cases I can. Go to Philadelphia and New York and see the great operators and assist them. I will be glad to help you and give you letters to these men. Then after having prepared yourself for three or four months, by seeing many cases and assisting at them, you can tackle them yourself and may become as expert as any one, but now, without preliminary training, I would advise you to keep your hands off, for you will do yourself no good and only injure your reputation, and you trifle with human life.

How much better it is to establish a reputation of being careful and conscientious. How much better you stand in a community when you admit that you do not know everything, but that there are special, rare and complicated cases which can only be handled properly by those who devote themselves exclusively to these kind of cases. Such honest statements never hurt one in a community; they rather raise you in the estimation of people. You establish a reputation for honesty and carefulness, which is so desirable. As I have plenty of cases and do not want your case, I thought that it would come in good grace from me to give you this lecture, especially as I would like to see you get along and would not like to see you do things which will hinder your further progress.

Hoping that this will be received in the same kind spirit with which it is offered, and to hear from you again, I remain,  
Yours truly, J. H. CARSTENS, M.D.

### Retinal Images in Oblique Astigmatism.

NASHVILLE, TENN., March, 1895.

To the Editor:—In your issue of February 23, on page 280, I found the following report of some remarks made in the Chicago Ophthalmological Society, by Dr. F. C. Hotz: "Dr. Hotz then spoke about the theory of the symmetric action of the oblique muscles in oblique astigmatism, so persistently advocated by Dr. Savage. He showed that Dr. Savage has given no proof of the existence of such action of the muscles. Dr. Hotz has never been able to find such action in any case of oblique astigmatism and denied that the supposed action would benefit binocular vision. He further proved by demonstrations that oblique astigmatism does not cause obliquity of the retinal images and showed that the laws of physiologic optics do not sustain such doctrine. [Italics mine.] The theory is based on false premises and wholly untenable."

In commenting on the above, allow me to say, first, that I

was unwilling to do Dr. Hotz an injustice, and therefore wrote him asking if he had been correctly quoted, calling his attention specially to that part of the report which I have italicized. By return mail I received this reply: "The report you referred to in your letter of the 25th is as correct as a brief synopsis of a paper can be." I expected him to confess that he did not believe in my theory of symmetric action of the oblique muscles, but I was greatly astonished that he should say that he was correctly reported as to the non-obliquity of retinal images in oblique astigmatism. This obliquity of retinal images was demonstrated as long ago as 1889 by Dr. J. A. Lippincott, who published the results of his studies in the March, 1889, issue of the *Archives of Ophthalmology*, in which he had cuts, demonstrating his views.

Let Dr. Hotz take any case of astigmatism of more than 3 D., with the meridian of greatest curvature either vertical, horizontal or oblique, and if the patient has ordinary intelligence he can soon satisfy himself that astigmatism is not only capable of blurring, but also of distorting, an object. One eye should be excluded while the patient is asked to look at a rectangular card, two by four inches, held vertically immediately in front of the patient, at the reading distance. As the card is revolved on a pin piercing its center, the patient should be asked its shape when at three different points. When the long sides of the card are parallel with the meridian of greatest curvature, the patient will say it is a rectangle; when these sides form an angle of  $45^\circ$  with the meridian of greatest curvature, the answer will come quickly that it is a parallelogram; again when these sides are brought to right angles with the meridian of greatest curvature, the card again is seen as a rectangle. But, possibly, Dr. Hotz is ready to say that these statements as to the distortion of the object prove nothing as to the distortion of the retinal image. Let us see: The law of projection (direction) is supreme in monocular vision, therefore the lower border of the retinal image must be in the same plane with the upper border of card, and so on for all the borders of card and image, and these planes must all cut the nodal point. Then in obedience to this law the image must be oblique when the object appears to be thus distorted.

Only one other argument as to the distortion of the retinal image in an astigmatic eye when the object is held so that its outlines are oblique to the principal meridians: All will agree that the meridian of least curvature is the line of union of the bases of the prismatic arrangement of the astigmatic cornea, and that all prisms refract light towards the base. Let us then take the right eye of a case of astigmatism, with the meridian of least curvature at  $135^\circ$ . A horizontal line held before this eye will send rays of light from its entire length into the eye, but for convenience of study we will consider only the axial rays coming from the two extremities. This ray from the left end of the line strikes above the meridian of least curvature and must be bent towards it, its subsequent course in the eye necessarily being down and out; the axial ray from the right end of the line strikes below the meridian of least curvature and must be bent towards it, the course of this ray, after refraction, being up and in. Thus it is easily shown that the image of this horizontal line must be inclined down and to the right. Because of this declination of the image, the line itself seems inclined to the same extent and in the same direction. This is one law of physiologic optics. My premises not being false, my theory may be true. My theory is not only true, but I have been able to show that it has a highly practical side. This is set forth in my paper presented at the Eighth International Congress of Ophthalmology.

The distortion in oblique astigmatism of the retinal image,

in monocular vision, is settled by the law of direction; the rotation of the eyes by the oblique muscles, in oblique astigmatism, is compelled by the more powerful law of corresponding retinal points.

In closing, allow me to make the following quotation from Dr. Maddox, of Edinburgh: "Dr. Savage has shown that a certain amount of corrective torsion, or, to substitute his own words, 'of harmonious symmetric action of the obliques, is necessary when oblique astigmatism exists in both eyes, since the retinal images of vertical objects are not themselves vertical, and that correcting cylinders which make these images vertical alter the torsional requirements. These facts may well have the practical bearing he claims for them.'"

Very truly,

G. C. SAVAGE, M.D.

### Malaria a Waterborne Disease—An Old Idea.

TECUMSEH, MICH., Feb. 9, 1895.

To the Editor:—Some discussion has lately taken place in the JOURNAL and the *Medical Record* in reference to malaria being a waterborne disease. That malarial poison is disseminated through the medium of water as well as through the atmosphere is generally mentioned by almost every writer who has given the subject attention.

Permit me to quote from a few modern authors: In Reynold's "System of Medicine," Dr. W. C. Maclean states: "That it is a common belief in India that water is capable of absorbing malaria, and that periodic fevers, dysentery, and even cholera are produced by drinking water so charged." Dr. Bristowe states in his work on "Theory and Practice of Medicine:" "That it is dangerous (according to some) to drink the water, however pure it may seem to be, which is furnished by the soil of such localities." Referring to malarious localities, Dr. Loomis, in his excellent work on "Practical Medicine" says: "The question arises, How does malarial poison gain entrance into the human body? The most reasonable view is that this is effected through the respired air. Certain facts seem to show that it may be introduced through the intestinal tract with the food and water. There seems to be scarcely a doubt but that it may be taken into the stomach with foul drinking water." In Pepper's "System of Medicine" edition 1884, Dr. Samuel M. Bemiss states in his article on malarial fevers: "That malaria is miscible with water. It is capable of being carried by currents of water through distances and periods of time altogether undetermined without losing its toxic effect or, perhaps, the faculty of reproduction. It is more than likely that this means of conveyance has effected its distribution to continents and islands too widely separated to justify a belief that it was wind-wafted. No observation need be adduced to establish the waterborne habit of the malarial poison, or the positive liability to its toxic effects when received into the stomach through this medium. These facts have been well understood from the time of Hippocrates."

Dr. W. Gilman Thompson, in the "American Text-book on the Theory and Practice of Medicine" states: "The mode of malarial infection is not definitely understood. The miasm seems to enter the system through the medium of inhalation, while at other times it apparently enters through the alimentary canal by means of contaminated drinking water, or other fluids exposed to a malarial atmosphere."

Quotations might be made from various other writers on this subject, in order to illustrate the fact which has long been known to the medical profession, that malaria is a waterborne as well as an airborne disease.

Very respectfully yours,

J. F. JENKINS, M.D.

### Injectons in Hernia.

BREWTON, ALA., March 6, 1895.

To the Editor:—Will you kindly give me the formula used for the radical cure of hernia by the injection method? Also please state whether or not you consider such injections safe, and if not, what is the special danger?

By so doing you will confer an appreciated favor. Also please refer me to any literature on the subject of which you may know.

Respectfully,

L. M. McLENDON, M.D.

ANSWER:

Fl. Ext. Querci Albæ (reduced by distillation one-half) . . . . .	64
Alcohol, 90 per cent . . . . .	16
Ether Sulph . . . . .	8
Morphiæ Sulphatis . . . . .	24
Tr. Veratri Viridis . . . . .	8

M.

Inject from 5 to 20 drops in small and recent herniæ, but 25 to 50 drops in old and larger herniæ. Heaton. See also Heaton on Cure of Rupture, Boston, 1877.

### Tetanus Toxin.

COLORADO, TEX., Feb. 8, 1895.

To the Editor:—I am preparing an article on "Tetanus" to be read at the meeting of the State Association in April. Will you do me the kindness to give me the result of treatment so far as you can, with inoculations of tetanus toxin in your city?

Very truly yours,

P. C. COLEMAN, M.D.

### Chromicizing Catgut.

MILWAUKEE, WIS., March 6, 1895.

To the Editor:—The formula for chromicizing catgut according to Lister, as quoted by you from Lucas-Championnierre, contains no chromic acid.

Yours truly,

FREDERICK SHIMONEK.

ANSWER:—We gave the original formula for carbolicized gut, but Professor Lister (*Trans. Int. Med. Cong.*, Philadelphia, 1877, p. 538) said: "I have at last made a mixture of carbolic acid, glycerin, chromic acid, spirit of wine and water, which I think will prove the very thing required;" but he did not give the exact formula. The following from Wharton will be found useful: "Soak the catgut in alcohol a short time, then place it in the following solution for forty-eight hours:

"Chromic acid . . . . .	106
Carbolic acid . . . . .	12
Alcohol . . . . .	8
Water . . . . .	80

M.

"It is then removed and placed in glass jars for use. Before using soak for thirty minutes in a 5 per cent. solution of carbolic acid."

## ASSOCIATION NEWS.

### The Baltimore Meeting—Hotel Accommodation and Rates.

The hotels named below have agreed to accept a reduction from their regular rates for accommodating the members and delegates attending the meeting of AMERICAN MEDICAL ASSOCIATION in May next. All of these houses are first class and will give satisfactory service. The capacity of each house mentioned shows the number of rooms available at the time of meeting, as estimated by the proprietor.

European Plan:—Hotel Stafford (headquarters), Washington Place, capacity 150, rooms \$1.50 to \$5 per day; Hotel Rennert, Saratoga and Liberty Streets, capacity 250, rooms \$1.50 and upward per day; Mt. Vernon Hotel, Mt



Vernon Place west, capacity 40, rooms \$1.50 per day, two persons in room \$2.50 per day; Hotel Imperial, Monument Square, capacity 100, rooms \$1 to \$1.50 per day; Hotel Studio, Charles Street and Mt. Royal Avenue, capacity 10 to 15, rooms \$1.50 per day.

*American Plan:*—Carrollton Hotel, Baltimore and Light Streets, capacity 250, \$3 to \$4 per day; Hotel Altamont Eutaw Place and Lauvale Street, capacity 50 to 100, \$2.50 per day; Hotel Albion, Cathedral and Richmond Street, capacity 40 to 60, \$2.50 to \$4 per day; Eutaw House, Baltimore and Eutaw Streets, capacity 60 to 100, \$2.50 to \$3 per day.

In addition there are a number of smaller hotels and many excellent boarding houses where accommodations can be had for from \$1 to \$2 per day. A list of these will be kept at the registration desk during the meeting.

Any one preferring the quiet, comfort and economy of a family hotel or boarding house can have the necessary accommodations reserved by making early application to the Secretary of the Committee. **GEORGE H. ROSE,**  
Secretary Committee of Arrangements.

**Section on Ophthalmology.**—Preliminary program of the Section on Ophthalmology of the AMERICAN MEDICAL ASSOCIATION for the Baltimore meeting:

1. Address of the Chairman, Edward Jackson, Denver, Colo.
2. Incipient Cataract, by A. R. Baker, Cleveland, Ohio. Discussion opened by Boerne Bettman, Chicago, Ill.
3. The Operation for Secondary Cataract, by J. W. Thompson, Kansas City, Mo.
4. The Operative Treatment of Immature and Some Forms of Zonular Cataract, by J. E. Weeks, New York, N. Y. Discussion on Cataract opened by Boerne Bettman, Chicago, Ill.
5. Case of Congenital Ectopia Lentis with Diplopia, by F. C. Hotz, Chicago, Ill.
6. Ectopia Lentis, by F. B. Tiffany, Kansas City, Mo. Discussion on Ectopia Lentis opened by Harold Gifford, Omaha, Neb.
7. Symposium on Plastic Operations about the Eye, (a series of five minute papers): Skin Grafting on the Eyelids, by F. C. Hotz, Chicago, Ill.; The Restoration of the Eyelids with Sliding Flaps, by W. C. Tyree, Kansas City, Mo.; Practical Points in Anesthesia for Plastic Operations about the Eye, by M. W. Zimmerman, Philadelphia, Pa. Papers by Eugene Smith, Detroit, Mich., and Herbert Harlan, Baltimore, Md. Discussion opened by R. A. Reeves, Toronto, and G. C. Harlan, Philadelphia, Pa.
8. Symposium on Operations on the Ocular Muscles, (a series of five minute papers): The Indications for and the Advantages and Technique of Muscle Shortening, by G. C. Savage, Nashville, Tenn.; The Slight Effects sometimes Produced as the Results of Free Tenotomies of the Ocular Muscles for Heterophoria, by S. Theobald, Baltimore, Md.; The Technique of Tenotomy of the Ocular Muscles, by L. Connor, Detroit, Mich.; The Limitations of Tenotomy of the Ocular Muscles, by H. F. Hansell, Philadelphia, Pa. Papers will be read by Hiram Wood, Baltimore, Md., and C. H. Thomas, Philadelphia, Pa. Discussion opened by G. T. Stevens, New York, and S. D. Risley, Philadelphia.
9. Hysterical Affections of the Eye Muscles, by H. Gradle, Chicago, Ill.
10. Strabismus, by C. M. Hobby, Iowa City, Iowa.
11. Practical Points Gained in the Treatment of One Thousand Cases of Insufficiency of the Ocular Muscles, by J. W. Park, Harrisburg, Pa. Discussion opened by S. Theobald, Philadelphia, Pa.
12. A New and Almost Bloodless Enucleation Operation, by Boerne Bettman, Chicago, Ill.
13. Evisceration of the Eyeball, by L. Webster Fox, Philadelphia, Pa. Discussion opened by S. D. Risley and G. O. King, Philadelphia, Pa.
14. Histologic and Bacteriologic Notes on Some Cases of Penetrating Wounds of the Eyeball, together with Experimental Observations on certain Bacilli found in a Case of Post-operative Panophthalmitis, by G. E. de Schweinitz, Philadelphia, Pa. Discussion opened by R. E. Randolph, Baltimore, Md.
15. A Clinical Study of the Ulcerative Diseases of the Cornea, by S. D. Risley, Philadelphia, Pa. Discussion opened by C. J. Kipp, Newark, N. J.
16. The Infiltration Method of Anesthesia in Ophthalmic Practice, with Demonstration, by Harry V. Wurdemann,

Milwaukee, Wis. Discussion opened by Harry Freidenwald Baltimore, Md.

17. Report of Committee on the Scientific and Hygienic Value of Examining the Eyes in the Schools, by B. Alex. Randall, Philadelphia, Chairman, W. F. Southard, San Francisco, and others.

18. The Use of Prisms to Increase Vision in the Formation of New Maculae in Conical and Leucomatous Cornea, etc., by G. M. Gould, Philadelphia, Pa. Discussion opened by T. H. Fenton, Philadelphia, Pa.

19. The Percentage of Symmetrical and Asymmetrical Meridia of the Cornea in Astigmatic Eyes, by S. D. Risley, and J. L. Thorington, Philadelphia, Pa.

20. Two Thousand Five Hundred Cases of Ocular Headaches and the Different States of Refraction connected therewith, by W. F. Mittendorf, New York.

21. A Study of the Refraction of One Thousand Five Hundred Eyes, by H. Bert Ellis, Los Angeles, Cal.

22. Latent Astigmatism, by W. H. Starkey, Chicago. Discussion opened by W. H. Wilder, Chicago, Ill.

23. Anisometropia, by W. F. Southard, San Francisco. Discussion opened by S. D. Risley, Philadelphia, Pa.

24. Some Rare Complications of Infantile Purulent Conjunctivitis, by A. A. Hubbell, Buffalo, N. Y. Discussion opened by B. Alex. Randall, Philadelphia, Pa.

25. Retrobulbar Tumor, by S. C. Ayres, Cincinnati, Ohio. Discussion opened by J. A. White, Richmond, Va.

26. A Case of Enchondroma of the Cartilage of the Upper Lid, by P. D. Keyser, Philadelphia, Pa.

27. Extensive Changes in the Choroid with report of Cases, by J. T. Carpenter, Jr., Philadelphia, Pa.

28. Anomalies in Ophthalmic Practice, by A. C. Corr, Carlisle, Ind.

29. The Relationship Between Eye and Brain, by J. A. Lydston, Chicago, Ill.

30. Eight Years' Experience with the Surgical Treatment of Trachoma, by H. Gifford, Omaha, Neb.

31. Hemorrhages into the Retina and Vitreous in Young Persons Associated with evident Disease of the Retinal Blood Vessels; Remarks on the formation of Vessels into the Vitreous and in a Case of Emigrating Subhyaloid Hemorrhage, by Harry Friedenwald, Baltimore, Md.

32. Formalin as a Preservative Agent of Eye Specimens, by W. H. Wilder, Chicago, Ill. Discussion opened by F. C. Hotz, Chicago, Ill.

Papers will be read by C. T. Kollock, Charleston, N. C.; D. S. Reynolds, Louisville, Ky.; L. J. Lautenbach, Philadelphia, Pa.; C. A. Oliver, Philadelphia, Pa.

H. V. WURDEMANN, Secretary.

**Section on Dental and Oral Surgery.**—Dr. M. E. Fletcher Chairman; Dr. Eugene Talbot, Secretary.

Chairman's Address; Bacteriology, by S. A. Hopkins, Boston.

Adenoids, by Geo. F. Eames, Boston.

The Effect of Sterilizing Processes upon Steel Instruments, by Wm. H. Potter, Boston.

Common Ground of Medicine and Dentistry, Joseph Roach, Baltimore.

Destruction of Children's Teeth, Cause and Remedy, by J. G. Humsler, Baltimore.

The Progress of Modern Dental Practice, by A. H. Thompson, Topeka, Kan.

Suppuration of the Intermaxillary Bones with Fistulous Opening into the Nasal Cavity, Two Cases, by W. Xavier Sudduth, Minnesota. Ulceration of the Oral Cavity and its Treatment, by Dr. Genese, Baltimore.

Specific Treatment of Necrosis of the Alveoli and Maxilla with Sulphuric Acid, by W. A. Mills, Baltimore.

Diseases of the Soft Parts of the Mouth and Ill Developed Jaws, by W. S. Twilley, Baltimore.

A Presentation of Inflammation and Tumorous Growths caused by wearing Rubber Denture, by Bernhard Myer, Baltimore.

Calcification of the Teeth, by R. R. Andrews, Cambridge.

The Value of Differential Diagnosis in Dentistry, by Vida A. Latham, Chicago.

The Discovery of Anesthesia and its Outgrowth, Rapid Breathing as a Pain Obtruder in Minor Surgery and Medicine with its History and Application for Twenty Years, by W. Bonwill, Philadelphia.

**The Forty-sixth Annual Session** of the AMERICAN MEDICAL ASSOCIATION will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9 and 10, commencing on Tuesday, at 10 A.M.

## PUBLIC HEALTH.

**Progress of Cremation.**—In the annual report of the Cremation Society of England, it is asserted that the sentiment of the public against cremation is declining, and the success of the crematorium at Woking has been so satisfactory as to warrant the consideration of a proposal to build one near London.

**Sewerage of Constantinople.**—The Commission on the sanitation of Constantinople, appointed by the Sultan, recently held its first session, at which it was decided to construct main sewers in those parts of the city where none exist and to repair the existing sewers which, in their present condition are not only useless but a constant menace to the public health. It was also decided to take measures for the paving and repairing of the streets wherever necessary.

**The Healthiest Year.**—The remarkable healthfulness of 1894 is again shown in the registration returns for England and Wales. The death rate for these countries—16.6 in 1000—is the lowest ever recorded, being 1.5 per 1000 below the lowest previous rate, that of 1888 which was 18.1. It was also 2.6 per 1000 below the mean annual rate of the preceding ten years. On the other hand, the birth rate is also the lowest ever recorded—29.6 per 1000 of population, which is 2.0 per 1000 below the mean rate of the previous ten years. The birth rate in these countries shows an almost continuous decline for the decade—from 33.6 in 1884 to 29.6 last year.

**"Freshened" Beans.**—The Hygienic Council of Paris, having been consulted as to whether beans soaked in water to freshen them and give them the appearance of green beans were injurious to health, has reported (*Le Progres Medical*) that the radicles begin to develop by reason of this soaking and that this gives rise to different chemic substances, none of which, however, can be considered dangerous. On the other hand, a great many of these soaked beans present traces of moldiness between the cotyledons and a deep green coloration in the cotyledons themselves. Microscopic examination shows the presence on the surface of the well-known fungus *Penicillium glaucum* and of myriads of its spores in the colored spots of the cotyledons. Without pronouncing on the character of the fungus, the Council calls attention to the fact, now apparently well established, that the spores of this fungus introduced into the blood are capable of producing a skin disease. They conclude that "soaking beans produces enough alteration in their tissues to justify a prohibition of their sale."

**The "Influenza" Fad.**—Speaking of the so-called influenza epidemic in Great Britain, of which the JOURNAL has made note from time to time, a recent number of the London *Lancet* gives voice to a doubt which must have occurred very generally to the professional mind in this country. Is influenza really so prevalent as current gossip represents it to be? If by "influenza" is meant an acute febrile attack of short incubation, the onset characterized by severe muscular aching, rigor, high temperature and intense headache, with sometimes vomiting and diarrhea, these symptoms passing off in from twenty-four to thirty-six hours, leaving the patient greatly prostrated and with a troublesome cough and some bronchial catarrh—how many such cases are actually met with this season? While admitting that some sporadic cases of influenza are to be found, our cotemporary warns against the growing habit of calling every indefinite feverish attack by this name. "That it is a temptation no one will deny, especially when we consider how anxious patients are that their disease should be named and how the practitioner is apt to be looked down upon if he says he can not do so. But it must also be remembered

that influenza is a serious disease, and it is therefore unwise to call every febrile catarrhal affection by this name; for these latter, when properly treated, never leave any serious sequelæ, whereas the former complaint, even though treated with every care, may, and often does, leave a large legacy of grave evils behind it."

**Height of Buildings.**—The London Building Act which went into effect Jan. 1, 1895, fixes 24 meters as the maximum total height for dwelling houses. Dwellings in streets less than 15 meters in width can not exceed this height. The height of houses in France has been regulated by law for over a century. The ordinance of April 10, 1783, confirmed by that of 1792, fixed this at 54 feet (this, prior to the vogue of the metric system) in streets 30 feet wide, and 45 feet in those of less width. Legal restrictions have since been adopted in the principal French cities. In Paris the ordinance of July 23, 1874, fixed the maximum height of buildings at 12 meters in streets less than 7.80 meters in width. They may be 15 meters in streets 7.80 meters to 9.75 meters; 18 meters in those from 9.75 meters to 20 meters; any streets wider than this may have the buildings 20 meters high. In Lyons the highway ordinance of 1874 allows buildings to be 22 meters in height on quays and places of 50 meters in width; 20.50 meters in streets over 10 meters; 19 meters in streets over 8 meters and 18 meters in narrow streets. These measures are considered insufficient by hygienists of all countries. According to German authorities the two dimensions should be equal. This was also the rule established at the Buda-Pesth Congress, on motion of Corfield, of London. Trelat goes still further; he recommends that the width of the street be one and one-half times the height of the house. This goes too far, according to *L'Union Medicale*, as in the older cities we must be content with less spacious streets when new building lines are established on the older streets.

**Prevailing Morbidity.**—During the first part of March there is reported a decided increase of the acute lung diseases, the diarrheal diseases and—except diphtheria—of the acute infectious diseases throughout the country. There has been a recrudescence of smallpox in localities where it was sensibly diminishing during January and February; and, in the lower Mississippi valley—from St. Louis south—the disease is very generally prevalent and increasing. In the extreme south—Texas, for example—it is asserted that "the region is full of smallpox germs imported by Mexicans who were brought in to gather last year's cotton crop;" in some northern localities—Chicago, for instance—the increase is attributed to refugees fleeing from smallpox in the South, and outbreaks are traced to Hot Springs sojourners and to negro colonists from Tennessee. These pleas in extenuation and defense have little weight with the sanitarian, who points out that any well-vaccinated community may safely invite immigration from the Gaboon country itself, where smallpox is endemic and perennial.

Although influenza is increasing in frequency and fatality—as judged by the mortality returns of the large cities—it is still an insignificant factor of the prevailing morbidity in this country when compared with its newspaper ravages in the Old World. A late cable dispatch says that while London is indulging the hope that the crisis of the combined affliction imposed by influenza and inclement weather is passed, Paris, Vienna and St. Petersburg "still cry out in bitterness of spirit almost equal to the plague-stricken Egyptians." It is admitted, however, that the disease is declining, but they manage to get a grewsome satisfaction out of an apprehended outbreak of typhoid and diphtheria "owing to the long disuse of thousands of drains [sewers]" frozen up and unflushed for a month or more. The dispatch cited says that "the sanitary condition of London, which is usually the best of any great city in the world, is now extremely unsatisfactory," owing to the causes just mentioned.

**Health Reports.**—The Supervising Surgeon-General of the Marine-Hospital Service has received the following health reports:

SMALLPOX IN THE UNITED STATES.

Texas: In compliance with your request under date of March 2, which I have the honor to acknowledge, I herewith report the presence and present status of smallpox in Texas. The disease originated at Taylor, Williamson County, the first case making its appearance in a boy—the child of a restaurant keeper, about February 15. The infection was introduced by Mexican laborers, brought here for farm hands. The presence of this case was concealed from the authorities until in the pustular stage; meantime many persons had been exposed and gone on their way; hence the dissemination of the infection. It was next reported at Wortham, in Freestone County, near the line of Navarro County; and a few scattering cases at other points in the latter county. A case was also reported near Hutto, on the M., K. & T. Railway. I visited each of the infected localities upon the request of local authorities, and personally saw that all necessary steps were at once taken to prevent the spread of the disease. Three cases were reported to this office as having appeared at Fort Worth. Dr. Cunningham, the city physician, reported that he did not know the source of the infection, and that a number of transient persons had been exposed before the disease was diagnosed, and escaped the health authorities. It is unnecessary to say that each case, as developed, is promptly isolated and strictly guarded; that all persons known to have been exposed are separated and kept under observation during the period of incubation, and that disinfection and very general vaccination are practiced. I inclose a copy of a circular letter of instructions issued to local health officers, which instructions are being everywhere enforced where the disease appears. Only a few cases—two, three or four—have occurred at any one point, and they have been in the persons of those primarily exposed; *i. e.*, exposed to the first case developed from the imported infection. This constitutes the 'second crop,' and as the exposure has taken place, generally, before the presence of the disease was known, as in the first case at Taylor, or before a diagnosis had been made, it is impossible to forestall its development. Later, it is within the scope and power of sanitation to arrest further propagation. I have no fear whatever of the disease assuming anywhere the proportions of an epidemic.

(Signed)

R. M. SWEARINGEN, M.D.

March 5, 1895.

Louisiana: New Orleans, February 24 to March 2, 1 case.  
New York: Brooklyn, March 2 to 9, 1 case.  
Michigan: Three Rivers, March 1 to 7, 1 case.  
Missouri: St. Louis, March 2 to 9, 33 cases, 6 deaths.  
Pennsylvania: Philadelphia, February 24 to March 2, 19 cases.  
Wisconsin: Milwaukee, February 24 to March 2, 7 cases, 2 deaths.  
Texas: Taylor, February 15 to March 2, 1 case; Wortham, February 15 to March 2, a few cases; Fort Worth, February 15 to March 2, 3 cases.

FOREIGN.

Reports of smallpox received by the Supervising Surgeon-General Marine-Hospital Service:

Austria: Buda-Pesth, February 11 to 18, 1 case, 1 death.  
Belgium: Antwerp, February 9 to 16, 3 cases, 2 deaths.  
Bohemia: Prague, February 2 to 9, 11 cases.  
Great Britain: London, February 9 to 16, 3 cases; February 16 to 23, 1 death.  
Gibraltar, February 10 to 17, 3 cases.  
India: Calcutta, January 19 to 26, 36 deaths.  
Holland: Rotterdam, January 16 to 23, 5 cases, 1 death.  
Russia: St. Petersburg, February 2 to 26, 13 cases, 9 deaths.  
Honduras: Tegucigalpa, February 2 to 9, 1 case.  
Scotland: Glasgow, February 16 to 23, 2 deaths.

RIO DE JANEIRO.

I have the honor to transmit report for the week ended Feb. 9, 1895. In this week there were 24 deaths from *accessio pernicioso*, an increase of 4; 14 from yellow fever, an increase of 9; 3 from smallpox, and 2 from enteric fever, the same as in the week before; 1 from beriberi, a decrease of 1; 1 from diphtheria, and none from whooping cough; 4 from cholera, an increase of 3; 7 from diarrhea cholericiformis, an increase of 5; and none reported from cholera against 1 in the previous week. The total from all causes was 299, being 10 more than in the foregoing week.

While there is an increase in the number of deaths from yellow fever, it can not yet be considered epidemic or threatening, as it is almost too late in the season for it to develop to any great extent, yet all due precautions must be observed.

Cholera does not appear to be extending in the originally infected districts, though it has extended all along the Parahyba River to Campos near its mouth, presumably due to the relaxation of sanitary measures by the authorities under pressure of the press. To this same cause may be attributed the appearance of isolated cases in this town. Besides those reported as dead from cholera, twelve suspected cases were removed to the hospital in Jurijuba Bay. I have heard of no cases among the shipping, except one aboard the ship *Gentil*, which left here for Cabo Frio, sixty miles to the eastward, and put back with a case aboard which was removed and all the customary disinfections performed. Telegrams from the Platte River state that the disease is increasing there in several towns, but really no confidence can be placed in such news here.

I visited the Vaccine Institute, which is a municipal institution, and found everything in perfect order and the cleanliness is remarkable; although there are never less than three calves (2 months old) in the stables, not the slightest odor was perceptible; they furnished me with six filled Hubbard's tubes, all of which produced the typical vaccine pustules. The establishment is in a newly arranged building and wants nothing; it is creditable to its authorities.

R. CLEARY, M.D., Sanitary Inspector, M.-H. S.

Feb. 12, 1895.

CHOLERA.

India: Calcutta, January 19 to 26, 52 deaths; Madras, January 26 to February 1, 11 deaths.

Brazil: Rio de Janeiro, February 2 to 9, 12 suspected cases.

Turkey: Constantinople, January 29 to February 4, 46 cases, 22 deaths.

Austria-Hungary: Galicia, February 4 to 10, 11 cases, 7 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, February 2 to 9, 14 deaths.

The clerk of the Bridgetown (Barbadoes) Quarantine Board reports that yellow fever has been reported by arriving vessels at following places: Curacao, January 1 to 4, 3 cases, 3 deaths; Panama, January 31, sporadic cases.

Under date of February 14, the U. S. Consul at Santos, Brazil, reported that during the week ended February 9, there were twelve cases of yellow fever in that city and eight deaths from the same disease.

Under date of February 18, the U. S. Consul General at Guayaquil, Ecuador, reports three deaths from yellow fever in that city during the week ended Feb. 14, 1895.

The U. S. Consul at Vera Cruz, Mexico, reports under date of March 1, that there was one death from yellow fever in that city during the week ended Feb. 28, 1895.

NECROLOGY.

BENJAMIN BURROUGHS, M.D., of Brooklyn, N.Y., died March 7, at the age of 47 years. He was graduated in medicine at the Long Island College Hospital in 1888 and soon afterward settled in the city named. He was a member of the Kings County Medical Society, and was for a time an employee of the Health Department and in that capacity served with marked credit and efficiency. About a year ago he manifested symptoms of pulmonary tuberculosis, and from that affection died, leaving a large circle of friends to mourn his loss.

ALBERT C. HALLAM, M.D., of Brooklyn, N.Y., died Jan. 9, 1895, in his fiftieth year. He was a native of Watertown, Conn. He obtained his medical education at Yale University, graduating in 1866. He practiced in Brooklyn from the year 1867, and was a member of the local medical society for many years, and in a number of social organizations was recognized as an influential citizen. Dr. Hallam was appointed a member of the Board of Education in 1882, by Mayor Seth Low. He was Vice-President of the Bushwick Savings Bank, and was a director of the Amphion Academy Company. He was a life member of the Amphion Musical Society, and was also one of the founders of the Hanover

Club. He was a member of the Union League and of the Windsor Club. His death occurred from an attack of uremic coma due to chronic renal disease that manifested itself fully two years before. He was twice married. His widow with two daughters survive him.

**ROBERT OGDEN DuBois, M.D.**, of New York City, died March 9, in the thirty-sixth year of his age. He was born in that city of old Huguenot stock and of a family branch that has been frequently represented in medicine. He was graduated from Yale Medical Institution in 1886, and was an assistant surgeon to the Eye and Ear Infirmary, as others of his name had been before him.

**ARNOLD HALLETT, M.D.**, formerly of Brooklyn, N.Y., died at Norwalk, Conn., on the 10th inst. He was a native of St. John, N. B., having been born there nearly seventy years ago. He was for many years attached to the surgical staff of the Long Island College Hospital, and an honored member in the local medical societies. He was an alumnus of the College of Physicians and Surgeons. He early acquired a lucrative medical business, and retired several years since from active practice.

**S. VOHDEN, M.D.**, aged 69, Baltimore, Md., March 1.—**L. Burden, M.D.**, Lagrange, Ind., March 3.—**F. Harding, M.D.**, aged 33, Norwalk, Ohio, February 25.—**M. S. Butler, M.D.**, Cherokee, Iowa, March 3.—**H. Schneider, M.D.**, aged 53, Baltimore, Md., February 28.—**W. A. Stovering, M.D.**, Cleveland, Ohio, March 3.—**A. Deitrichs, M.D.**, Denver, Colo., March 8.—**A. B. Mason, M.D.**, aged 51, Wadestown, W. Va., March 4.—**B. E. Vaughan, M.D.**, aged 32, New York, N.Y., February 25.—**W. Lemon, M.D.**, Staples, Minn., March 5.—**A. J. Applegate, M.D.**, Indianola, Iowa, March 2.—**S. O. Scudder, M.D.**, Rome, N.Y., March 2.—**D. Towne, M.D.**, Worcester, Mass., February 25.—**F. H. Hoadley, M.D.**, West Palm Beach, Fla., February 25.—**R. R. Taylor, M.D.**, aged 70, Philadelphia, Pa., February 26.—**C. M. Gaylord, M.D.**, of Mason City, Iowa, March 11.—**I. N. Fox, M.D.**, of Woodstock, N. H., March 6, age 35.—**J. M. C. McLaughlin, M.D.**, of Kansas City, Mo., March 6.

## MISCELLANY.

**High-Priced Cod-Liver Oil.**—Another cod-liver oil famine, similar to that of eight or ten years ago, has caused a considerable raise in price with an intimation of a still further advance. The famine is attributed to the prevailing leanness of the fish during the last year or two. The increase in price already amounts to over 100 per cent. and the effect is seen in the instructions given to hospital staffs to be economical in prescribing the oil.

**Generous Donation by a Physician.**—The Ohio Wesleyan University has received a gift of \$50,000 from Dr. Charles E. Slocum, a reputable physician at Defiance, Ohio, for the purpose of enabling that institution to erect a fireproof library building. Dr. Slocum is an alumnus of the College of Physicians and Surgeons, New York, and Jefferson Medical College, also a member of the AMERICAN MEDICAL ASSOCIATION and several other national scientific bodies.

**Wounds of the Eye.**—Ottinger has collected (*La Presse Medicale Belge*) the statistics of 1,000 cases of ocular traumatism, 398 of the right and 602 of the left eye. Of these, 715 were operative wounds and 287 accidental. Among the former the right eye was involved in 272 cases and the left in 443; among the latter, the right 128 times and the left 159 times. These figures corroborate those of Cohn, showing that the left eye is more exposed than the right.

**Medical Education in New England.**—The faculty at Yale University has decided to advance the period of the regular medical course from three up to four years. A committee has been appointed to make the necessary changes and announcements. The faculty at Harvard has voted to

authorize certain approved physicians to announce their proposed instructions yearly in the medical department. These extra-mural teachers will receive this privilege upon application to a special committee, of which Dr. E. H. Bradford is chairman.

**University of Maryland.**—As an addendum to the table of medical colleges and college attendance, republished by request in the JOURNAL of the 9th inst., the University of Maryland, Faculty of Physics—J. E. Michael, A.M., M.D., Dean—reports a total attendance at the current session of 240 students; 104 first-year, 78 second-year and 58 third-year. The figures of the total are the same as for the preceding session, but there is a gain of nearly 20 per cent. in the first-year men as compared with the previous year—the classes of 1893-94 numbering 87 first-year, 83 second-year and 80 third-year students.

**Safeguarding Street Car Travel.**—The Camden, N. J., Board of Health is pushing the passage of an ordinance to compel all street, trolley and steam cars to be fumigated daily. The Brooklyn, N. Y., Board of Aldermen is considering action looking to the appointment of inspectors for every line of surface cars operated in that city, the inspectors to regulate the speed, passage of street crossings and other measures for the safety of passengers and pedestrians. During the discussion Alderman Clark, the mover of the resolution, asserted that two, three and sometimes four people a day are killed by the surface cars in Brooklyn. This, if true, is worse than the surface crossing slaughter in Chicago.

**A Surgeon Slain by a Lion.**—Surgeon E. S. McKay, of the British Navy, is reported by the *Illustrated London News* to have been slain by a lion, near Lake Nyassa, Africa. This young man was an athlete and a prize-winner in cycling circles. After taking his medical degree he went out to Africa, for three or more trips, as surgeon to steamers. In 1889 he obtained an appointment as surgeon in the Navy, serving on the SS. *Swallow* and *Herald*. He volunteered for duty in Central Africa and while there had a few days' shooting among the elephants and large game near Lake Nyassa. One day, however, he came unexpectedly on a lion and lioness, the former of which he wounded. In pursuing the animals the surgeon advanced too far. The enraged beast sprang upon him and injured him fatally. He was buried with naval honors on the shore of the lake.

**Pay-Hospital for Infectious Diseases.**—A wealthy lady residing in New York City has responded to a suggestion that room exists in that city for an institution whereat the well-to-do, so unfortunate as to contract contagious disease may receive suitable treatment, and has started a subscription fund with a check for \$25,000. The general plan of operation of the fund will imply, says the *Medical Examiner* for February, "that the hospital shall be a private hospital; that the money shall be used solely for the purpose for which it is given; no part of it to be applied to the improvement of any existing institution, and that the management shall be in the hands of the Board of Health and of a board of trustees appointed by the subscribers to the fund toward the erection of the hospital."

**Mixed Infections in Gonorrhea.**—Bordoni-Uffreduzzi reports in the *Gazette Medicale de Liege* the case of a young girl ravished by a man suffering from gonorrhea. A few days later, double pleuritis supervened, numerous joints being also involved. Gonococci were found in the pleuritic exudate and cultures by Wertheim's method showed that no other bacteria save these were present. This case adds to the mass of evidence previously accumulated which tends to negative the theory advanced by some authors that all the complications of urethritis are due to secondary infection. Accord-



# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, MARCH 23, 1895.

No. 12.

## LECTURES.

### LECTURES ON INTRACRANIAL SURGERY.

#### I.—MENINGEAL HEMORRHAGE AND ITS SURGICAL TREATMENT.

BY EMORY LANPHEAR, M.D., PH.D.

ST. LOUIS, MO.

Since Macewen, in 1879, opened the skull of a boy and removed two ounces of fluid and coagulated blood from beneath the dura in the lower part of the Rolandic area, with recovery, operations for meningeal hemorrhage have been too numerous and the results too brilliant to admit of discussion of the propriety of operative procedures whenever the site of bleeding is accessible. All progressive surgeons now agree with this statement, basing their opinion upon such statistics as those of Weisemann (*Deutsche Zeitschrift für Chirurgie*, 1885) which give 147 cases treated by the expectant plan, with 131 deaths and only 16 recoveries—a mortality of more than 89 per cent.—while 110 cases subjected to operation gave 30 deaths and 80 recoveries, a reduction of the death rate to about 27 per cent. This position assumed by operative surgeons is further strengthened by the fact that not a single death has ever been recorded from the operation itself, though a few deaths have followed from the gravity of the injury.

Hemorrhages within the cranium are, in the order of their frequency, in the caudate and lenticular nuclei; in the meninges; just beneath the cortex; in the centrum ovale; in the optic thalamus; and in the pons. Those occurring in the meninges are grouped as:

1. Extradural—between the dura and the skull.
2. Subdural—beneath the dura.
3. Subarachnoidal—in the subarachnoidean space.

The first variety is always due to injury and may be either rapid or slow in development. The second class is closely allied to hematoma of the meninges (pachymeningitis interna) but it is claimed that the hemorrhage occurs before the formation of the investing membrane and is less circumscribed. In the third variety the blood may be widely disseminated; being more or less intimately mixed with the cerebrospinal fluid it is apt to gravitate toward the base and be beyond the reach of the surgeon.

The objects in view in opening the skull are:

1. Locating the point of the hemorrhage.
2. Removing the blood clot.
3. Arresting further bleeding by: *a*, location of the ruptured vessel and ligation; or *b*, the application of a tampon of iodoform gauze.
4. Drainage in cases so demanding.

The symptoms of meningeal hemorrhage differ according to the origin. When the effusion of blood is due to the rupture of a large vessel at the base of the brain, there will be intense coma with probably no other symptom; when from a smaller vessel there

may be such prodromata as giddiness, headache and vomiting, coma still being pronounced if of basal origin. As a rule it may be said that in cases of suspected meningeal hemorrhage other than at the base of the brain, convulsions rather than paralysis constitute the marked symptom. So, too, it may be broadly asserted that when symptoms of cerebral trouble of any character make their appearance some hours after an injury to the head, the probabilities are so strongly in favor of meningeal hemorrhage as to justify opening the skull at the point of injury if known—if not, then at the location of the middle meningeal artery; for a blow upon the skull may cause a laceration of some intracranial vessel giving rise to immediate symptoms of acute hemorrhage, or it may result in a slow "secondary" hemorrhage with gradual supervention of the symptoms. Illustrative of the first kind, I quote the following from my case records:

Osby S., colored, aged 35, on Dec. 1, 1891, was found unconscious upon the street at 6 P.M., and carried to his home where he was seen by Dr. E. von Quast at 10 P.M. A diagnosis of rupture of the middle meningeal artery was made and at midnight I was called to operate. The symptoms then were profound unconsciousness, frequent and severe convulsive movements of the right arm and leg, dilatation of the pupil, stertorous respiration and temperature of 102½ degrees. Examination showed no evidence of fracture nor even of bruising of the scalp. Assisted by Drs. von Quast and C. H. Adams, I opened the skull over the region of the middle meningeal artery. Upon uncovering the vessel a complete rupture of the artery was found, the spurting being resumed as soon as the bone was removed. The end was caught without difficulty, the vessel tied and a clot the size of a large orange removed. This clot was extradural. The space between the skull and the dura which had been occupied by the clot was washed out, iodoform gauze drainage inserted and the scalp sutured and dressed with sublimate gauze. After removal of the clot the brain did not return to its normal position—so an opinion was given that death would be the result inside of twelve hours. He died at 7 A.M.

The autopsy showed degeneration of the vessels probably syphilitic. Complete collapse of the ventricles had occurred from pressure of the clot and there was a very marked anemic condition of all the intracranial structures.

I am of the opinion that this man's life might have been saved had trephining been possible soon after the accident, before the clot became so large as to produce the excessive pressure upon the vital structures.

Illustrating the second class of cases, I take this record from my note book:

Tod K., aged 13 years, fell and rolled down a bluff, a distance of sixty-five feet, striking upon his head. The accident happened at 11 A.M., May 16, 1891. He was not unconscious when conveyed to his home and a physician declared his wound not a serious one, washed the lacerated scalp and applied an antiseptic dressing. At 1 P.M., the boy began to become drowsy and vomited repeatedly. At 2 P.M., I found him almost unconscious, pulse very weak, skin of a purple color and "shock" pronounced. There was a cut in the scalp about two inches long to the left of the median line, just behind the parietal eminence, but no indication of fracture. At 3 P.M., with the assistance of Dr. John Wilson, I enlarged the opening in the scalp and turned back a flap, revealing a fracture of the parietal bone, with a slight depression nearly

two inches across. The fracture had been hidden by the scalp's slipping over it and by the boggy swelling of the soft parts. A small opening was chiseled and an elevator introduced, but the depressed bone could not be thus raised, so the hole was enlarged. Much blood came away at this time, and there was considerable bulging of the brain through the opening, the protruding matter being pulseless. A sharp fragment of the vitreous plate was found projected through the membranes into the brain tissue. Upon raising the depressed bone into position and slitting the dura, a large subdural clot was readily removed, allowing the brain to resume its natural position; pulsation at once returned in it and simultaneously the purple hue of the skin began to fade. The clot came from a tear in the posterior branch of the meningeal; to prevent further mischief the vessel was tied with catgut carried around it by a curved needle. All clots and fragments having been removed, the wound was irrigated with hot water, the cut in the dura closed with fine catgut, a small strip of iodoform gauze placed next to the dura and allowed to protrude through the scalp-wound for drainage and catgut sutures introduced through the scalp; with bichlorid dressings. At 10:30 p.m. the temperature was normal, there was no pain, the patient was bright and cheerful. May 17 at 3 p.m. the condition was excellent—pulse 90, temperature  $99\frac{1}{2}$  degrees. On May 18, I removed the drainage and applied a permanent dressing of sublimate gauze, there being no indication of pus formation. Convalescence was uneventful, the wound healing by primary union and the patient being discharged May 31, entirely well. There has never been any evidence of trouble since.

As I have already stated, the symptoms following an injury may occur soon after the accident but more often appear gradually, the bleeding slowly continuing until either the tension checks it by pressure or a fatal compression is induced. Bauduy, of St. Louis, describes the latter as "progressive extradural hemorrhage," a variety that is often mistaken or escapes us; it is commonly due to a blow upon the head with a blunt instrument, like a sand-bag, or a fall upon the head. The dura may be detached from the inner surface of the cranial vault and a slow hemorrhage occur which does not necessarily come from a rupture of the meningeal vessels or even of their small branches. The bleeding has its source in the laceration of the small vessels which everywhere pass from the dura to the bone. As the blood, little by little, escapes, the dura is gradually pushed away from the bone and the collection increases in size until symptoms of compression gradually supervene; after a period of many hours the patient becomes soporose and finally comatose. It should be remembered that all this may occur without fracture or even external contusion.

The only case of this kind I have operated on is this:

Charlie S., age 10 years, was brought to my clinic Oct. 3, 1892, by Dr. A. J. Kelley, who had been consulted on account of a partial blindness, a headache and gradually increasing drowsiness of the boy. The father said the child was struck upon the right side of the head nearly three weeks before (the mother said it was only a week) with a board in the hands of a playmate; that he was unconscious for a little while and vomited, but resumed his play, complaining of nothing but the soreness of the "lump" which appeared where he was struck. For several days (exact time not obtainable) he showed no signs of trouble, but finally became indisposed and said he could not see well; a few days later occipital headache appeared and a stupor came on from which he could be aroused only with great difficulty. At the time of examination there was bilateral hemianopsia (blindness of corresponding sides of both eyes) of the left side, slight ataxic gait, sluggish pupils, and a tendency to sink into a stupor from which he could, with some effort, be aroused for a time.

There was no external evidence of injury. Recognizing the danger of delay, I operated within an hour after examination, assisted by Dr. Kelly and a student, opening the skull over the middle occipital convolutions—the point indicated by cerebral localization, and corresponding nearly

to the place designated by the parents as the spot injured. Upon removing the button, a lot of half clotted blood bulged from the opening. The quantity expelled was so great that I feared there had been an injury to and subsequent leakage from either the lateral sinus or the superior longitudinal. I therefore very cautiously removed the blood with a spoon and pieces of gauze. No source of the hemorrhage could be found, but a little oozing continued after irrigation. So I packed the wound (not very tightly) with iodoform gauze, closed the external cut except at the point of protrusion of gauze, and dressed antiseptically. There was no injury to the dura. Reaction was prompt and satisfactory. The temperature rose to 100.5 degrees on the second day but fell by the evening of the third, when the drain was removed. No more bleeding had occurred, but a few strands of catgut were inserted in the dura to continue drainage for a short time. All bad symptoms disappeared upon removal of the gauze packing. Convalescence was rapid and the boy was still in excellent health some months ago, although there is still pulsation at the point of trephining.

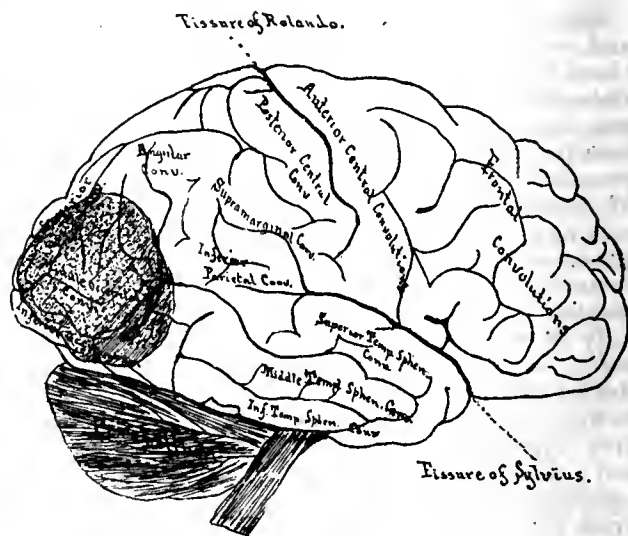


Diagram showing location of the clot.

This diagram represents the location of the blood, the dark area showing its approximate extent. About three tablespoonfuls of blood were removed.

Ransohoff, of Cincinnati, has noticed that in addition to these symptoms of hemorrhage there is a high specific gravity of the urine (1030 to 1040) with the presence of sugar.

In some non-traumatic cases it will be impossible to make a diagnosis between meningeal and cerebral hemorrhage, though the differentiation can sometimes be made. But even if one be certain in the diagnosis, operation is not to be made if the heart's action is much affected in its rhythm, depressed, the respiration irregular and swallowing difficult—the difficulty is probably of the subarachnoidean variety with involvement of the pons and medulla; trephining would be useless.

Small clots upon the convexity usually cause convulsive movements, but they may also produce monoplegia, amnesic or ataxic aphasia, hemianopsia, etc. in which case location of the lesion is easy, particularly if the patient be within one of the periods of life especially prone to this form of hemorrhage, viz. below 10 years or over 50 years, it being generally acknowledged that the veins as well as arteries are very liable to rupture when young children are injured in the head, while in the elderly, atheroma predisposes to the same accident. In a large proportion of cases as the cause is an injury the condition can be recognized readily.

When there is an injury the wound indicates the site for operative procedures. If there be no external guide, dependence must be placed upon localizing signs, providing they be sufficiently positive. Otherwise in suspicious cases one is justified in opening the head over the region of the middle meningeal artery which, according to Treves, crosses the anterior and inferior angle of the parietal bone at a point one and one-half inches behind the external angular process of the frontal bone and one and three-quarter inches above the zygoma. The center-pin of the trephine should be inserted one and one-half inches behind the external angular process and one inch above the zygoma. Should the hole show no hemorrhage it may be enlarged upward and backward, or a second button may be removed just below the parietal eminence, this point being over the posterior branch of the artery.

The time of selection for operation is not later than eighteen to twenty-four hours after the hemorrhage, and yet the surgeon should not hesitate to operate much later than this, since the clot may remain for months, as in the case reported by McBurney, of New York, in which he trephined four months after the injury and removed a clot which was still unabsorbed and causing trouble—securing a favorable result.

If the patient be unconscious no anesthetic is necessary. The method of opening the skull must depend upon the instruments at hand or the operator's choice between the trephine, the mallet and chisel, and the gouge and rongeurs. The clot when discovered should be removed by the fingers or forceps and the irrigator allowed to flow into the cavity for a minute or two, so that all remnants of blood may be washed out and any bleeding vessel uncovered. If a ruptured vessel be found in the dura, it must be ligated by catgut passed beneath it with a curved needle, and tied securely. If the main artery in the bony canal be the source of trouble, the bleeding may usually be controlled by punching with the sharp end of the handle of the bone forceps; in extraordinary cases it may be necessary to crush the bone upon the vessel by strong sequester forceps. Vessels in the pia and beneath, like the Sylvian, can be readily caught by passing a fine curved needle beneath, carrying a catgut ligature for tying. Not much force should be used in ligating vessels in this location for the reason that they rupture very easily under even moderate strain. When a general oozing is found, or hemorrhage from points not accessible, the only method to pursue is to pack with iodoform gauze, then close the scalp wound and apply a firm compress over all; the tampon should be removed in thirty-six to forty-eight hours.

In conclusion, I give you this summary, under the heading of

#### RULES FOR TREPHINING.

*When to Operate.*—1. An injury to the head, followed after a little time by marked cerebral symptoms, imperatively demands trephining at the point of injury if known; if not, then over the middle meningeal artery of the affected side.

2. In progressive or extradural hemorrhage—caused by a fall on the head or a blow from a dull instrument like a sand-bag—if symptoms of compression appear after many hours, or even days, there being no fracture or contusion as a guide, it is proper to open the skull over the middle meningeal

artery; if no trouble be found there, then over the posterior branch.

3. Cases of "compression" or "concussion" without localizing symptoms or external evidence of injury should be subjected to exploration if there be no return of consciousness within eighteen hours at the farthest; upon both sides if necessary.

4. Giddiness, headache and vomiting, with stupor and convulsions of one side, may be due to meningeal hemorrhage; exploration is permissible.

*When not to Operate.*—1. When the heart's action is depressed, respiration irregular and swallowing difficult, the hemorrhage is probably subarachnoid and operation can not be of benefit.

2. In cases dependent upon fracture, if blood be discharged from the mouth or ear there is basal injury and the justifiability of operation is questionable

### ORIGINAL ARTICLES.

#### SOME POINTS PERTAINING TO THE PRESENT PATHOLOGIC AND THERAPEUTIC STATUS OF DIPHTHERIA.

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It will be admitted that until recently the management of diphtheria upon the part of the medical profession as well as many other diseases, has been empirical. Since the definite cause of this disease has seemed to be established, we have been able to work more intelligently in our treatment. It must not be forgotten, however, that able men in the profession do not yet accept the germ theory of disease. Among the number so great a man as Dr. Lawson Tait affirms his disbelief. He is of the opinion that these organisms abound and multiply under two conditions or states—decomposition and disease. He thinks their presence is incident to but not causative of disease. To illustrate his idea, he presents the homely illustration of the dead animal under the mid-summer sun. The prolific development of tissue destroyers in the form of maggots from microscopic parasites does not demonstrate to him that the maggots had anything to do with the death of the animal, but that the vitality of the latter, having been reduced to zero, the maggots, germs and spores utilize the opportunity for vital development upon their own part. He with others, believes that the various organisms operating under the conditions of disease and decomposition, attempt to act as scavengers for the removal of effete matter and perverted secretions and excretions rather than as the causes of morbid conditions. Discussing this subject before the Birmingham Midland branch of the British Medical Association last October, Mr. Tait threw hot shot against the germists by citing the difference of opinion among dermatologists regarding the parasitic origin of eczema; he quotes many of their best observers who believe that it is of neurotic origin and that microbes have nothing to do with it. He aptly says that if we can not settle upon the germ as being the cause of a disease so superficial, so exposed to view, so universal and so open to study as eczema, that there are few cases where it is capable of settlement. We can many of us sympathize with Tait when he says: "I entered my college career just as the grand sweep of the cellular pathology was careering over the medical world. Everybody was mad after a new cell. Special courses and special

teachers were told off for cellular instruction. Our microscopes had got so far as to unriddle the facts of cellular construction, and therefore there must be a cellular pathology which was to explain everything. Two parties existed and they fought bitterly, the only real and permanent effect being that the unhappy student had to meet two sets of examiners and to know two sets of answers to the same questions; the one to be given as the wind blew from the east, the other as the turn of the west wind came. The cellular party apparently triumphed, but it has silently and mysteriously disappeared, so that we may ask with Hans Breitman: "Where is dad barty now?"

In his paper, Tait refers to a contribution of Dr. Leslie Roberts in a recent number of the *British Medical Journal* on the pathology of vegetable hair parasites, and remarks that it interested him greatly because it was a phase of the dermatologic investigation getting as near the laboratory flasks as seems possible. Tait makes a note of the lack of unity of opinion on the part of dermatologists, with reference to the pathology of vegetable hair parasites. He suggests that from a bacteriologic standpoint they are no further advanced than botanists were in the times of Gussieu and Linnaeus, and that the philosophical revolution affected by Darwin has not yet reached them, and refers sarcastically to the amount of drivel that is made to center around the culture tube. He very tersely says: "What should we say if an investigator provided to classify the trees in an orchard by the shape of their branches or the color displayed by their fruit?" He says logic can not change with the size of the objects or with the apparatus and manipulation. He decries the rapidly appearing successive memoirs which are self-contradictory and which are objectionable and unusual in scientific research, and suggests to us all the necessity of reserving judgment. Indeed he says, many of the opinions maintained so strongly regarding bacteria have passed into medical currency with very little inquiry on the part of those who have reached them. He says their work is carried on without regard to the first principles of Bacon and with an utter disregard to the teachings and examples of Darwin. "The very fundamental thoughts of the evolutionary school of biology are brushed aside, and the great text-book of Sachs might as well have never been written."

Tait criticises the application of Pasteur's law which he so wonderfully illustrated in the process of brewing and wine fermentation, which were of such enormous financial value to the interests involved, as not being applicable to the human body, and says that Pasteur was responsible for leading wildly astray many young doctors who had never studied Bacon and were incapable of grasping the fact that while the former might be wholly right in the brewing vat, it required a re-arrangement of the syllogisms to carry the argument to the human body. For instance, take ten thousand human bodies all perfectly alike, as far as we can see, and drop your germs of typhus about and see what will happen. The first remarkable fact to be found is that if the bodies are in Birmingham there will probably be no effect at all. If they are in Edinburgh, no effect, or very little will be seen in the new town; whereas in the old town some commotion will result and there will be about a hundred cases of typhus. These will be distributed in various centers with mathematical proportion, and probably no two cases will be exactly alike.

Clearly then, according to Bacon, the provocative cause lies not in the germs.

We can not ignore some of the bacteriologic perplexities which confront us, however loyal we may be to the germ theory.

1. Pneumococci may exist in the air passage without producing pneumonia.

2. The bacilli coli (which are constantly at home in large numbers in the large bowel) are believed by some to be essentially the same as the typhoid fever bacillus of Eberth and to develop the same biologic and pathogenic characteristics when the soil is favorable. Indeed it is freely stated that the Klebs-Löffler bacillus is often found among the many scores of bacteria infecting apparently healthy mouths.

In a recent paper Bleyer says: "To-day we know with almost absolute certainty that there are two forms of diphtheria, which to the eye of the clinical observer present similar changes in the mucous membrane, inasmuch as both are characterized by the appearance of a pseudo-membrane, at times dirty white, often tinted greenish or yellow white in color. Viewed at the bedside alone, in both you will observe alike, prostration, a febrile condition, swelling of the submaxillary glands, disturbance of respiration often slight it is true, so that a differential diagnosis, clinically, is a qualification to which few of us can lay claim. Notwithstanding this, the two are totally dissimilar. Examined bacteriologically, the exudate of one will reveal nests of bacilli which are found only in the exudate of true diphtheria, while in the other there are no bacilli, but instead the so-called staphylo- and streptococci. The first variety is highly fatal, statistics showing a mortality of almost 50 per cent., while the second, so far as danger to life is concerned, is comparatively harmless." In this latter statement he is wrong, for even these causes may produce fatal blood poisoning.

Skigo reports several cases which he met with during an epidemic of diphtheria where the tonsils were covered with disseminated spots of exudate the size of a pea, and he tells us that there was absolutely no clinical indication by which he could differentiate the cases which ran the violent course of true diphtheria, and those which took the milder course.

Morton examined 200 cases of diphtheria that had been diagnosed by that eminent clinician, Simon of Paris, and found in only 137 of these the Klebs-Löffler bacilli; 43 of the remaining 63 cases proved to be tonsillitis, 13 proved to be croup of which 12 got well without operation, 7 cases proved to be diphtheria with croup, 6 of which developed the bacilli after the operation of tracheotomy had been performed and which Morton says had been due to hospital infection.

In recent investigations made by Park, in the New York Orthopedic Hospital, where the children seem specially liable to attacks of follicular tonsillitis and enlarged tonsils, culture experiments were made and in some instances pure cultures of the typical Klebs-Löffler bacillus were found in fair abundance and in others they were scanty. Though the soil was favorable, the bacilli found were evidently not of a virulent character, and from these reports, Chappell, in the *New York Medical Record*, observes that until these causes were examined, he had supposed that Klebs-Löffler bacillus found in a sore throat meant diphtheria, whether the clinical history and evidence supported that diagnosis or not. He concludes that



at present writing it seems there are three possibilities:

1. Clinical phenomena of diphtheria without Klebs-Löffler bacilli.

2. Clinical phenomena of diphtheria with Klebs-Löffler bacilli.

3. Klebs-Löffler bacilli without any clinical phenomena of diphtheria.

If it be true that diseases attended with the formation of the pseudo-membrane of the throat due to other causes than the Klebs-Löffler bacillus are not followed by the well-known sequelæ of diphtheria, then the term diphtheria, should not be applied to them. The term, diphtheria, has in the past been freely applied to this form, but I think it is a misnomer. The name diphtheroid, which was first applied I believe by Dr. Lester Hall of Kansas City, is much more appropriate, as it expresses the thought that the disease is like diphtheria.

It is said that there is no germ that is so variable in its virulence as the Klebs-Löffler bacillus, (but all forms of life vary in their degree of lustiness) and this may account to some extent for the difference in severity in cases of diphtheria; we are all aware of the fact that there is a great variation in the virulence of all epidemics; whether it be due to atmospheric or other causes, has not been fully established. Another element of confusion to the practical physician is the statement that the pseudo-bacillus found in diphtheria does not vary in any way microscopically from the true Klebs-Löffler bacillus. If this bacillus and others may vary so materially in their lustiness, in their ability to make their way in the world from time to time, may they not also vary in their general appearances to a like degree, and thus create confusion as regards microscopic diagnosis?

In a recent discussion, Dr. C. H. Johnston, of Grand Rapids, Mich., says he can see no good reason for considering these so-called pseudo-bacilli as other than true diphtheritic germs, which if planted upon suitable soil may give rise to the most severe forms of diphtheria.

The many conflicting facts presenting themselves to us, may, if they do not prompt us to ask ourselves pathologically, "where are we at?" at least make us hesitate in insisting upon the making of a diagnosis based only upon microscopic demonstrations. Indeed, in spite of the brilliant light which has been thrown upon the subject from the intellectual lamps of many of the best men of the profession the world over, there is reason for our not being entirely absorbed in our study of diphtheria as well as other diseases, by the microscopic and bacteriologic evidence to the exclusion of the bedside clinical evidence.

While personally I am disposed to accept the germ theory, particularly as applied to the infectious diseases, and probably to far more than have yet been discovered, yet I still believe most firmly that there are many diseased conditions dependent upon other things than germs and that clinical facts are stubborn things.

Every true physician never ceases to be a medical student, and he needs to guard himself against too readily accepting the dictum of those whom he may recognize as the masters of the profession. The views of Lawson Tait and the many other able workers of the medical world are worthy of consideration, worthy of being weighed in the balance. I have great respect for the opinion of any man who has given evidence

of being an earnest, honest student in science, no matter what his views may be. Our own Dr. Wm. Johnston, one of the Nestors of the medical profession of St. Louis, one of the most indefatigable delvers in the field of literature, medical and general, when he antagonizes the germ theory of disease, we must remember is in very good company and his views are worthy of our most profound attention. At the same time the younger workers in the scientific vineyard who spend most of their time looking through the small end of a microscope and into the depths of test-tubes, mingling with laboratorial outfits, should have a care lest they develop an intellectual myopia which will preclude their appreciation of the importance of bedside observation, of clinical evidence. They should each and every one remember that bacteriology is not all of the science of medicine, and that the bulk of medicine is art rather than science, and other things being equal, the careful student of human nature, the close observer and the energetic worker in the sick room, after years of experience, is often far more competent to make a diagnosis of a given disease by clinical evidence alone than they, with their microscopes and culture tubes, without such knowledge and experience. Who of us who have listened to the able and forceful words of a venerable teacher of surgery in St. Louis, his teachings based upon knowledge gained from reading not only books but the symptoms of disease, would not as soon accept his dictum with reference to a tumor, its benignancy or malignancy, its necessity for removal, as the most expert microscopic opinion taken alone.

Any physician of experience worthy of the name, can make a diagnosis of pulmonary tuberculosis on the clinical evidence alone, and bring the microscope to his aid only for confirmatory purposes. But the true physician is ever receptive and unprejudiced whether in the sick-room or the laboratory—he who knows it all generally knows very little.

Like syphilis, diphtheria is probably primarily local, as it can be inoculated upon a denuded surface, but like syphilis, general in its effects, it so promptly affects the system at large that the removal of the infected point by the canterization of the membrane in the one case or the excision of the primary chancre in the other, will not prevent constitutional systemic poisoning. Time was, when in an empirical way, physicians immediately attacked these exudates in the air passages with violent caustics, often doing greater injury to the surrounding parts than to the invading membrane.

As syphilis has been in modern times greatly modified and its asperities softened by the recognition of the importance of local cleanliness and the securing of favorable constitutional conditions, so I believe may diphtheria. A suitable soil with depressed constitutional conditions, in other words a dirty suppurating neglected angina (as in scarlet fever, acute tonsillitis or quinsy) with perverted secretions throughout the alimentary canal, an already existing blood poisoning produced by the numerous streptococci and staphylococci present in the faucial field, presents conditions favorable to the development of the most brutal and lusty Klebs-Löffler bacilli imaginable.

One should hesitate long before relinquishing many of the valuable measures which have stood the test of time, and accepting the newer therapeutic sugges-

tions, even including that of Behring, for he undoubtedly originated and developed the antitoxin treatment of diphtheria. Roux, who is a skilled bacteriologist, and presented remarkable results in a definite manner at the International Congress of Hygiene at Budapest last summer, freely accords the credit of this discovery to Behring. The literature that has been presented during the past few months in favor of the blood serum therapy as applied to diphtheria, is enormous, and no candid careful observer can ignore the fact that the great bulk of it is favorable.

Nearly a hundred years ago, Edward Jenner presented to the world the original thought in the direction of treating disease in man by a product from a lower animal which had previously been acted upon by the same disease. In other words, Jenner's application of vaccination for smallpox was the first move in the direction of the blood serum therapy, for we have no reason to doubt that vaccinia on the udder of the cow is probably primarily the result of smallpox introduced into the same animal. It is true that the workers in this field are now moving along scientific lines and not empirically as did Jenner, and yet he stands an example to all scientists whether they be bacteriologists or bedside physicians, illustrating the thought that in the study of symptoms, the grasping of facts, the application of them, clinical work is after all one of the best means of demonstration in the hands of the physician. It will be remembered, too, that Jenner did not publish to the world his work until he had elaborated it, perfected it, and extended it over a period of twenty-five years.

The best report of the antitoxin treatment of diphtheria has been through the United States Marine-Hospital Service. Surgeon-General Walter Wyman having delegated Surgeon J. J. Kinyoun, a skilled bacteriologist, to visit the Pasteur Institute and study thoroughly the work of Prof. E. M. Roux, he presents his official report in the weekly abstract published by the Marine-Hospital Service under date of Oct. 20, 1894, and it is indeed the most succinct and reliable article upon this subject that has yet appeared. Too great credit can not be given Surgeon-General Wyman and his subordinate, Dr. Kinyoun, for the report. The essence of the conclusions made by Dr. Kinyoun are contained in the following: "The results obtained by Professor Roux in the treatment of cases of diphtheria are so astounding, that one is almost compelled to ask one's self, 'Is this possible?' but when the methods are known and the array of statistics are given, there can hardly remain a trace of doubt. The future possibilities in this direction can not be over-estimated as we have in the serum the almost absolute preventive of epidemics of diphtheria."

The great Virchow was for a time opposed to this method, but in a recent meeting of the Berlin Medical Society, he publicly announced that he had to yield to the brute force of unanswerable facts. A full opportunity was furnished for the comparison of results in a large number of cases in Berlin, when treated with and without the blood serum. Hausman, Virchow's assistant, still opposes the blood serum, but as yet there has appeared no presentment of facts upon which to base his opposition; at least it has escaped my observation. The reports from London, France, Berlin and upon this side of the water, are in the affirmative. The government of France has given to Roux its highest honors in recognition of his work.

And now what shall be said of the present general application of the blood serum therapy? First of all, the remedy is enormously expensive. The animal best adapted for its development is the horse, and the time required is not less than six months. This practically places it beyond the reach of the great masses. If the serum treatment is to become general, then comes the important question, and it is a difficult one, what arrangements are to be made for protecting the community under sufficient and proper guarantee with the material for this treatment? Surely the same arguments would apply in favor of this prophylactic measure (for such it is, as well as a remedial agent) being placed under the control of local boards of health, the same as in vaccination for smallpox. It is to be supposed that health boards have definite knowledge and supervision of the vaccine farms which furnish vaccine virus to the respective communities, and they should have similar supervision over the laboratories where the blood serum is developed. The health boards should know that properly healthy animals are secured, those of proper age, and that the proper sanitary and antiseptic precautions are exercised in the establishment. Even granting that the blood serum therapy has proved its case, until it is available, and even after, we must not lose sight of other remedies which have after long service proved of value, for there can be no doubt that considering the fact that the antitoxin antagonizes only the Klebs-Löffler bacillus and not the streptococcus and staphylococcus and other pyogenic microorganisms, we are never safe in ignoring our old therapeutic friends in favor of the exclusive use of the new. Reviewing the amount of confusion that exists even among bacteriologists regarding the definite cause of diphtheria, and the different kinds of diphtheria, and the like confusion and uncertainty pertaining to the blood serum therapy, and our inability to make it generally applicable to mixed infections, we are justified in the exercise of the extreme caution in its application.

Diphtheria poison is tenacious of life and may be transported indefinite distances. The disease is always more or less present in crowded communities, possibly inhabiting permanently the sewerage systems of cities. Laboratorially demonstrated, the Klebs-Löffler bacillus is admitted to be found in seemingly healthy mouths frequently. A large number of the children in every community at certain seasons of the year through the medium of follicular tonsillitis, enlarged tonsils and catarrhal disturbances of the air passages, and scarlet fever angina, present themselves as standing invitations to diphtheria. A bacteriologic demonstration of true diphtheria requires twenty-four or forty-eight hours. Remembering all these facts, every case of sore throat should be isolated and treated as a suspect. While in no case acting as an alarmist, the physician should be a guarder and a protector of his patients, and should from the beginning inform the family of the possibilities of any sore throat developing into a diphtheria.

The foregoing being true in every case of sore throat, the treatment from the first should be antagonistic to diphtheria, locally and constitutionally, no matter how benign it may appear, no matter whether the Klebs-Löffler bacillus be suspected or discovered. Every case of sore throat should be treated in a cleanly way and every hygienic rule should be observed. The ideal treatment for tonsillitis, the an-

gina of scarlet fever and la grippe, which may be classed under the head of suspects, is a favorable preliminary treatment for any case of diphtheria, and this is briefly, a prompt purging of the patient, emptying the intestinal canal for future service as a food tract, the administration of local applications which serve as soothers and cleaners of the disturbed mucous membranes and are as nearly germicides as can be made. Under this head comes hydrozone and pyrozone, which are definite strengths of peroxid of hydrogen, and if too irritating may be diluted one-half. This application should be followed by Listerine, Pasteurine or Katharmon, applied preferably with a hard rubber syringe, the nozzle of the same guarded by a soft piece of rubber tubing two or three inches long, to protect the throat from being wounded. The keeping of the nasal passages well open by the means of liquid albolene (5 grains of carbolic acid to each ounce) protects the mucous surfaces and renders the infection at these points less probable. The internal administration (from the beginning) of the benzoate of soda, in doses ranging from 5 to 20 grains, well diluted with plain water every one or two hours, according to the age of the patient, serves as a stimulator of secretions and is the best remedy for prompt reduction of a benign inflammation of the tonsils, it being equally valuable in the removal of exudations. A dry engorged condition of the mucous membranes with all secretions presenting a tenacity and a disposition to stick to the surfaces, is soon changed under the saturating doses of the benzoate of soda, into a loosening of all exudations and a moist condition of all the surfaces. A flow of mucous from the parts is stimulated and exosmosis rather than endosmosis is encouraged. Salkowski in 1879 announced that saturated solutions of the benzoate of soda rendered the diphtheria membrane, if bathed in them, absolutely inert, so that the remedy is more or less locally antiseptic. In addition to the remedy suggested, the bichlorid of mercury should be given from the beginning, starting with 1-50 of a grain or even 1-32 well diluted, to a child of 2 years, and increasing in proportion to the age, for at least twenty-four hours, the same dose to be continued every two or three hours thereafter as long as the conditions call for it, unless too free a catharsis be produced. Clinical facts deduced by others, as well as those coming under my own observation, are absolutely convincing that the internal use of the bichlorid of mercury is antagonistic to the toxic effect of the diphtheria poison, the same as it is to the Lustgarten germ of syphilis (if there be one) and to all other germs as well, including even tuberculosis when given discreetly, and it is a local antiseptic.

Our forefathers were not far wrong when they gave calomel and other forms of mercury in reasonable doses to their cases of diphtheria, typhoid fever and cholera; but mercury is not the only remedy which has for centuries been given empirically and yet proved to be scientifically correct. We have been giving opium for two thousand years as a reliever of pain, and yet we do not know how it acts; we only know that it does.

The thoughtful physician should never lose sight in the management of his throat cases, of feeding, and indeed within twenty-four or forty-eight hours, having placed the alimentary canal in the best possible shape for the digestion and assimilation of food, the nutrition, in a form to be readily digested (use it

predigested if necessary) and assimilated in proper quantities at proper times should be furnished, for after all, good well fed blood can repel successfully most of the bacilli and their toxins. Stimulation should be ever kept in mind but not applied too soon. When we recall the demoralization of the digestive tract and the nerve centers produced by the excessive use of alcohol in adults, we should have a care in our administration of alcoholic stimulants to delicate children. I have found a pine-apple peptic wine known as Zumo-Anana of great service as a stimulant. Remedies, either local or constitutional, should not be given so frequently or be of so irritating a character as to interfere with the digestive function or with the proper amount of rest on the part of the patient.

To epitomize, then, whether the blood serum therapy be applied or not, our treatment of our diphtheria cases should include a full regard for:

Elimination, the keeping open of the secretory and excretory system of glands.

Disinfection, local and general, of the attacked surfaces, the patient and his environment, should be applied, even though the case be only a suspect and present none of the evidences of the more infectious disease.

Nutrition of a character to be most promptly utilized, and nothing is better in this direction than peptonized milk, and milk has the advantage in this form of being soothing to the inflamed surfaces of the throat. Ice cream made of good materials is often gratefully received by the patient and is quite digestible.

Stimulation, but not until it is required, for he who crosses his bridges before he gets to them makes a mistake. Oats are better for the thorough-bred roadster than the whip, unless the latter be used upon the animal when in the middle of a bridge which is breaking down; and then the whip serves well to spur the flagging energies, and so with stimulation in disease.

Tranquillization both of body and mind should be the rule from the beginning, and to this end the victim should never be given the diagnosis of his case, and no application, no remedy, nothing should be permitted to interfere with a full amount of sleep within the twenty-four hours. If necessary, sedatives to secure rest should be given and they should be given for an effect. Small doses of a sedative often excite, whereas large ones result happily.

Rest is one of the sweetest words in our language, and in the management of no disease is this more true than in diphtheria.

In closing, let me insist upon the thought that in the majority of cases the microscope is only valuable for the confirmation of the diagnosis, though exceptionally it is essential to the making of a diagnosis, and whether we get our own consent to the application of the blood serum therapy or not, let us never lose sight of the proper toilet of the throat, the proper use of our accepted and well tried remedies in addition.

The child with sore throat, as well as the other members of the family, should be given the benefit of the doubt, and isolated and treated always with the possibilities of diphtheria in mind.

**The Forty-sixth Annual Session of the AMERICAN MEDICAL ASSOCIATION** will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9 and 10, commencing on Tuesday, at 10 A.M.

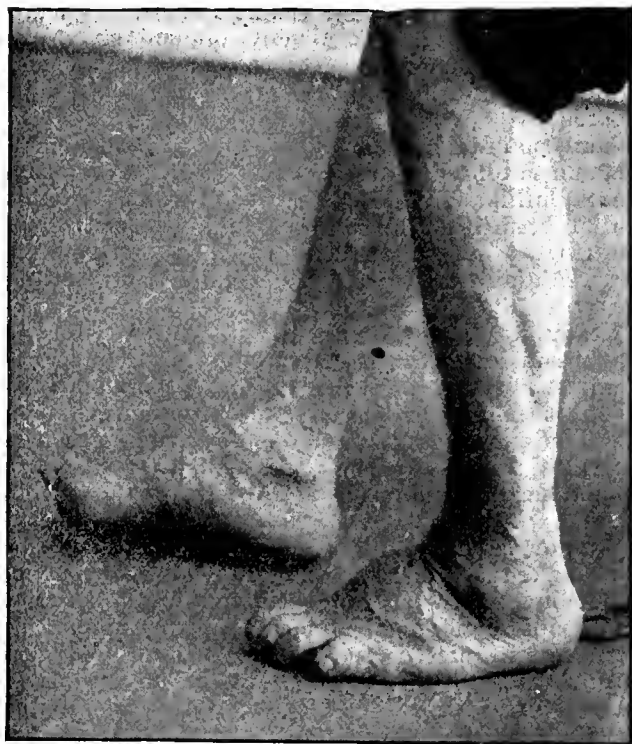
# TABETIC FOOT WITH PERFORATING ULCER. (MAL PERFORANT DU PIED.)

Read before the Chicago Pathological Society, Dec. 10, 1894.

BY HAROLD N. MOYER, M.D.

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Male, 48 years of age, of previous good health and vigorous constitution, a sailor by occupation, contracted syphilis fourteen years ago. Two years later an ulcer began on the right toe; at first there was some swelling of the epidermis on the inner aspect, and a bleb formed. This gave way and an ulcer remained that gradually deepened until it extended in a funnel-shaped excavation to the bone. After this the toe was amputated. The following winter the third toe on the right foot became diseased and was removed. From that time on the patient was free from all disturbance about the joints, with the exception of the gradually developing deformities,



until the winter of 1893 and 1894, twelve years after the onset of the malady in the right foot, when the great toe of the left foot became similarly affected necessitating amputation.

In January of that winter he began to have pain in his stomach, his gait became uncertain, and there was a numb sensation from the knees down. Since that time he has been unable to work. He has now well-developed tabes, marked incoördination, loss of the light reflex, gastric crises, but no lightning pains. The feet show the loss of toes that have been amputated and also a clubbed condition of the second toe on right foot where there is a large callus and no nail. The second toe of the left foot is gangrenous. The whole foot is deformed and distorted. There is a thickening of the metatarsal bones, and disease and deformity of the bones and joints which make up the arch of the foot. An examination of the accompanying photographs will show that the medio-tarsal joint

is the most involved. Not only are the bones eroded and displaced, but there is more or less thickening of the cartilaginous and osseous structures forming the arch of the foot; so that the foot is humped much as it appears in dislocations of the medio-tarsal joint, but unlike the latter condition the foot is not in an equinus position and the plantar surface can be brought to a right angle with the axis of the leg.

There are two principal varieties of tabetic arthropathy of the foot; in one we have the medio-tarsal joint involved, with a projection of the arch of the foot; in the other the disease seems to expend its force largely upon the ankle joint and the articulations between the astragalus and os calcis. In these cases the foot is in extreme extension; in one figured by Charcot there is a dislocation of the ankle and the foot forms a direct continuation of the long axis of the leg.

To Charcot and Féré<sup>1</sup> we are indebted for the term tabetic foot. In 1883 they reported two cases of this



disease and priority is commonly accorded them. Page,<sup>2</sup> the previous year, had described a case of tabetic arthropathy in which the tarsal bones of both feet were involved. In 1884 Féré<sup>3</sup> reported an additional case. Since that time cases have been reported by Boyer,<sup>4</sup> Joffroy,<sup>5</sup> Chauffard,<sup>6</sup> Longuet,<sup>7</sup> Féréol,<sup>8</sup> Kramer,<sup>9</sup> Chipault,<sup>10</sup> Audocond<sup>11</sup> and Klemin.<sup>12</sup>

In some of the cases, perforating ulcer was associated with the deformity of the foot such as we have in this case, but they are not necessarily associated, as each condition may occur separately and apart from the other.

So far as I am aware, Bernhardt<sup>13</sup> reported the first case of perforating ulcer in connection with tabes. This was followed by cases from the pens of Pepper,<sup>14</sup> Hinze<sup>15</sup> and Audocond.<sup>16</sup> Hinze,<sup>17</sup> in a later communication, collected twenty cases from the literature and two additional ones occurring in his own practice, in all twenty-two; of these nineteen



were men and three women. In eight cases the ulcer preceded outbreaks of tabetic symptoms and in ten they followed. In three cases the ataxia and ulcer appeared at the same time, while in one the fact could not be ascertained. The longest time noted by Hinze in which the ulcer preceded the tabes was ten years. It will be seen that in the case under consideration this length has been exceeded, some twelve years having intervened between the appearance of the perforating ulcer and the first symptom of tabes.

A number of different theories have been propounded to account for the trophic changes in tabes. Charcot believes it to be due to an atrophy of the cells in the anterior horns of the cord, while Virchow simply referred it to lowered nutrition due to perverted nerve influence. Oppenheim and Siemerling demonstrated a change in the peripheral nerves, but it is apparent that such conditions may be only secondary. Volkmann pointed out the relation of traumatism and analgesia in these cases. Undoubtedly, in advanced forms, these factors play an important rôle. It does not account, however, for those cases in which the joint troubles precede by months or even years the earliest tabetic symptoms. As a matter of fact, our knowledge of the trophic centers of the nervous system is yet too slight to throw much light on the pathology of these cases.

An interesting case of perforation of the aortic valves was reported by Teissier<sup>18</sup> in a tabetic. The case presented a close resemblance to the ordinary perforating ulcer of the foot, and was thought by him to have an identical pathology.

Terrillon<sup>19</sup> has reported a unique case of multiple perforating ulcers of the hands in a case of tabes of syphilitic origin.

the sheer force of pathologic necessities approaching its proper position in frequency of performance. The expressions quoted are used almost exclusively by men who have not yet realized the pathologic conditions nor the true importance of early operation. Their intellectual vision is still in the shadow of the "grape seed," "cherry pit," "catarrhal inflammation," and "rheumatism" of the appendix. They have not the slightest idea of the destructive effect of an infection of the appendix. They do not realize that with an infection, the appendix may become completely gangrenous, may perforate or may produce a fatal peritonitis all in a short period of time (forty-eight hours), from the initial symptom. Again, it is said by the same class of men: "I am opposed to the indiscriminate removal of ovaries and appendices when they are not seriously diseased." So is every rational operator and this idiotic expression should not be tolerated in medical societies without appropriately stamping its author.

There has been no controversy in the history of medicine in which the struggle has been so intense between the surgeon and the physician as on that of appendicitis. Both parties have been honest in their convictions and both equally positive that they are right.

We naturally seek an explanation for this diversity of opinion as well as action, and the explanation is not difficult to discern. Differences of opinion as to the clinical course and probable results with operative and non-operative treatment have been almost entirely due to erroneous notions of the pathologic conditions. Up to five years ago we had on the pathology of appendicitis practically no other teaching but that of the post-mortem table; that has to-day been almost entirely superseded by the teaching of the operating table. To-day we observe on the operating table pathologic changes almost from the moment of their beginning until the destruction of the parts concerned is complete; whereas formerly we made deductions, and these very erroneous ones, as to conditions that existed before the pathologic changes ensued which produced death.

From results found post-mortem we inferred the cause and course, and here was the source of error; to-day we observe the disease in the various stages of its progress from its inception to the final result. We are therefore preëminently qualified to arrive at a correct conclusion, inasmuch as our opportunities are so much greater for observing pathologic changes as they progress.

Now, on what points have the surgeon and the physician differed and what has led to the diversity of opinion?

From 1886 to 1888, when Gaston and Kraft wrote their excellent monographs on appendicitis, it was the prevalent opinion of the profession all over the world that the vast majority of diseases in the right sacro-iliac region were due to cecitis, an inflammation of the cecum or its surrounding tissues as a result of disease of that viscus, and it was variously known as typhlitis, perityphlitis and cecitis. Then, after these elucidations, the physicians gradually yielded point after point until finally, to-day, it is agreed that all except 2 per cent. of the inflammatory pathologic lesions about the caput coli are due to primary lesions of the appendix.

We may now regard the first point as practically settled; the next argument advanced on theoretical

## APPENDICITIS.

### DEDUCTIONS FROM TWO HUNDRED AND SEVEN CASES OPERATED, WITH TABULATED REPORT.

Read before the Chicago Pathological Society, Dec. 10, 1894.

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CHICAGO.

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In many of the recent periodicals we find these ideas expressed: "The pendulum of operative appendicitis is now swinging in the reverse direction." "The frequency of operation on the appendix is going through the same course as did removal of the uterine appendages." The frequency of operation has not been irrationally swung, nor carried to its present position so-called excessive, but has found the strongest opposition from the very onset and is only now by

<sup>1</sup> Arch. de Neurol. vi, 18, p. 305, 1883.

<sup>2</sup> Tr. Clin. Soc. Lond., 1882, xvi, p. 158.

<sup>3</sup> Revue de Médecine, iv, p. 473, 1884.

<sup>4</sup> Rev. de Méd., i, v, p. 487, 1884.

<sup>5</sup> Gaz. hebdomadaire de Médecine, 2, 5, xxii, p. 408, 1885.

<sup>6</sup> Bull. et Mem. Soc. Méd. d. hôp., 1885.

<sup>7</sup> Union Méd., 3 S., xli, p. 493, 1886.

<sup>8</sup> St. Petersburg. Med. Wochenschr., 1886, N. F. III, p. 213.

<sup>9</sup> Prag. Med. Wochenschr., 1887, xii, p. 283.

<sup>10</sup> Gaz. d. Hôp., 1889, Lxii, p. 265.

<sup>11</sup> Rev. Méd. de la Suisse, 1890, x, p. 581.

<sup>12</sup> St. Petersburg. Med. Wochenschr., 1892, x, p. 269.

<sup>13</sup> Centralb. für Chir., 1881, viii, p. 660.

<sup>14</sup> Tr. Path. Soc. London, 1884, xxxvi, p. 660.

<sup>15</sup> St. Petersburg. Med. Wochenschr., 1886, III, p. 243.

<sup>16</sup> Soc. cit.

<sup>17</sup> Centralb. f. Nervenheilk. u. Psych., 1891, II, p. 97.

<sup>18</sup> Teissier. Lyon Méd., LV, 1887, p. 49.

<sup>19</sup> Bull. et Mem. Soc. de Chir. de Paris, 1885, N. S., xi, p. 408.

considerations was that the appendix in inflammatory infections becomes swollen, and relieves itself by the discharge of its inflammatory products through its normal opening into the intestine, thus effecting a cure.

What have we learned from observations at the operating table? That in inflammatory lesions of the appendix, the canal is rarely relieved of its inflammatory products in the way suggested, but is relieved by a necrosis of its wall and perforation. This is followed by the formation of an abscess and a subsequent necrosis of the attached wall of the viscus to which it is adherent, the contents of the abscess escaping into the intestine.

The next contest was over the presence or absence of pus outside of the appendix, in the majority of acute cases. Observation in operations has shown us that in the acute stage, in 94 per cent. of the cases, pus is found outside of the appendix; that the existence of pus outside of the appendix does not necessitate a perforation of that organ for its production. That an infection of the peritoneum and the formation of a peri-appendicial abscess may occur with an internal ulceration of the appendix and no perforation, as I have shown by cases reported in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*,<sup>1</sup> March 3, 24, 1894.

While the profession was not prepared to believe that pus was present in the form of a circumscribed peri-appendicial abscess in practically all of the cases of acute appendicitis, it had been acknowledged for many years that in some cases abscesses occurred around the caput coli, which emptied into the intestinal tract and the patient recovered. We know now that this is the course in the very great majority (about 82 per cent.) of cases that recover without operation.

The last and final questions, and the ones on which the controversy is still spirited, are: *a*, the pathologic changes produced by perforation of the appendix into the peritoneal cavity; *b*, the likelihood of that perforation, and also perforation of the circumscribed abscesses about it, into the peritoneal cavity; *c*, the immediate and remote symptomatic and physical manifestations of the latter; *d*, the ultimate result of such rupture; and *e*, the danger of infection of the peritoneum from an endo-appendicitis without perforation.

The pathologic changes produced depend: 1, on the character of the material admitted into the peritoneal cavity, *i. e.*, whether the contents of the appendix or abscess consist of, *a*, pus or *débris* in which the staphylococcus predominates; *b*, whether the streptococcus predominates; *c*, whether the bacillus coli communis exists in its virulent or inert condition; and *d*, whether the pus, in which any or all of these may have existed, has become innocuous; 2, the quantity of material admitted at one time into the peritoneal cavity; 3, on the condition of the peritoneum at the time of admission of pus.

I have observed in patients, and demonstrated experimentally, that pus in which the staphylococcus and the inert bacillus coli communis predominated, could be free in the peritoneal cavity for a long

period of time and produce but very slight changes in the peritoneum, *i. e.*, that the intestine may be bathed in pus of this character for days without excoriating the peritoneum. I have observed a pint of pus of this character in the peritoneum of a patient where the history showed conclusively that it must have been present for five days, and upon opening the peritoneal cavity the normal gloss of the peritoneum of the bowel was still maintained. I have taken this pus and produced cultures with it which demonstrated its character, and injected one drachm of the pus as removed from the peritoneal cavity into the peritoneal cavity of animals, both with and without mechanical abrasion of the peritoneum, without producing any symptoms, and no pathologic lesions were found on making an autopsy.

In cases of general suppurative peritonitis, as a result of appendicitis, that have been under my observation, in which the normal glistening appearance of the peritoneum was present at the time of operation, the patients recovered, and inoculations of the pus into the peritoneal cavity of animals produced no symptoms or lesions. When I find that the pus has not abraded the peritoneum, even though the surface has been covered by it for a length of time, I consider the case a favorable one.

Note how this contrasts with the appearance in the abdomen where the streptococcus predominates. Here we find, within a short time after the rupture into the peritoneal cavity, the peritoneum in contact with the infectious material is entirely denuded of its endothelium, resembling the condition produced by a cantharides blister. The quantity of pus is always small, rarely exceeding a few drachms, with here and there flakes of lymph. The bowel is distended and paralyzed; peristalsis has ceased. Inoculations with this pus produced the same condition; the red and angry appearance of the intestine I now recognize as a signal of the gravest importance, as the majority of my cases in which this condition was present terminated fatally.

The septic conditions of the bacillus coli communis produced about the same physical manifestations as that of the streptococcus. The quantity of material discharged into the peritoneal cavity is of great significance; if it be small the intestines and omentum rapidly circumscribe it and protect the general peritoneal cavity from invasion. If it be large, and if it be irritating and poisonous, it may abrade the peritoneum of its endothelium as boiling water would, quickly, and be followed by a rapid absorption, causing death in a few hours. I have had only one case of this class in which an abscess of considerable size ruptured into the peritoneal cavity; within two hours the extreme symptoms of shock were present and in twelve hours the patient succumbed. If a large quantity of pus of a low septic character be admitted into the peritoneal cavity, it may remain in that cavity for days and produce but slight changes; finally, from some cause, this material which had been innocuous, suddenly produces grave conditions and symptoms.

It is a matter of deep-rooted belief that a peritoneum that has been irritated repeatedly by the presence of a tumor, by the close proximity of an accumulation of infectious material finally attains an increased resistance against infection, *i. e.*, the peritoneum of a patient who has suffered from the presence of a large and movable tumor will tolerate much

<sup>1</sup> Dr. Fowler also made the same observation and in the *Annals of Surgery*, January, 1894, expresses himself as follows: "From the first appearance of an endo-appendicitis, channels of infection are open which may lead to the occurrence of any one or all of the forms of septic peritonitis without the occurrence of perforation, formation of adhesions, or rupture of a sero-purulent collection of an abscess cavity."

more manipulation than a perfectly normal peritoneum, and that the peritoneum in the neighborhood of an old circumscribed abscess is more difficult to infect than a healthy peritoneum.

There has been a great difference of opinion as to the symptoms of appendicitis and the relation of the symptoms to the pathologic condition within. This diversity will continue until our power of differential diagnosis is very much increased. From a train of symptoms and signs in the early stage it is impossible to say just what is the exact pathologic condition. We can say, however, that it is a disease of the appendix in some stage of its development.

The symptoms of appendicitis are: 1, a sudden pain in the abdomen; 2, shortly followed by nausea and perhaps vomiting; 3, local tenderness over the site of the appendix, and most frequently in the right iliac region; 4, elevation of temperature.

These symptoms occurring in this order without a previous history of genito-urinary infection, lesions of the gall tracts or Pott's disease, indicate appendicitis with almost uniform regularity. They do not indicate that the appendix is gangrenous or that it is a simple catarrhal appendicitis. They do not indicate whether the appendix has perforated or has not perforated; nor whether the cause is an infection with the staphylococcus, streptococcus, bacillus coli communis or the presence of a fecal stone or a foreign body. They do not indicate whether it is stenosis of the appendix or an appendicitis obliterans but merely that it is an appendicitis, a disease of the appendix.

The physical manifestations, the presence or absence of induration, tumefaction, edema of the wall, tympanites, etc., aid in the differentiation of the various pathologic conditions present in the more advanced stage, but all of these are absent or comparatively worthless in the early stage.

The etiology, which was for a long time a subject of contention, is now practically agreed upon. It was very difficult to eradicate from the professional mind the deep-rooted erroneous belief that in a great majority of cases, appendicitis was due to foreign bodies admitted into and retained in the appendix, as grape stones, cherry stones, fragments of bone. We had four cases of foreign body and 38 per cent. of fecal stone. To indicate the causes of appendicitis, I will use the same classification employed in my article of March 3, 1893:

1. Simple pus infection, producing the catarrhal variety.
2. Extensive infection by bacillus coli communis or pyogenic microbes, producing gangrene of a greater or less portion of the appendix.
3. Pressure atrophy with infection of the appendix: *a*, by fecal concretions; and *b*, by foreign bodies.
4. Retention accumulations: *a*, from cicatricial contractions, stenosis and obliteration; and *b*, from occlusion by enterolith or foreign body.

From the reports of autopsies collected, I find that in 70 per cent. of the cases there was a perforation of the appendix. Of my own cases in which the appendix was removed there was about 80 per cent. perforated. Simple catarrhal primary appendicitis, if it exists, is rarely brought to the attention of the physician and still less frequently to that of the surgeon. Of 207 cases reported we had but one of this variety. A catarrhal inflammation where the more serious form of appendicitis had previously existed is not uncommon.

The question of greatest practical importance to the surgeon and physician is the diagnosis; can we determine when an appendicitis is present, and can we determine the pathologic conditions that exist in the abdomen at any given time in the progress of the disease? To the former we must with positiveness answer in the affirmative; to the latter an equally forcible negative must be given, that is, we can say from the symptoms that a lesion of the appendix exists but we can not say, in most cases, how extensive, how dangerous and how far-reaching the effects of that appendicitis may be, and still less can we say in any given case how soon the life of the patient may be greatly jeopardized by the disease which at the moment has apparently no grave symptoms.

If we were able to determine in the early stage from the symptoms, physical signs or clinical history of a given case that it was going to take a favorable or unfavorable course, we could regulate our treatment accordingly. Unfortunately, there are no symptoms present in the dangerous cases, premonitory of their fatal termination, until the patient has passed beyond the stage where an operation offers reasonable hope for a recovery.

The question to be answered is, When should we operate?

The so-called conservative answers: "Operate on the collapsed cases; the cases that present symptoms of fulminating peritonitis; the cases that are taking an unfavorable course; the cases that appear to be progressing rapidly to destruction under medical treatment."

The surgeon must take a positive stand and answer, No, to each of these rules. It is admitted that 50 per cent. of the fatal cases terminate before the end of the sixth day, many on the fourth and a smaller number on the second.

The surgeons who wait till the sixth day must therefore expect to have a mortality of 50 per cent. of all the cases that would die without operation. I believe the proper position for the true, earnest and advanced medical man is expressed by the eminently scientific and truly conservative physician, Dr. Norman Bridge, in the following words: "Appendicitis is one of the most frequent and dangerous of the inflammatory diseases in or about the peritoneal cavity. We do not know the line between proper medical treatment and the demand for surgical interference, and rather despair of finding it. The medical man is practically powerless to control the destiny of the patient. It is always a surgical disease and the mortality should be materially lessened by skillful surgical treatment."<sup>2</sup> Would you delay operation in a case that is progressing favorably? By that I mean a case in which the temperature is not above 99 degrees, the pulse not above 80, the expression good, the abdomen presenting no alarming symptoms. No; I have seen cases of this class go to the third, fourth and fifth day with all of the most favorable symptoms that could well be imagined and on the sixth day die. From what? From a suppurative peritonitis that had existed all that time, as shown by the pathologic changes found in the peritoneum.

*We have no sign, symptom or combination of signs and symptoms which indicate with any degree of certainty, suppurative peritonitis. It may exist and the free*

<sup>2</sup> Prof. Wm. E. Quine, whose name is synonymous with rational conservatism has said: "I am convinced that early operation is the most scientific treatment for appendicitis with our present knowledge of the pathologic condition."

peritoneal cavity contain drams of pus with the patient about town as the following case illustrates. The case occurred in the practice of Dr. Jas. G. Berry:

Patient, G. F., aged 19, weighed 220 pounds. On the morning of September 8, after breakfast, was attacked with a severe pain in abdomen, shortly followed by vomiting, and the pain and discomfort were sufficient throughout the day to prevent him from attending to his work. He remained about the same during the night, and the following morning, at 10 o'clock, twenty-six hours after the onset of pain, he walked a couple of blocks to the drug store and consulted the druggist concerning his trouble, who advised him to see a doctor, and he was seen by Dr. Berry at 3 o'clock; diagnosis of appendicitis made; his pulse when seen by Dr. Berry was 140 and temperature 102 degrees; no tympanites, increased local tenderness over the region of the appendix, peristalsis absent, patient's countenance good and expressed himself as feeling tolerably comfortable. At 4 o'clock, assisted by Drs. Berry and McQuaig, I did a laparotomy. On opening the peritoneum, pus flowed out; there were no adhesions whatever between the intestines; the appendix was free; a fecal stone protruded from an opening in the side of appendix, where it had produced a pressure atrophy perforation; appendix amputated; abdominal cavity sponged; pus found down in the pelvis; gauze drained. The normal gloss of the intestine was not disturbed in the least by presence of the pus and the surface was not even red. Patient made an uninterrupted recovery. It will be noticed that the operation was performed thirty-three hours after the onset of symptoms and but a few hours after the patient had been walking about in the street with a suppurative peritonitis. What would have been his condition if the operation had been delayed twenty-four or forty-eight hours? The answer is self-evident.

A retention appendicitis, on the other hand, may produce a temperature of 105 degrees or even greater, enormous tympanites and pulse 140, an anxious facial expression and all of the so-called classical symptoms of a peritonitis, and the peritoneal cavity be free from infection. (See report of case which occurred in practice of Dr. E. W. Lee, JOURNAL OF AMERICAN MEDICAL ASSOCIATION, March 3, 1894. These are extreme pictures, but they do occur.

When should we operate? As we are unable from the signs and symptoms to determine the exact pathologic condition, are we justified in allowing the probability of fatal conditions to continue for such a period of time without such action as would place the patient beyond the possibility of rescue even by operative procedure? No; until such time as the physician is able to determine the exact pathologic condition and danger in the individual case, and indeed we must now consider that time far distant, he is not justified at the peril of the patient's life in restraining the surgeon from acting.

It must be conceded by all, that an operative procedure, in competent hands, is in itself one involving very little risk, while the continuation of the pathologic processes in many cases greatly jeopardizes the life of the patient.

There is only one safe position to take, and that is in every case in which a diagnosis of appendicitis is made, the operation should be immediately performed. It is true that many cases can recover without operation, but we can not differentiate, in the early stages which cases are going to be favorable ones. It is further true that the earlier the operation is performed, the less the danger to the patient and the greater the ease of removing the appendix.

In a majority of cases, if an operation be performed within forty-eight hours after the onset of the symptoms, the appendix is not yet ruptured and can be removed without pus infection of the peritoneum, an advantage of which even the boldest surgeon is pleased to avail himself. The following case in the

practice of Dr. Hoelscher is a beautiful illustration of this class:

Date of operation, Nov. 10, 1894. Operator, Dr. J. B. Murphy with Dr. J. H. Hoelscher. Diagnosis, appendicitis. Patient, Miss T., aged 16, was perfectly well up to 4:30 p.m., November 9, when she was attacked with pain in the abdomen, which persisted and increased in severity, compelling her to go to bed. She began to vomit at 8:30 p.m., and vomiting and pain continued through the night and up to the time of operation. At 11:30 of that night, when seen by Dr. Hoelscher, temperature was normal; the diagnosis of appendicitis was made. At 8 a.m., November 10, temperature 99.5 degrees and pulse 90; at 11 a.m., time of operation, temperature 100 degrees, pulse 110. Very tender over region of appendix; not sensitive in any other portion of the abdomen; no tympanites; peristalsis absent in close proximity to the appendix; expression good. Dr. Hoelscher is to be congratulated on his early diagnosis.

Operation: Lateral incision. Appendix covered entirely by peritoneum, adherent to the posterior surface of cecum up on to the ascending colon. End enlarged to half an inch in diameter; contained no fecal stones, but was full of pus; gangrene of mucous membrane beginning: lymph flakes in outer wall of appendix. Appendix ligated and removed without rupture; peritoneum sewed over; gauze drainage. Patient made an uneventful recovery.

In the later stage, if the surgeon is unfortunate enough to be called at the time that the peritoneum is flooded with pus and the patient collapsed, it is his duty perform the operation and give the patient the advantage of the small percentage in his favor in this forlorn condition.

*The rule first, last and always should be: Operate in every case of appendicitis, promising or unpromising, at the earliest possible moment.* What operation shall we perform? The incision should be made a little toward the median line from the highest point of induration, parallel to the rectus; the muscular layer should be separated with the handle of the scalpel parallel to the course of the fibers, as advised by McArthur and McBurney, and thus lessen the liability of hernia. The opening must be ample to allow the surgeon to perform the work within with ease.

In the early cases the appendix should be removed, as the adhesions are friable and permit of the appendix being readily separated and drawn into the field. The parallel band of fibers on the cecum, opposite its mesentery, can always be followed to the position of the appendix and is an infallible guide to its location.

If the non-infected portion of the peritoneal cavity be opened before the abscess is reached, as is always desirable in the early stage, a thorough packing of gauze should be made around the induration to prevent the gas from entering the unaffected portion of the peritoneum. This I consider of very great importance, and I make an effort to enter the peritoneal cavity just to the side of the adhesions, so as to open the unaffected portion of the peritoneal cavity before I open the abscess; in that way the adhesions may be located and the packing well placed, so as to thoroughly protect the peritoneum before the adhesions are torn.

In the later cases, that is, from the seventh day on, I consider it advisable to open directly into the abscess where adhesions to abdominal wall are present, drain the abscess, remove the fecal stone, if one be present, and make no effort to remove the appendix. The appendix in the acute cases should be simply ligated with chromicized catgut; no effort should be made to top-sew it or bury it in the cecum. Occasionally there will be a fecal fistula, but that closes in a very few days itself.



In the cases of appendicitis operated on in the intermediate stage *i.e.*, between the attacks, a cuff should be made of the peritoneum of the appendix, peeling the peritoneum back one-half inch or more; the mucous and muscular layers ligated and the cuff drawn back over the stump of mucous membrane and ligated. The pus should be carefully sponged out of the cavity and no water or disinfecting solutions used; do not waterlog the peritoneum as it is sufficiently taxed in taking care of the pus without this additional labor. A glass and gauze drain should both be used in all cases in which pus is present at the time of operation or in which there has been a recent attack of appendicitis. The drain can be removed in eight or ten days as the cavity fills up from the bottom.

This, in short, is an outline of the procedure I follow. All of the minor details can not be mentioned here. There is no operation in the peritoneal cavity where the patient's life is so completely in the hands of the operator, where the errors of doing too much or too little work would be so likely to result fatally as in the operation for appendicitis, with its multi-form and complicated pathologic conditions. The results depend in a very great degree on the extent of the invasion, and the latter upon the period of time that has elapsed since the onset. In speaking of results, I do not mean the results in recurring appendicitis, the simplest and least dangerous variety of all; I mean the results in all classes of cases, from the general suppurative peritonitis as a sequence of appendicitis, to the simplest catarrhal variety.

There is a growing tendency in the profession to shirk the responsibility of operating where the dangers are great, *i.e.*, to defer operation on the most dangerous cases and advocate operation on the obliterated or stenosing recurrent varieties in which there is the least danger to the life of the patient from the disease. We must not swerve from our obligations to our patients, but make every effort to rescue them, regardless of the praise or condemnation bestowed upon us.

In reporting the cases, it is the duty of every operator to classify or mention in detail the important or common symptoms of each individual case in a tabulated form and give an abstract of the history and pathologic conditions, that the analytical mind in reviewing the results obtained by the individual operators may be able to explain the cause of their success or failure when the operator himself is not. Therefore it is the duty of every surgeon, in writing on this subject, to give sufficient details of his cases to enable the reader to judge why they were of the grave or mild variety; whether they were all cases of recurrent, simple, adhesive appendicitis, or whether many of them were of the gangrenous, perforative and malignantly infectious variety with the peritoneum extensively involved.

*(To be continued.)*

**A MEDICINE MAN SLAIN.**—A medicine man of the tribe of Puyallup Indians, named Jim Bonchette, was killed by Jerry Dominic, another Indian belonging to the Muckleshoot Reservation, in the State of Washington, for the reason that the former had failed to cure the sickness of three of the children of the latter.

## ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

*(Continued from page 404.)*

### CHAPTER VII.

#### MICROSCOPIC AND CHEMIC EXAMINATION OF BLOOD.

The color of the venous blood was purplish, between that of arterial and venous blood. When a drop of blood was allowed to fall upon a sheet of white bibulous paper, a central bright red spot remained with a surrounding bright golden aureole of serum, which spread around the central corpuscles by capillary action. The blood coagulated very slowly and formed a large loose coagulum, or clot, which contracted slowly and imperfectly. Thus in the 1,000 grain specific gravity bottle the coagulum filled the whole bottle, and from this amount of blood not more than 150 grains of golden-colored serum could be collected at the end of forty-eight hours. The blood corpuscles tended to rapid dissolution in the serum, and upon long standing the serum changed from this cause to a bright red. The reaction of the blood was most carefully determined as it flowed from the veins, and was found to be slightly alkaline, as is usual in healthy blood. I regarded this observation with interest as in several cases, in which I had abstracted blood from the cavities of the heart, after death, it gave a decided acid reaction; but the present observation would seem to show, that the acid reaction was due to post-mortem changes. Immediately after its abstraction, the blood was subjected to a careful and rigid microscopic examination. Under a magnifying power of one-fifth of an inch (Smith & Bucks, of London, best objective glass), many of the blood corpuscles presented an irregular stellate outline. When viewed under high magnifying powers, as the one-eighteenth inch immersion lens of G. & S. Merz, of Germany, with eye glasses, to magnify 1,050 diameters, the crenated and stellate blood corpuscles were found to be studded upon the surface, with nodular rounded projections. The colored blood corpuscles appeared to be undergoing changes of form, as if nodular transudations of the globulin were forming upon the surface. These changes were most marked and frequent, upon the surface and outer portions of the clots, and resembled in some respects the amœboid movements of the coalescing corpuscles; the nodules were, however, uniformly diffused over the surface of the corpuscles. When the blood was examined, from the interior of the clot, the corpuscles were found conglomerated together forming rolls or piles, adhering together by their flat surfaces, like the rouleaux of the blood of inflammatory diseases and of the horse. The corpuscles which had been joined and agglutinated together by their flat surfaces, were normal in shape, and presented no stellate or nodulated outline as was the case with the corpuscles from the surface of the clot, and from the surrounding golden serum. It appeared as if the nodulated exudation had formed the bond of cement between the opposing flat surfaces. Upon standing twenty-four hours and longer, the colored corpuscles tended to dissolve and lose their outline, and the serum became colored from the escape of the coloring matter of the red globules.

The colored corpuscles appeared to be acted upon and altered by the urea and bile which chemie analysis revealed in considerable amount in the serum. After standing in an open beaker or in porcelain capsules for forty-eight hours, numerous vibrios made their appearance, as in other putrefying animal fluids, as blood, albuminous urine, and serous exudations. But no living animalculæ or vegetable cells or spores or pigment granules were discovered even after the most diligent search with high powers, ranging up to the twenty-thousandth of an inch objective, in the fresh blood. The blood drawn from the arm during life putrefied much more slowly than that taken from the heart and large blood vessels after death. The blood was carefully examined by the best and most reliable chemie methods, and was found to contain a comparatively large amount of this constituent; large and well formed crystals of urea, and of the nitrate of urea, were obtained from comparatively small quantities of blood.

As much urea was obtained from 100 grains of the yellow fever blood as is ordinarily obtained from 7,000 grains of healthy blood. The serum was also carefully tested for bile, and was found to contain all the ingredients of bile. The blood also contained numerous small oil globules and in one of the specimens a distinct oily scum rested upon the surface of the clot. So striking was the oily appearance of the blood that it was noticed by the medical students who assisted during the bleeding. The presence of the urea in increased amount, and of the bile in the blood, were due to the suppression or arrest of the functions of the kidneys and liver. To the presence of these substances in the blood must be attributed in part, at least, the delirium, intoxication and aberrated muscular and nervous action, and to a certain extent the nausea, vomiting, gastro-intestinal irritation and black vomit. The altered shape of many of the colored blood corpuscles was certainly due, in a great measure, to the physical and chemical action of the urea and bile of the serum. Specific gravity of venous blood from the arm of this yellow fever patient, 1055.6. The density of this blood was somewhat below that assigned by physiologists and pathologists as the standard of healthy blood. Thus Becquerel and Rodier give the density of the defibrinated blood of the male as 1060, and of the female as 1057.5.

The specific gravity of the serum of the venous blood from the arm of this yellow fever patient was 1027. The specific gravity of the serum, therefore, did not differ materially from that of health; according to Becquerel and Rodier, the density of the serum of the male being 1028, and of the female 1027.4. The serum was of a deep yellow color, similar to the yellow color of the liver and of the diluted bile from the gall bladder of yellow fever subjects. Clot, soft, large, and without any very great contractile power. After the contraction of the clot the serum was tinged of a red color, from the presence of colored corpuscles and the coloring matters of the blood. The amount of serum forced out of the clot was relatively small and appeared to possess the power of dissolving the colored corpuscles upon standing in contact with the clot, the red color increasing gradually in depth. In these respects the yellow fever blood presented a marked contrast to healthy and inflammatory blood. Only 108 grains of serum could be obtained from a vessel containing 890 grains of blood.

Fibrin in 1,000 parts of venous blood abstracted from the arm of this yellow fever patient, 0.271. The fibrin was greatly diminished, being only one-tenth of the quantity present in the normal blood. The fibrin itself appeared to be of the usual tenacity, and the imperfect contraction of the clot appeared to depend rather upon the small amount of fibrin, than upon any physical or chemical change in the constituents of the blood. In the marked diminution of fibrin, we have a most interesting and important explanation of the cause of the hemorrhagic tendency in yellow fever.

The following are the chief characteristics of the blood in the stage of depression in yellow fever, as established by the preceding chemie analysis:

Specific gravity of blood and serum not specially altered.

Blood coagulated slowly and imperfectly.

Clot voluminous and soft.

Fibrin, quantity deficient and not more than one-tenth the normal amount.

Reaction of blood alkaline.

No deficiency of colored blood corpuscles, the dried blood corpuscles being 130.57, and the moist blood corpuscles 522.28. The organic matters of the moist blood corpuscles are normal in amount, while the fixed saline constituents are diminished, being only 1.78 in the blood corpuscles of 1,000 parts of blood.

The relation of the moist blood corpuscles to the liquor sanguinis, as far as quantity was concerned, was not disturbed, the former standing in relation to the latter in the 1,000 parts, as 522.28 of the blood corpuscles to 477.72 liquor sanguinis.

The albumen of the liquor sanguinis was diminished to a marked degree, being only 53.40 parts in 1,000 parts of blood. The extractive matters of the liquor sanguinis were increased. The extractive matters were complex, and included bile, urea and ammonia. The fixed saline constituents of the liquor sanguinis was not diminished. Without doubt the loss of albumen, as well as the presence of bile, urea and other excrementitious matters in the serum or liquor sanguinis, determine to a certain extent, at least, the character of the capillary circulation and the production of black vomit. The patient died twelve hours after this observation. The kidneys never acted and he appeared to die from the combined action of the febrile poison, bile, urea and other excrementitious matters, and the loss of blood during the slow but persistent hemorrhage from the gastro-intestinal mucous membrane.

Autopsy twelve hours after death: Exterior, superior portions of face, trunk and upper portions of limbs of a deep golden orange color. The lower dependent portions of the face and of the trunk and limbs were of a mottled, purplish, yellow and livid maculated appearance, as if the patient had been beaten with a club. The general appearance of the exterior of the body was horrible. Black vomit had run out of the corners of the mouth, and saturated the winding sheet, and had trickled in a muddy filthy stream along the sides of the face and neck. Features full and somewhat swollen. Belly full and tympanitic. Well formed muscular man, in the full vigor and strength of manhood. Large well developed chest, with full pectoral muscles. Arms full and round, with good muscular development. The left knee appeared to have been injured at some previous time, at least months if not years before the fatal illness.

The patella was displaced downward and outward laterally, and the joint was ankylosed. A small ulcer existed upon the outer aspect of the left knee joint, below the edge of the displaced patella. The left leg was a little shorter and smaller than the right. I had the bones carefully cleaned after death, and found that they had been altered by chronic inflammation, which had been attended with certain changes of the bony structure. This injury was of long standing, and had nothing whatever to do with the present attack, as the patient was able to perform active labor up to the time of his last illness, and the parts in and around the joint presented no swelling or discoloration. The patient appeared to have been suddenly cut off in full vigor and health, and in death resembled one into whose veins a deadly poison had been injected by a venomous reptile, which had not only poisoned, but also enveloped in its powerful coils and strangled its victim.

Head: Dura mater, pia mater and arachnoid membranes congested with blood. The brain was congested with blood, not only in its membranes but also throughout its textures. The brain and its membranes, however, presented no marks of inflammation—no exudation. Membranes of spinal cord congested with blood. The congestion of the blood vessels of the brain appeared to be similar in all respects to that of the capillaries and small blood vessels in the different organs and tissues. The consistency of the brain was normal. Weight of brain, two pounds and fourteen ounces; it was carefully tested for bile and urea. The infusion of the structures of the brain presented a bright golden color, like that of the serum. When carefully tested, the presence of the coloring matters and acids of the bile was conclusively determined in the cerebral structures. When the decoction of the brain was evaporated in a watch-glass and examined under the microscope, numerous beautiful stellate and prismatic crystals of the phosphates of lime, and ammonia and magnesia made their appearance.

When carefully tested for urea, according to the best methods known to chemists, the alcoholic extract obtained from the water extract was found to be literally loaded with the product of the metamorphosis of the tissues, and as large a crop of perfectly formed and characteristic crystals of the nitrate of urea were obtained as from an ordinary specimen of urine of moderate specific gravity. The brain contained more urea than any other organ, the liver not excepted. It was clearly established by this chemic examination that the urea existed in much larger quantity than in the healthy brain, or in the brains of those who die from diseases in which the action of the kidneys is not diminished.

Thorax: The pericardium was congested. As is usual in yellow fever, the capillaries and small blood vessels of the pericardium presented a beautifully arborescent appearance from the accumulation of colored corpuscles. I have in my possession a portion of the pericardium of a yellow fever patient, which I preserved by simply spreading upon a glass slide, and after drying, saturating with Canada balsam and covering with a glass slide. The preparation shows an intense congestion of the blood vessels and capillaries, and so numerous are the colored corpuscles, and so brilliant the colors, that the preparation resembles the best injections with the most brilliant carmine. The pericardial sac contained about two

ounces of bright golden colored transparent serum.

The heart presented a brownish-yellow appearance, resembling the pale flabby heart of scurvy. The textures although softer than in the normal heart, were, however, firmer than in well marked fatty degeneration. The muscular textures of the heart required considerable pounding in the mortar to reduce them to fragments sufficiently small for decoction. The decoction of the heart in distilled water was loaded with golden-colored oil, which floated in a thick scum upon the surface, and it resembled in its rich oily nature the richest soup made from the marrow and fat of the bones of fat well fed animals. The fat was far more abundant than is usual in the heart of malarial fever or other diseases in which there is no fatty degeneration of this organ. The filtered decoction of the heart was of a golden yellow color. The decoction of the heart contained bile in abundance. As the decoction of the heart, after careful filtration, slowly evaporated in a porcelain capsule, a deep orange-colored ring formed around the sides of the vessel. Weight of heart, eight and one-half ounces. Both cavities of the heart contained blood. Several small, ropy, golden-yellow clots were also discovered in the cavities of the heart. The muscular tissue of the heart appeared to have lost its tenacity and to have become relaxed and somewhat softened; and this view was confirmed by microscopic examination. The heart was also carefully tested for urea, and this substance was clearly detected in considerable quantity, but in relatively less amount than in the brain. Under the microscope, oil was found in the form of minute globules, diffused through all the tissues of the heart, and even within the ultimate muscular fibers. The muscular fibers of the heart presented under the microscope, a granular appearance, and the transverse striæ were not as distinct as in normal hearts. The increase of free fat or oil in the structures of the heart was therefore determined by the microscope and by actual experiment. The heart contained therefore in comparatively large amounts, bile, urea, oil.

No animalculæ or vegetable cells or spores were observed under the one-eighteenth inch immersion objective of Merz, either in the blood or textures of the heart.

*To be continued.*

## THE EARLY DIAGNOSIS OF CARCINOMA OF THE STOMACH, WITH THE BACTERIOLOGY OF THE STOMACH CONTENTS.

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(Concluded from page 406.)

Abelous (*Revue de Therap. Medico-Chir.*, April 1, 1890) found sixteen species of microorganisms in his own stomach after fasting; ten of these he asserts could form lactic acid. This has not been corroborated by other similar experiments. Abelous makes no control, nor does he prevent contamination from the mouth and esophagus. In Miller's experiments the stomach contents were secured from a patient who could regurgitate the contents at will at any time. After disinfecting the patient's mouth with bichlorid 1 to 1,000, Miller secured the contents of

the stomach. On examination he discovered many microorganisms which he had previously found to be present in the mouth, among these the *bacillus lacticus*.

The esophagus is a perfect culture bed. Its folds form a favorable nidus for microorganisms. Unless this is specially considered, error may arise, since contamination from the esophagus easily takes place.

The lactic acid forming bacilli can be found in the stomach in health, as well as in disease. However, it is doubtful whether the colonization of the *bacillus lacticus* can be demonstrated in the healthy stomach, to such an extent as in carcinoma, and more particularly carcinoma pylori.

#### CHEMIC METHODS.

The presence of lactic acid in the stomach contents is determined by Uffelmann's and Nessler's reagent. The quantity of lactic acid in the stomach contents is estimated by Boas' method. This is as follows: The patient's stomach is washed out with sterilized water in the evening. The patient then takes oatmeal gruel which is prepared by boiling a tablespoonful of oatmeal and a pinch of salt, in 1,000 ccm. of water. In the morning the stomach contents are drawn off and filtered. The filtrate is concentrated upon a water-bath, until a reaction with Congo red paper fails. Barium carbonate is then added which combines with the lactic acid to form a lactate. This is brought to the boiling point, to drive off the CO<sub>2</sub> and volatile substances. The lactate is then treated with phosphoric acid which sets free the lactic acid. This is extracted with ether; the ether evaporated, and lactic acid mixed with alcohol remains. The residue is then treated with an oxidizing agent, to change the lactic acid to acetic aldehyde. It is here where Boas' method is faulty; alcohol when oxidized also forms an aldehyde. To avoid this error, Dr. Wesener made an essential modification: before oxidizing the lactic acid which may also contain alcohol, Wesener treats the residue with barium carbonate, and evaporates nearly to dryness. This drives off the alcohol and does not affect the lactate. The lactate is again treated with phosphoric acid and boiled, to remove the CO<sub>2</sub>. After this, Boas' method is carried out: The solution is diluted with 45 ccm. of water and 5 ccm. of sulphuric acid, and about 30 to 40 grains of black oxid of manganese added. This solution is placed in a 200 ccm. flask which is connected with a Liebig condenser and gently boiled, and distilled until four-fifths of the material has passed over. (The lactic acid has been converted into acetic aldehyde.) The distillate is treated with 20 ccm. of a decinormal solution of iodine, and 20 ccm. of a normal caustic potash solution. At this point iodoform, potassium iodide and iodite are formed; 20 ccm. of HCl, sp. gr. 1.018 is added which liberates all of the iodine not used in the formation of iodoform. Sodium bicarbonate is used to neutralize and a decinormal arsenic solution is added in excess. The excess of arsenic is filtrated back, with a decinormal iodine solution. Starch is used as the indicator. The difference in the number ccm. of decinormal iodine and decinormal arsenic solution is equal to the iodine required to change all of the acetic aldehyde to iodoform. This result is multiplied by .003,388 which equals the lactic acid present in the stomach contents used. Compute to 100 and this represents the percentage of lactic acid.

#### BACTERIOLOGIC METHODS.

For bacteriologic purposes the contents of the stomach are taken:

1. From the fasting stomach.
2. After a test meal according to Ewald.
3. After test meal according to Boas (oatmeal soup at night and withdrawn next morning).
4. The stomach is washed out with sterilized water and the water that remains is aspirated.

The gyromele is introduced according to the method as described in the *Wiener med. Wochenschr.*, Nos. 1 and 2, 1895. To avoid error of contamination, the mouth and esophagus should be cleaned. Microscopic examination is made of the contents. A stain is irrigated through, by placing the stain on one side and a blotter on opposite side of the cover-glass. When any field of interest is presented it can be divided and mounted according to the usual methods.

Drop cultures are made from the stomach contents, using the contents as a nutrient media. The development of bacteria under the microscope may be observed for hours in succession. The observation of the growth of some of the algae is very instructive by this method. Line cultures may be made upon the sterilized mucous membrane of the stomach of pigs.

The mucous coat is dissected from the muscular coat, stretched upon a glass plate and sterilized at 50 to 55 c. four hours each day for one week. The ordinary moist chamber allows contamination to take place. To avoid this I devised the following method: A glass battery jar is placed upon a common dinner plate; a second jar of larger size is inverted so as to cover and inclose the first jar; a solution of 1 to 1,000 bichlorid is poured into the plate to form a water valve; a few folds of filter paper interposed between the inner and outer jar prevents rapid evaporation. Two glass tubes pass from the outer jar to admit air and when plugged with cotton prevent contamination. This moist chamber is sterilized and the culture plate placed in the inner jar, and sterilized by fractional sterilization as before mentioned.

Thus the coagulation of the albumin is prevented. The ordinary sterilized platinum needle is used, dipped into the material derived from the stomach. Line cultures are made by drawing it lightly over the surface of the sterilized mucous membrane used as the culture bed. Five or six strokes or lines are sufficient. The third line will isolate colonies for pure cultures (fished under the microscope fifty diameters). The colonies can be forced without melting the medium, and it furnishes as near a natural culture bed as possible for artificial cultivation.

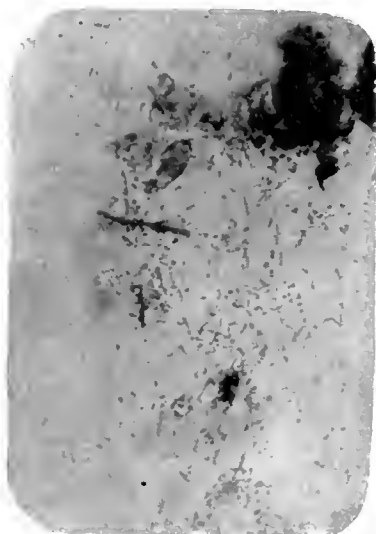
To favor the development of lactic acid microorganisms, the surface of the culture medium may be sprayed with a thin mixture of starch water. When desired the mucous membrane can be dried like parchment and the colonies preserved *in situ*.

Nutrient gelatin and agar-agar for tube cultures. This is prepared by the usual method, except in place of beef extract, I use the extract from the mucous membrane of the stomach of pigs; 5 to 20 per cent. of gelatin is added, or 1 to 2 per cent. of agar-agar. The addition of sugar to the culture material is often an advantage in the study of stomach bacteria.

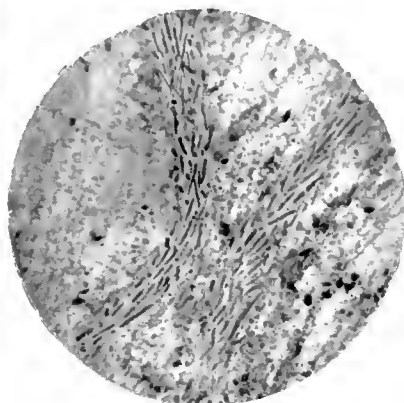
*Liquid Media.*—Extract from the mucous membrane is prepared by taking one-half kilogram of finely minced mucous membrane of the stomach of a pig, covered with 1 liter of distilled water and left in



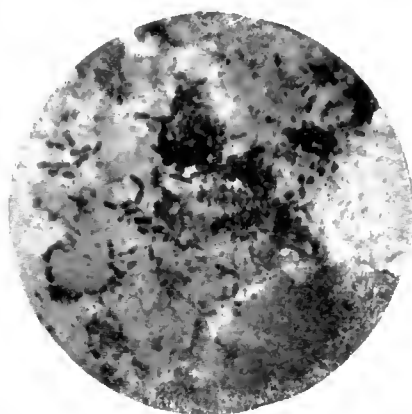
# COLONIES TAKEN DIRECT FROM THE STOMACH AND MOUNTED.



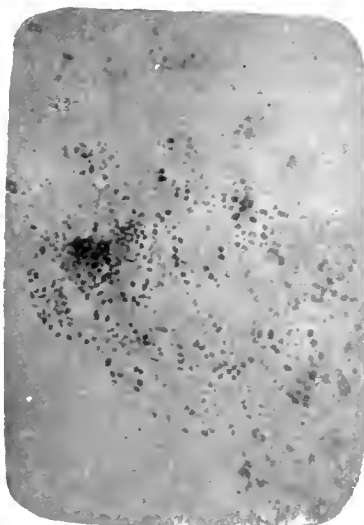
No. 1. 600 diam.



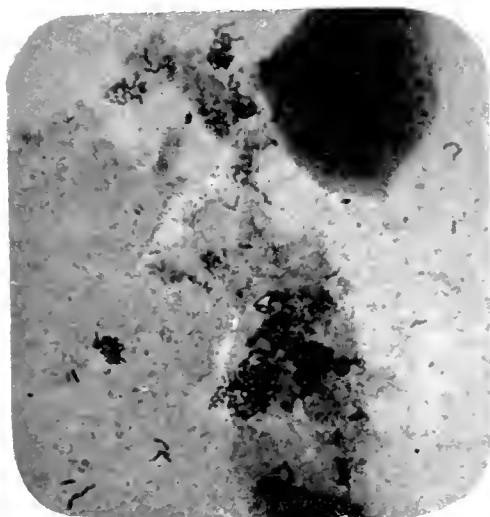
No. 2. 1,200 diam.



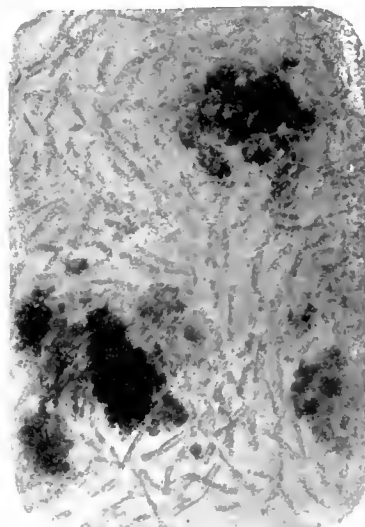
No. 3. 1,250 diam.



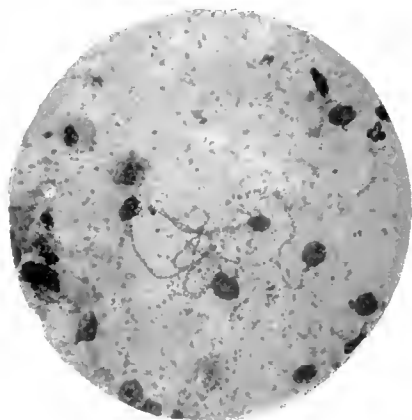
No. 4. 1,200 diam.



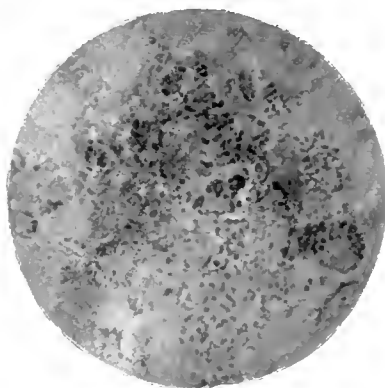
No. 5. 1,250 diam.



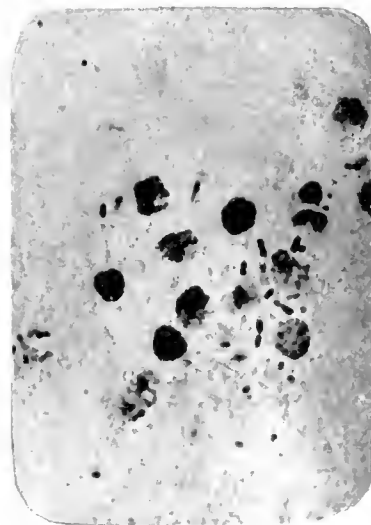
No. 6. 600 diam.



No. 7. 1,250 diam.



No. 8. 1,250 diam.



No. 9. 1,250 diam.

Nos. 1 to 5, inclusive, from cases of carcinoma of the stomach. Lactic acid forming microorganisms.  
Nos. 6 to 9, varieties of algæ from cases of simple dilatation of the stomach.



the refrigerator for twenty-four hours. This may be sterilized by fractional sterilization as in the preparation of blood serum. To this may be added starch, grape sugar, milk, or brewers' liquid malt, which must be obtained fresh from the brewery. This is used for the study of fermentation and germs of putrefaction.

In place of the extract of the mucous membrane, I find it an advantage in some cases, to use the sterilized filtered contents of the stomach. This can be prepared and kept for use as desired.

The method of preparing the stomach of living dogs for the study of the growth of bacteria found in the human stomach has been referred to on page 317 of the JOURNAL.

#### CONCLUSIONS.

1. Carcinoma of the stomach early creates a soil for the rapid development of microorganisms.

2. The lactic acid forming germs grow more readily in carcinoma of the stomach than in other diseases of that organ.

3. Lactic acid germs found colonizing in the stomach are of great diagnostic value in carcinoma.

4. The absence of germs does not exclude carcinoma.

5. The determination of lactic acid of fermentation by Boas method, as modified by Wesener, is of diagnostic value.

#### BIBLIOGRAPHY.

- Abelous, Thèse de Montpellier, 1888. Review de Therap. Medico-Chir., April 1, 1890.
- Baginsky, Dent. med. Wochenschr., 1888.
- Boas, (I.) Diagnostik u. Therapie d. Magenkrankheiten. Nach dem heutigen Stande d. Wissenschaft bearbeitet. Teil I, iii Auflage. Cahn u. v. Mering, Die Säuren im carc. Magen. Deutsch. Arch. f. klin. Med., Bd. xxxix.
- Czerl, Die klin. Untersuchungsmethoden bei Magenkrankheiten, mit besonderer Rücksicht auf d. Praxis dargestellt. Wien. Klinik, 1892.
- Cohnheim, (P.) Zur Frühdiagnose des Magencarcinoms. Deutsche med. Wochenschr., 1894.
- Ewald, Über d. Vorkommen freier HCl bei Carc. d. Magens. Berl. klin. Wochenschr., 1885.
- Fraser, Internat. klin. Rundschau, 1894.
- Günzburg, Ueber allgemeine Diagnostik d. Magenkrankheiten. Zeitsch. f. ärzt. Landprax., 1892.
- Groas, (M.) The Secretion of HCl by the Stomach in Health and Disease. N. Y. Med. Rec., 1894.
- Hanot, (V.) Sur une forme septicémique du cancer de l'estomac. Arch. gen. d. med. Par. 1892.
- Hofmeister u. Schütz, Ueber d. automatischen Bewegungen des Magens. Arch. f. exp. Pathologie, Bd. xix.
- Hayem, Bul. et mem. soc. med. d. hop. de Par., 1894.
- Hoppe-Seyler, Ueber Magengährung mit besonderer Berücksichtigung d. Gase des Magens. Wiesbaden, 1892.
- Hübner, (C.) Casuistischer Beitrag zur Symptomatologie der Magenkrankheiten. Berl. klin. Wochenschrift, 1886.
- Hamburger, Ueber die Einwirkung des Magensaftes auf pathog. Bacterien. Inaug. Dissert., Breslau, 1890.
- Koch, (R.) Ueber d. Carc. vent. ex ulcere rotundo. Med. chirurg. Centralblatt, 1894.
- Kuhn, Zeitschr. f. klin. Med., Bd. xxi, 1892, und Deutsche med. Wochenschr., 1892.
- Lesage according to Bouveret, Traité des Maladies de l'estomac, 1893.
- Löwenthal, (M.) Beiträge zur Diagnostik u. Therapie d. Magenkrankheiten. Berl. klin. Wochenschrift, 1892.
- Macfadyen, Jour. of Anatomy and Physiology, vol. xxi, 1887.
- Martius u. Lüttke, Die Magensäure d. Menschen. Stuttgart, 1892.
- Martius, (F.) Ueber den Inhalt d. gesunden mechnernen Magens. u. d. continuirlichen Magensaftfluss. Deutsche med. Wochenschr. xx, 1894.
- Michel, (M.) De l'ictère précoce dans le cancer de l'estomac. Med. mod. Par. 1892. III.
- Miller, Microorganisms of the Human Mouth, 1890.
- Miller, Die Microorganismen d. Mundhöhle, Leipzig, 1892.
- Mintz, Operative Behandlung d. Magenkrankheiten. Zeitschrift f. klin. Med. xxv, 1894.
- Mohr, (P.) Beiträge zur tritimerischen Bestimmung der Magenacidität nach Dr. G. Töpfer. Zeitschr. f. physiologische Chemie, XIX, 1894.
- Moritz, Deutsches Arch. f. klin. Med., Bd. 44.
- Oppler, (B.) Ueber Sarcina ventriculi. Münch. med. Wochenschr., xli, 1894, u. Zur Kenntniss des Mageninhalts beim carcinoma ventriculi. Deutsch. med. Wochenschr., 1895.
- Penzoldt, (F.) Beiträge zur Lehre v. menschl. Verdauung unter normalen u. abnormalen Verhältnissen. Deutsch. Arch. f. klin. Med. lili, 1894.
- Reichmann, (M.) Ein zweiter Fall v. continuirlich stark saurer Magensecretion. Berl. klin. Wochenschrift, 1894.
- Riegel, (F.) Beiträge zur Diagnostik u. Therapie der Magenkrankheiten. Zeitschrift f. klin. Med. Bd. xl, und Zur Diagnostik d. Magenkrankheiten, und diagnostischen Verwerthung des Magensaftes. Berl. klin. Wochenschrift, 1885, und Ueber Chron. Continuirlche Magensecretion. Deutsch. Med. Wochenschr., xviii, 1892.
- Rosenheim, (T.) Ueber die praktische Bedeutung d. quant. Bestimmung d. freien HCl. Deutsch. med. Wochenschrift, 1892, und Zur Diagnostik der Magentumoren. Ibid., 1894, xxx.
- Salzer, (H.) The Presence and Absence of Free HCl in the Stomach. Johns Hopkins Hosp. Bull., 1893.

Schüle, (A.) Beiträge zur Methodik der HCl-bestimmung, und Beiträge zur Diagnostik des Magencarcinoms. Münch. med. Wochenschr., xli.

Strauss, (H.) Gährungen des Magens n. deren diagnostische Bedeutung. Zeitschrift f. klin. Med., 1894, und Gährungen des Magens. Ibid., 1895.

Van der Velten. Deutsch. Arch. f. klin. Med., 1879.

Winter, (J.) Bemerkungen z. Magensaftanalyse, Deutsch. med. Wochenschr., 1892, xviii.

Wurtz und Lindet. La Semaine med., Paris, 1892.

Zweifel, (P.) Ueber d. Resorptionsverhältniss der menschlichen Magenschleimhaut zu diagnostischen Zwecken u. im Fieber, Deutsch. Arch. f. klin. Med., Bd. xxxix.

## SOCIETY PROCEEDINGS.

### American Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26, and 27, 1894.

(Continued from page 286.)

WILLIAM J. HERDMAN, M.D., President.

#### AFTERNOON SESSION.

The meeting was called to order by the President at 2:30 P.M.

MR. W. J. JENKS, M.A.I.E.E., of New York City, read a paper on

#### DIRECT CURRENT DISTRIBUTION.

When I was asked to contribute a paper at this time I replied that I had nothing to tell which could be of service to those who used electricity on the spot where it was generated, and applied it without distribution over large areas to purposes of which I have but a vague comprehension. I had expected, in becoming an Associate Fellow, to gradually inhale a medical atmosphere, which like a fresh supply of oxygen from the rarefied air of an unusual altitude, would bring to my own mind and body greater vigor. But I had not counted upon exhaling any ideas which might help to establish a reciprocal relation between the medical and the engineering factors of this Association. If therefore I succeed in doing so, I shall enjoy an unexpected pleasure, and you may credit with whatever useful suggestions I may offer, the account of our good friend the Secretary, by whose courteous invitation I am here.

I hesitate very much to attempt, in the presence of a gathering of trained scientific observers, any re-statement of established truths, and in apology for so doing I offer to you only the assurance that every such repetition makes the principles which underlie electrical action seem clearer to my own mind. I am in a measure reassured by the thought that even to the vision of the most eminent physicists of these closing years of a marvelously fruitful century, many phases of the production and operation of the mysterious servant which we are trying to harness, are still seen only "through a glass darkly."

My knowledge of your science is not sufficient to enable me to do more than suggest, with much diffidence, one or two lessons which my own department of electrical work may possibly teach physicians. If there are others, I am sure your perception of the necessities of your section of the art will promptly recognize and apply them.

Until we know what electricity is, we can not accurately define "electrical distribution." We may conceive of the behavior of electricity as resembling or analogous to that of a liquid stored in reservoirs or flowing in pipes; we may speak of its development and the transmission of power by its aid from point to point as the generation and circulation of a current; we may imagine that we are handling a ponderable substance when we measure the effects produced by its presence or by the expenditure of its energy.

Whether it should be called a tangible though imponderable entity, or an ether-like medium which may be started into vibration or circulation by the expenditure of energy, or simply one of the group of fundamental forces by which all created things are held together and maintained in that state of vibratory change which is the life of the material universe, it is not necessary that we now inquire, and if it were, I should not stand here and attempt to answer. It may be useful for us to recall the definition given by our distinguished Honorary Fellow, Prof. E. J. Houston, in his "Electrical Dictionary":

"Electricity.—The name given to the unknown thing, matter or force, or both, which is the cause of electric phenomena.

It is but fair to state that the author of this paper considers it practically unintelligible without illustrations, which unfortunately, for want of time, must be omitted in this publication.—EDITOR TRANS-ACTIONS.

Electricity, no matter how produced, is believed to be one and the same thing. The terms *frictional-electricity*, *pyro-electricity*, *magneto-electricity*, *voltaic or galvanic-electricity*, *thermo-electricity*, *contact-electricity*, or *animal or vegetable-electricity*, etc., though convenient for distinguishing their origin, have no longer the significance formerly attributed to them as representing different kinds of the electric force."

In this definition we find a foundation for the statement (which is important in considering the limitations of the subject assigned to me) that if we form a clear conception of the comparatively simple phenomena of the distribution of direct currents, (constant in direction), we shall be prepared to appreciate to a greater degree the complicated and involved phenomena which appear when we distribute currents of alternating direction. I have taken the liberty to depart slightly from the letter of my topic as announced, in order to include currents which are always *the same in direction*, irrespective of whether they are "constant" in the sense employed by electrical engineers, that is, of unvarying strength or rate of flow. As a part of the groundwork of this discussion it may be convenient also to remember that such currents may for practical purposes be excited by primary or secondary chemic batteries, magneto or dynamo-electric machines or pyro-magnetic generators, though the last-named source of electrical energy is still in what we may call an experimental stage for the purposes of producing any considerable electro-motive force.

I may perhaps be excused for illustrating some features which attend distribution from either of these sources in the way which makes the results most clear to my own mind. Possibly the method may not appeal as plainly to others.

It is only about fifteen years ago that the electrical engineer was called to deal with the distribution over large areas, of currents representing many mechanical horse-power. The possibility of doing this work commercially was a direct result of the discovery by Faraday of the law of magneto-electric induction, by which for the first time the product electricity was secured at a cost which bore a reasonable relation to that of the power required to excite it. For seventy years the world was in possession of the most brilliant and efficient source of light which man had ever devised, the electric arc, without applying it to the illumination of streets and houses. Such applications suggested themselves to Sir Humphrey Davy in 1810, but there were grave difficulties to be overcome. One of these, the wasting of the carbons, which are in part vaporized and in part dissipated by ordinary combustion, was overcome by the invention of regulators or arc lamps.

The second arises from the operation of that inexorable law which, (in the language of a noted scientist) throughout the material universe demands an eye for an eye and a tooth for a tooth, refusing to yield the faintest glow of heat or glimmer of light without the expenditure of an absolutely equal quantity of some other power. Hence, in practice, the desirability of any transformation must depend upon the value of the product in relation to that of the power expended. The metal zinc can be burned like paper; it might be ignited in a flame, but it is possible to avoid the introduction of all foreign heat and to burn the zinc in air of the temperature of this room. This is done by placing zinc foil at the focus of a concave mirror, which concentrates to a point the divergent electric beam, but which does not warm the air. The zinc burns at the focus with a violet flame, and we could readily determine the amount of heat generated by its combustion. The zinc can be burned not only in air but in liquids. It is thus burned when acidulated water is poured over it; it is also burned in the voltaic battery. Here, however, to obtain the oxygen necessary for its combustion, the zinc has to dislodge the hydrogen with which the oxygen is combined. The consequence is that the heat due to the combustion of the metal in the liquid falls short of that developed by its combustion in air, by the exact quantity necessary to separate the oxygen from the hydrogen. Fully four-fifths of the total heat are used up in this molecular work, only one-fifth remaining to warm the battery. It is upon this residue that we exclusively depend, for it is solely out of it that we manufacture our electricity.

So ruinously expensive is this process of burning zinc when the electrical engineer is called to develop large powers, that the world waited, as I have said, until it was discovered that those other and greater storage batteries, the coal beds, which represent the activity of ages past, might be pitted against the waterfalls, which represent Nature's activity of the present, in a grand competitive effort to provide man with a magic wand in response to which all the mighty forces of the sunlight and the ocean would marshal themselves to do his bidding.

It was some time before the electrical engineer acquired confidence in his own ability to produce and distribute successfully the high pressures demanded by many street lamps in series, and to handle the lower potentials when expended at the rate of hundreds or thousands of volts for each ohm of conductor or translator resistance.

The coming of the electric arc lamp, requiring nearly a horse-power of mechanical energy for each large unit of light, and the softer incandescent or glow lamp which only gave from one hundred and ten to one hundred and twenty-five candles of light for each mechanical horse-power, usually in the form of seven or eight lamps of sixteen candles each, demanded an electric current representing 1,000 horse-power for each 1,000 arc lamps required for the lighting of the streets of a city, or each 7,000 glow lamps for stores and dwellings.

There is perhaps no more impressive example of almost irresistible power than a modern high speed locomotive and its vestibuled limited express train flying at the rate of a mile a minute between the great cities of the United States. The total weight of such a train is from 400 to 500 tons, or from 800,000 to one 1,000,000 pounds, and a speed of seventy-five miles per hour is sometimes attained. The energy of 400 tons moving at that speed is nearly twice as great as that of a 2,000 pound shot fired from a 100 ton Armstrong gun. But these illustrations express a power only about one-half of that which was last year constantly required for the lighting of the art gallery at the World's Columbian Exposition by 16,000 incandescent lamps. Because under ordinary circumstances the electric current speeds along the motionless conductor without causing a quiver or vibration perceptible to our eyes or ears, we are apt to overlook the fact that its power for great usefulness and instantaneous transmission of a variety of manifestations of energy, when properly directed, is equalled by its ability to do serious mischief whenever it escapes from our control.

The possibility of commercially generating electricity on such a scale was only realized when the modern dynamo-electric machine was made practical and by its means the tremendous energy of motion derived from the power of waterfalls and steam boilers was substituted for the feeble combustion of chemic cells. The coils of the armature of the dynamo, being forced by the resistless pressure of steam to revolve between the poles of powerful magnets in the field of magnetic force, and in spite of the attraction with which that force opposes the revolution, develop and send out this marvelous agent which we call electricity, not in transitory sparks like the discharge of the Leyden jar, not in an almost microscopic wave like the pulsations of a telegraph or telephone circuit, but in a maintained succession of powerful throbs following each other in such close intervals of time as to constitute a practically uniform flow of any volume we desire, so that we popularly speak of it, for want of a better analogy, as if it were water or gas and moved in tangible particles from point to point.

The physician who desires to draw suggestions from the experience of the electrical engineer may profitably reflect upon a few primary truths which he may have known in the abstract, but which may never have been presented to him as possessing concrete importance.

1. Electricity is not a source of energy, but only an intermediary agent.

2. It has one fundamental characteristic by which we make it available, namely, *pressure*.

3. All its useful engineering results are accomplished by the expenditure of this pressure.

4. By providing a conducting track or circuit of considerable length, two objects may be secured; 1, transformation of energy; and 2, transference or transmission of energy.

5. The electrical pressure is expended in every part of the circuit (including the mechanism of the generator) in direct proportion to the resistance encountered.

6. It thus becomes possible to transmit and localize the expenditure of the electrical equivalent of the initial mechanical energy with which we start out, at any point or points desired, always considering the inevitable losses which take place in transformation and transmission; and to vary those losses within any limits which conditions of safety and of commercial investment may permit.

Let us discuss each of these statements with some care.

The engineering practitioner does not recognize in electricity a source of energy. He realizes that to obtain it he must expend some initial force that costs him money, and can never expect to recover all of what has been thus spent. He is not able to make electricity available to him as a force



which directly completes any useful operation. Perhaps there may be those here who can tell me whether in the application of electricity to the human mechanism, the mysterious agent is itself directly effective, or whether it can be relied upon only to convey to the proper point a potent energy, so flexible, so obedient to known laws, that the intelligent physician can predict the result of its transformation to heat, to chemic action, or to some other desired manifestation of what may be, for aught we know, a single all-pervading energy.

In the everyday application of electricity to commercial problems of distribution, it is an intermediary agent, having two great features of utility: 1, it transforms or translates one manifestation of Nature's forces into another; 2, it transfers energy (while in the intermediate state which we call electrical action) from point to point instantly. As an intermediary agent it is thus both a skillful magician and a swift-winged messenger. By its action, one manifestation of natural power, as for instance the motion of a waterfall, disappears, and in its stead another and more useful manifestation of heat, light or chemic action is developed, either in the same place or a different place, as we desire. When we wish it to transmit or transfer power, we connect with the source of energy a suitable path in the form of a material which readily conducts electrical impulses, and we find the power appearing at the objective point before we can realize that the transmission has taken place. Wherever, in the path thus provided we wish to do useful work, we place an obstruction which the electricity must overcome, and in the operation of surmounting such an obstacle a part, or practically the whole of its energy may be expended. While we can not tell what electricity is, we can say that for the purposes of practically generating and controlling it, it has but one element, namely, a "pressure," "strain," or "tension," which in systems of electric lighting, for example, is steadily generated by the dynamo, which is the mechanism in which the electrical force first appears, and that it is as steadily expended in the "circuit" or path by which we connect the outgoing and the incoming terminals of the dynamo, and with such instantaneous effect that the moment we connect such a source of power with a conductor forming a complete circuit, the pressure has traversed the entire path and has spent its entire force. At every point in this path, or, more accurately, between any two points, no matter how large or easy this path may be, we find that some fraction of this total pressure has been expended in exact proportion to the opposition it has met, or, in other words, to the resistance it has encountered. As long as the connection with the source of power is kept up, this generation and expenditure may be maintained; the instant we break the connection at any point in the complete circuit all action ceases, because the electrical pressure generated before the break occurred has been instantly used up or transformed into some other form of energy, such as heat, light, magnetism, chemic action or motion. The portion of the initial pressure which is inevitably expended between the point where it is generated and the point where it is made useful in a "translating device" is transformed into heat and disappears, thus being, so far as any useful result is concerned, lost or wasted. Hence the loss of pressure in transmission is often called "drop" in pressure, and the energy thus lost is known as "heat waste." The translating device may be a lamp, a heater, a motor, a plating bath or a magnet; in short, any mechanism within which the energy of electricity may be translated or transformed to some other serviceable form of energy.

Thus the function of all electro-generative apparatus applicable to systems of distribution is to develop or maintain, or both, a useful difference of potential between its terminals. If a direct current is to be interrupted or pulsatory, the potential difference may be momentary or transient; if the current is to be continuous, whether variable or constant in its strength, a useful potential difference must be sustained in spite of the opening of an outlet by the completion of a circuit, and the resulting tendency to a reduction of difference of potential to an equilibrium, with the expenditure of the initial potential.

It is difficult for us to conceive of the rapidity of electrical action. Whether we consider the transformation of chemic action or mechanical force into that form of molecular tension or pressure or strain which we call electro-motive force, or whether we think of its expenditure through a conducting path which forms a complete circuit we have, so far as our senses can discern, instantaneous conversion to electricity, and instantaneous expenditure resulting in heat, light, magnetism, chemic action or motion.

We can not then measure the rate of the expenditure of E. M. F. in time (so many volts per second), but we can measure its rate of expenditure in the resistance of the circuit (so many volts per ohm), and this rate of expending volts in each ohm is what we call the current or ampères.

When we develop electrical potentials we expend a measurable power, but afterward if the potential is not expended (that is if the charged body is perfectly insulated, by surrounding it by material which offers infinite resistance to oppose the pressure), no power is required to maintain it. Hence, in doing useful work it is not the first development of the potential which costs the effort or the money, but the maintenance of the potential when the restraining resistance is lessened and we allow the potential to escape or equalize itself at any rate (per ohm) which we desire.

The result secured in useful power from the expenditure of a maintained E. M. F., varies directly as the rate of expenditure in each unit of resistance, or in other words, directly as the ampères.

Thus the "volts" considered alone do not express the power required for generation, nor the power recovered in some useful result. Doubtless every one here present has often noted the very small power required to develop a frictional spark; yet that spark may represent a voltage far beyond that of any direct current dynamo now operating arc lamps in this city. In order to expend itself it has to overcome an enormous resistance in the form of an air space, and the rate of expenditure of volts per ohm of this great resistance is so minute that we have perhaps no instrument except the telephone which can detect it, and we can not even then measure the infinitesimal rate in ampères.

Nor is it the "ampères" alone which become a measure of the work done. Every member of this Association may have noted the uncertainty of attaining a current of a given number of milliamperes by the application of a given number of cells of battery in the treatment of any given tissue. The battery may be in some cases justly loaded with its share of blame because it may at any moment fail to develop its usual voltage, but you are dealing with an unknown, or only approximately known, or even a variable resistance, and the expending of 10 milli-volts per ohm (which is simply another form of expression for securing a current of 10 milliamperes) gives very little idea of the electrical power which is being expended in that part of the circuit formed by the tissue under treatment.

The rate of expending energy or doing work between any two points in an electrical circuit is known only when the total potential there absorbed or expended is found, and multiplied by the rate of such expenditure in each unit of resistance between the points considered. That is, it is only known when volts are multiplied by ampères, and is expressed by the resultant "watts." Here, in electrical distribution, we have the basis of a measurement of energy necessary to keep up the battery or turn the crank or pulley.

But the watts give only a rate of doing work. To know what aggregate work is done, we must add another factor, time. And so the physician should be able to record the three factors—volts, ampères and seconds, which alone can give the "joules" of energy expended or work accomplished either in heat developed, or chemic action stimulated. The time is at hand when by a single instrument, self-recording, the skilled electrical specialist may read on a tape (with the ease that cable operators now read by the siphon recorder of Lord Kelvin) the record of each application in total potential applied, rate of expenditure of volts in each unit of body resistance, variation of such resistance under the application of the electric energy, and duration of treatment.

In the distribution of electrical energy from a generating source to translating devices, the electrical engineer utilizes the laws to which I have referred by connecting the translators in one of two ways:

1. In series, so that the same current passes successively through all the devices.
2. In multiple arc or parallel, so that the entire current passes simultaneously through all the devices, each of which receives a fraction of the total.

The series or successive arrangement is roughly indicated in the upper diagram of Fig. 1. At the left of this diagram, I have indicated the generator by an upright spiral extending from a zero line at the base of the diagram to a line marked 400 and then bending over to the right and falling to an elevation of 300. By this I design to indicate that in the armature coils of the generator a total E. M. F. of 400 volts is generated, and that under the conditions assumed, 100 volts is expended within the armature itself, leaving 300 volts to be usefully applied to outside distribution. The

line extending to the right from the upper extremity of the spiral (at 300 volts) indicates a conducting wire, and the fall of the wire from the 300 volt line indicates that 50 volts have been expended in this division of the circuit. The two heavy vertical lines with a small space between them indicate the carbons of an arc lamp, and it is assumed that 50 volts additional is expended in this lamp, causing a sudden drop of the potential to 200 volts. Beyond this lamp comes another length of conductor, a second lamp, and a return conductor twice as long as each of the two upper sections of the line, and occasioning twice as much drop, or 100 volts. This brings us back to the zero point or negative terminal of the dynamo, and for convenience of illustration I have shown near this negative brush a current indicator standing at 10 amperes, which is assumed to be the normal current of the circuit here illustrated. The denominators of the several fractions (which are written in black) indicate the number of ohms resistance assumed to exist in the various parts of the circuit, 10 ohms in the armature coils, 5 in each upper division and 10 in the lower division of the line, and 5 in each lamp; 40 ohms in all. As it is assumed also that 10 volts is expended in each ohm (that is, 10 amperes of current flows) the number of volts indicated in red and to which I have already explicitly alluded, is found by multiplying the number of ohms by ten. It will be understood that I am here illustrating the law of series distribution by assuming an exaggerated case. No competent engineer would provide or recommend a dynamo in which would be expended 25 per cent. of the total energy produced; nor a conducting wire which would cause a drop of 50 per cent. of the total E. M. F. generated. It is, however, customary to use for series arc lamp circuits a size of wire which has a resistance per mile of about 5 ohms.

The middle figure of this diagram is intended to illustrate the same system after two or more lamps have been added, and while the dynamo is generating the same total E. M. F. of 400 volts. The only difference in the resistance of the system as thus modified is the additional 10 ohms introduced by the two new lamps, but this modification is sufficient to cause an entirely different distribution of the fall of potential. As the resistance of the entire circuit is now 50 ohms, the total 400 volts must be expended at the rate of 8 volts per ohm, and the ampere meter accordingly indicates 8 amperes. There is 80 volts drop in the armature, 20 volts in each of the four upper divisions of the line wire, 80 in the return and 40 in each lamp, under the assumption that although the current is reduced, the lamps have maintained their original resistance of 5 ohms. This reduction of the current flow causes an abnormally small light in each lamp, and it becomes necessary to take some action to restore the current flow to the normal standard of 10 amperes.

This restoration is accomplished by the process of regulating the generative capacity of the dynamo, or in other words causing it to generate a sufficiently higher total E. M. F. so that the fall of potential through each division of the circuit may be restored to 10 volts per ohm. This result is indicated in the right hand of the three sketches which constitute the upper diagram. The spiral indicating the generating coils is extended upward to show that it now generates 500 volts, of which 100 is absorbed within itself and 400 is expended in the outside circuit at the rate of 10 volts per ohm. The ampere meter again indicates 10 amperes. From this it also appears that the dynamo attendant may be guided, in the operation of a series system, entirely by his ampere indicator, the current being the constant factor in the operation of such a system.

It may be convenient in this connection to summarize the peculiarities of the series method of distribution:

Constant Factors:

1. Expenditure of E. M. F. (amperes).
2. Dynamo resistance.
3. Dynamo internal drop.
4. Line (conductor) resistance.
5. Line drop.

Variable Factors:

1. Number of translators (and hence resistance).
2. Resistance of individual translators.
3. E. M. F. generated.

It will be noticed that in the above summary I have stated that the resistance of individual translators is variable, though in the diagram it has been assumed to be constant in order to simplify the illustration.

The action of a series electrical system may perhaps be better understood by noting the very general analogy which is afforded by a system consisting of a hydraulic pump and

water wheels connected by a closed pipe so as to form a system in which a given quantity of water circulates perpetually. Whenever work is done by turning the pump, and thus producing a difference of pressure between the receiving and the discharging side of the pump, the water will circulate through the pipes, and thus transmit in the form of pressure the power which drives the pump, to the wheels, where the energy of the pressure will be re-converted into useful mechanical motion.

Such a form of apparatus is illustrated in Fig. 2, where the pipes are assumed to be made of glass. Tubes arising from several points in the circulatory system (as for instance from the upper or high pressure side of the pump at *A*, also from the pipe *B* beyond the first wheel, also from a point *C* on the pipe beyond the second wheel, and at *D*, representing the level of the return pipe) will show the water standing at the same level in all the pipes while the apparatus is at rest, as indicated by the line of equilibrium  $L^0$ , in the left hand diagram. When, however, the pump is rotated, the water will stand at different levels in the different tubes, as illustrated in the right hand diagram, ranging from a high level,  $L^1$ , at the high pressure or discharging pipe of the pump *A*, gradually dropping at  $L^2$  and  $L^3$  in the tubes *B* and *C*, as it passes through successive wheels, losing some pressure at each wheel, to a low level (indicated by  $L^4$ ) at the return pipe where the tube *D* is attached, when all or nearly all the pressure due to the action of the pump has been expended.

The difference of level between the highest and lowest points (*A* and *B*) indicating the total drop in pressure (neglecting the small drop in the return pipe), will represent the available pressure for distribution and for useful work, corresponding to the potential difference or voltage in the electrical system of Fig. 1. In case all the wheels were close to the pump, no perceptible loss or drop would occur in transmission from the pump to the first wheel, or between the wheels, or in the return pipe. The product of the difference of pressure between a point above and a point below one of the wheels, multiplied by the volume of flow (which indicates the rate of expenditure of such pressure) is the measure of the energy expended in operating each of these useful devices. Any break in the pipe or interruption of one motor stops the action of the whole system.

Thus illustrated, we conceive of electricity as completely filling the system of generation, distribution and translation, whether it is moving or at rest. We neither create it nor destroy it, any more than we create or destroy the water in the pump system; we simply start the dynamo and thereby disturb the equilibrium of the electricity which we assume pervades the whole system, and we thus give it pressure or head. This pressure results in motion or current (so-called); and this pressure is expended (or as we say, a drop is produced), at every point in the entire circuit in proportion to the resistance which the pressure encounters, some of it being expended in "internal drop," that is, in the generating mechanism, some in "conductor drop," and a large percentage (in a well organized system) in useful "work" by the translators. The same current which starts out from the dynamo returns to it after being deprived of its pressure to receive another charge of energy and start again to repeat its work. The "work" expended in the translators, added to the "conductor drop," is equal to the difference of potential or "voltage" at the terminals of the dynamo, and this voltage multiplied by the "current" or rate of expenditure of the potential in unit resistance, shows the total energy delivered by the generator to the circuit. Any break in the conductor, or any accident to a translator (in the series system, which we are now considering) stops the action of all the devices in the circuit, and may interfere with the action of the generator. The electricity itself costs us nothing; the pressure is all we pay for.

A good illustration of what has proved to be perhaps the best method of effecting the regulation of a series dynamo is afforded by the well-known Thomson-Houston type of generator, shown in Fig. 3. Here the variation of total E. M. F. is effected by an automatic magnetic device which moves the brushes toward the point on the commutator which represents the highest E. M. F., or away from that point in accordance with the increase or decrease of the strength of the main current which circulates through the governing coil. With such a dynamo, capable of operating for example forty arc lamps in series, and thus delivering, a maximum voltage of about two thousand automatic regulation is secured between wide limits, usually from the full number of lamps for which the dynamo is made, down to about the voltage required for ten lamps and the connecting circuit.

The second method of electrical distribution, which I have called the multiple arc or simultaneous method, is accomplished by leading out from the terminals or brushes of the generator to any required distance, two conductors practically parallel with each other, and connecting between them, by parallel cross wires or electrical bridges, two or more translators so that a multiplicity of paths is created for the expenditure of the pressure, and all the translators at any time actively placed in these multiple branches receive simultaneously the proper voltage and a fraction of the total current delivered by the generator. Each translator is therefore independent of all the others.

This is the reverse of the series method, for in the series system (with a varying load) the proper total voltage varies directly as the number of translators and the proper current is constant; while in the multiple arc system (with a varying load) the proper total voltage is the constant, and the current varies directly as the number of translators. In this general statement contrasting the two systems, I have not made mention of the conductor drop, which for the purposes of this statement is an immaterial factor.

In the lower diagram of Fig. 1, a multiple arc system is indicated under three conditions corresponding with those of the series system which forms the upper diagram of the same figure. In the left hand sketch the spiral indicating the generator coils is much shorter than that of the series generator immediately above, illustrating that under ordinary circumstances the standard of voltage delivered by a multiple arc generator is much lower than that of a series generator operating the same number of translators. With two 50-volt lamps I have assumed the total E. M. F. produced by the dynamo to be 110 volts; the resistance of the armature, the outgoing conductor, and the return conductor to be 1 ohm each, while that of the lamps is the same as in the series system, 5 ohms each. But instead of offering a total resistance of 10 ohms, as in the series system, the two lamps in the multiple arc offer only 2.5 ohms; hence, in order that the same percentage of the total E. M. F. may be expended in the distributing conductors, the resistance of these conductors must also be greatly less than those of the series system having the same length. I have illustrated this idea by assuming that these multiple arc conductors have a total resistance of only 2 ohms instead of 20 ohms as in the series system. As each lamp requires 10 ampères, the total current is 20 ampères. Proper action of this system is indicated by a volt meter connected at a point on the circuit near the lamps through pressure wires, and showing to the dynamo operator the normal working conditions.

The middle sketch illustrates the re-adjustment of potential which happens when two more lamps are connected in multiple arc, and the total E. M. F. is not changed. Instead of increasing the resistance of the outside circuit (as was the case in the series system) this addition of lamps decreases it from 2.5 to 1.25 ohms, and consequently this lamp division of the circuit causes a less number of volts of the same total E. M. F. to be expended. The diagram shows that the pressure has dropped from 50 to 32 volts at the lamps, and this change is instantly indicated by the volt meter to the dynamo operator.

Regulation in this system consists in so increasing the total E. M. F. that the lamp voltage shall return to 50, and in the right hand sketch we see the conditions which exist when this result has been accomplished. The current has risen to 40 amperes, which is equivalent to saying that it has been restored to the normal standard of 10 ampères per lamp, but in these multiple arc cases it has not been necessary for the dynamo attendant to concern himself about the ampères delivered, but only regarding the volts supplied to the translators operating in parallel.

We may here summarize some of the peculiarities of the multiple arc method of distribution:

#### Constant Factors.

1. Available E. M. F. at translators.
2. Dynamo resistance.

#### Variable Factors.

1. Number of translators (and hence resistance).
2. Resistance of individual translators.
3. Dynamo internal drop (with varying load).
4. Resistance of line (conductor) with length in use.
5. Conductor drop (with varying load),
6. Current.

Such a parallel system of distribution may be made clearer by a second hydraulic analogue which appears in Fig. 4. Here each water wheel is assumed to require an amount of water equal to that supplied to each wheel in Fig. 2; hence the total volume of flow or current of water is three times

as great in this parallel system as when the same water is used repeatedly by one wheel after another. In Fig. 2 a triple pressure is expended in three equal fractions in but one channel. The mechanical energy necessary in Fig. 4 to maintain a low pressure expended in three different channels is the same as that required in Fig. 2 to maintain three times the pressure expended in one channel. In other words, the product of the three-fold pressure by the unit current required for the series wheels of Fig. 2 is equal to that of the three-fold current by the unit pressure required for the multiple arc wheels of Fig. 4, such pumps and pipes as are necessary for equal economy being assumed.

In the left hand sketch of Fig. 4 the system is shown at rest or in equilibrium, and the water in the various pressure tubes is at the same height  $L^0$ . The right hand sketch illustrates the difference in the height of the water in the pressure tubes  $E, G, F, H$ , when the system is in operation. This difference is partly due to the fall in pressure which occurs between the opposite ends of the same main pipe; for example, the tube  $F$ , at the end of the upper pipe more distant from the pump, shows a lower pressure  $L^2$ , than is shown by the tube  $E$  at the pump terminal,  $L^1$ , and illustrates a fall by friction in the pipe, which is analogous to the fall in the conducting wires of Fig. 3. The difference in the height of the water in the two right hand pressure tubes  $F, G$ , is the result of the fall of pressure from  $L^2$  to  $L^3$ , which occurs in doing the useful work of turning the water wheels. Any one of the wheels may be stopped by shutting its individual valve or gate, which action corresponds to the breaking of a branch wire in the electrical system of the lower diagram of Fig. 1, by which each translator is turned on or off. In case one wheel is disabled or its individual branch pipe is broken, none of the other wheels are affected. The pump is adapted to give a low pressure but to throw a large volume of water through the pipe which is materially larger than that of Fig. 2, and as is the case in the electrical system of Fig. 1, the action of the pump may be modified so that just the proper pressure is delivered to the wheels at all times.

The multiple arc arrangement has been used for many years. It has been said that it was even utilized by Prof. Moses G. Farmer in an experimental plant operated by him at his home in Salem, Mass., thirty years ago or more. So far as I know, the earliest publication which specifically describes this parallel arrangement was a French patent granted to M. de Khotinsky in 1875. Fig. 5 is a reproduction of two of the drawings of that patent, made more clear by the use of red lines for the positive and blue for the negative conductors and by arrows indicating the direction of the current. The incandescent lamps which are described in this patent are here shown as conducting strips connecting the positive and negative branch wires, and it is evident that the main current sent out by the dynamo divides itself between all the lamps or bridges of the system.

The lower diagram of Fig. 5 shows an arrangement evidently supposed by Khotinsky to be the equivalent of a circuit entirely of wire, in which the earth forms the return. Actual practice has shown that while this use of the earth and its connections is practical for such small currents as are necessary in telephone, telegraph and similar work, there are serious difficulties encountered when the larger currents of electric light and power systems are expected to find their way back to the dynamo without continuous metallic conductors.

Following along the history of development of the multiple arc method of distribution, it is interesting to observe what was proposed in connection with incandescent lamps by Mr. Lane-Fox, an English experimenter, and described in two British patents of 1878. Mr. Lane-Fox seems to have clearly appreciated the idea that in order to properly operate incandescent lamps it was desirable to supply them at all times with a practically constant voltage, and to connect them in multiple arc in order that they might be separately controllable. Thus they would avoid one of the difficulties of a series arrangement, which is that when one lamp is put out or fails to operate, it tends to break the entire circuit and thus stop the operation of all the rest. The idea of Mr. Lane-Fox was to arrange a network of positive conductors on the principle shown by Khotinsky in the second of the diagrams I have reproduced, so as to keep up a steady pressure from all points of these conductors to earth, and thus force through each translator connected from line to ground, such a current as its resistance would allow to pass. If he knew of Khotinsky's arrangements he doubtless appreciated the fact that no provision had there been made for reducing the output of current by the dynamo when lamps were extinguished, because Khotinsky set forth a means of intro-

ducing an equivalent resistance into any circuit whenever its lamp went out. Lane-Fox suggested an automatic regulation of the dynamo by a mechanism which governed the throttle valve of the steam engine which rotated its armature. Foreseeing that there would still be a probability of a lack of uniform pressure throughout a large system, by reason of the drop which would occur even in very large conductors, he also proposed to place at different points through the district, storage batteries which should be charged from the central station during times of small load, and discharged when the requirements of the increasing load had reached a predetermined point. By means of this automatic dynamo regulation and this reinforcement by storage batteries he thus attempted to secure constancy of voltage delivered by the dynamo to the circuit, and uniformity of voltage (at one lamp with relation to other lamps) throughout the entire area. While neither of these methods has proved to be desirable in practice, the disclosure of them at the date of his patents showed a remarkable insight into the subject of electrical distribution.

The next material step in advance was made by Mr. Edison and described by him in patents applied for in February, 1880. One of these was granted in Great Britain in August of the same year, and the corresponding United States patent issued in 1887. Fig. 7 gives diagrammatically an illustration of the connection of several dynamos in multiple arc to a single pair of "omnibus wires" from which the main conductors of the distributing system are taken. In this original arrangement preference was given to vitalizing the magnets of the main generating dynamos by means of a special excitor, the field of which was in its turn excited by a battery. Later experiments showed that the main dynamos might with equal success and greater convenience be excited each by its own armature. To the omnibus wires, or to any portion of the distributing conductors, by means of "pressure wires" coming back to the station, was attached a galvanometer, or a test lamp, or some other means of indicating when the pressure delivered to the system was at a proper standard. One of the great steps taken by Mr. Edison in the perfection of this comprehensive plan by which a greater or less number of dynamos might be connected or disconnected in multiple arc, and might supply through outgoing and return metallic conductors large numbers of translators, was a special construction of the dynamos. The cardinal features which made these dynamos successful for this use were the reduction of the armature resistance to an exceedingly low point with relation to the joint resistance of the translators and the distributing conductors; also the construction of massive magnets, excited to a moderate degree by a small amount of electrical energy, and in this condition capable of a marked increase or decrease of their magnetism by a small variation of the exciting current. It is now clearly understood that the combination of these features constitutes one of the essentials in a system of multiple arc distribution, and this combination, the reduction of the internal resistance and the adoption of magnets of great mass, was for some time recognized as one of the wonders of electrical distribution. Such advances quickly become matters of course, in the rapid advance of such an art.

The regulation of a voltage delivered to the translators by the Edison type of dynamo solved the problem of securing constancy of potential which Lane-Fox had seen to be an essential of multiple arc lighting. The question of relative uniformity had occupied Mr. Edison's attention even earlier than the publication of his comprehensive multiple arc plan. It was clearly outlined as a problem and a clear solution was indicated, in a caveat filed in the United States patent office in August, 1879. The method is outlined in Fig. 8, and consisted in the division of the territory to be covered into fractional consumption circuits, each separately supplied from the central station by conductors having no translators directly connected. Thus in a system so large that it would be impracticable to supply it from one end on account of the size of the conductors necessary to carry a large current over a long distance to many lamps, it became feasible to secure the proper standard of pressure at each of several different points distant from the central station, and to make the drop beyond those points from the nearest to the farthest lamp of each fraction of the consumption circuit, so small that each lamp would give practically the same light as every other. It also became possible to cover large areas by economical amounts of wire, because the drop which occurred between the dynamo and the nearest lamps might be made anything that the engineer might desire, without affecting the relative action of the lamps. In this

plan a pair of pressure wires was to be led back from each point or center of distribution and attached to a pressure indicator in the central station.

In this same caveat is disclosed a method of automatic regulation of dynamos for constant potential, which has been found the most reliable and satisfactory for many uses of any system ever proposed. This method consists in equipping each dynamo with two magnet coils, one of which, usually called the primary or initial coil, excites the magnet to a degree merely sufficient to deliver at its brushes the standard of pressure required by the translators before any load is connected to the conductors. This primary coil may be brought from a separate excitor or taken from the brushes of the dynamo itself as a shunt to the outside circuit. The other coil (wound in the same direction) is of coarse wire and connected in series with the translating circuit, so that all the current which is intended for the translators shall pass through it. Thus as a greater amount of current is demanded and sent through this series coil, an increasing magnetism is induced which is sufficient to maintain the voltage practically constant at the translators, by increasing the total E. M. F. to such an extent that the resistance of the armature and of the outside conductors may be overcome and a proper number of volts still be left for normal operation.

(To be continued.)

### Proceedings of the First Meeting of the American Academy of Railway Surgeons.

Held at the Grand Pacific Hotel, Chicago, Ill., Nov. 9 and 10, 1894.

(Continued from page 409.)

#### NOT A CASE OF "RAILWAY SPINE."

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GALION, OHIO.

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Railway surgery without the spinal malingering would be like a ship in mid-ocean bereft of her sails and her rudder. It is a question too, if we would not all lose our jobs if he did not exist; although it is claimed that our employment is a matter designated as being for sweet charity's sake, the court records show that the charity part of it is very much similar to the church donation of a candidate for a political office—sort of a "cast your bread upon the waters" affair.

It has been my privilege to examine and assist in the caring for many cases of spinal injury, and I might add, numerous cases of "supposed spinal injury." Out of the list, I wish to call your attention to four cases that have seemed to me to be very interesting, inasmuch, as they pretty well cover the different forms of injury sustained by the spinal column, namely, fracture without displacement, complicated with severe injury to the soft parts, resulting in recovery; apoplexy of the spinal cord, resulting in death; fracture with displacement, resulting in death; fracture and dislocation, resulting in good recovery.

*Case 1.*—S., aged 19; Irish; scrofulous; has had large abscesses on both sides of the neck; no history of syphilis, either hereditary or acquired; not an employee of the company. Please remember this.

In attempting to step on the front end of a moving switch engine, he misjudged the distance and went under the engine, being rolled between the front trucks until the engine could be stopped, which was probably a distance of thirty feet.

Examination a few minutes after the accident occurred revealed a comminuted fracture of the right forearm, about two inches above the wrist; contusion of inside of left foot; dislocation backward of left hip, with fracture of the acetabulum; the spinous processes of the lumbar vertebra were simply crushed flat, with slight curvature of the spine to the right. The soft parts over the lumbar and upper sacral region were badly contused and fairly bagged with coagulated blood. There was no paralysis of the motor or sensory nerves affecting either the limbs, bladder or rectum. The case progressed nicely. The coagulated blood was taken up, and with the exception of the deformity resulting from the hip injury, he is as well as ever. This would have been a typical case of "railway spine" had not the patient been wholly responsible for the accident.



*Case 2.*—H. T., aged 36 years, well developed, strictly temperate. July 3, 1880, his carriage was struck from behind by a runaway team, and he was thrown a distance of thirty feet, alighting on his head and shoulders. In company with my father, Dr. H. R. Kelly, I saw the case one hour after the accident occurred. He was conscious, and had been ever since the accident happened; there was a large scalp wound of the posterior part of the head, but no indentation of the bone; complete paralysis of the lower and partial paralysis of the upper extremities. The paralysis of the lower was of both motion and sensation, and was entire; that of the upper was only partial, and was more marked upon the right than upon the left side. There was also very slight paralysis of the intercostals. Failed to find any fracture or displacement of the vertebræ. However, about the seventh cervical there was some tenderness and a slight amount of ecchymosis. He suffered very little pain, in fact all the pain he had was occasioned when his head was considerable elevated. Diagnosed the case as one of apoplexy of the spinal cord, and the prognosis unfavorable.

Dr. Rosenthal, in his excellent work on "Diseases of the Nervous System," in speaking of apoplexy of the cord says: "Consciousness, speech and the functions of the special senses are frequently unaffected. It is only in abundant hemorrhages of a rapid course, and especially in those of the cervical region, that momentary loss of consciousness occurs. The paraplegic limbs most frequently also lose their sensibility. The anesthesia usually extends upward to the upper half of the back and of the abdominal region. Reflex excitability is preserved or even increased at the beginning, but it rapidly disappears when destruction of the cord occurs in a transverse direction, and especially in the gray matter. The paralysis also involves the sphincters; retention of urine and constipation occur in the beginning, but are soon followed by involuntary evacuations. The muscles which are insensible to mechanical stimulation and to the will, have also lost their electrical contractility. Cline has observed this abolition of muscular excitability upon the very day of the attack. Bed sores and erythema make their appearance. When the fatal termination is delayed, it is caused by progressive extension of the paralysis, by abolition of the vegetative functions, by bed sores, cystitis, pyelitis, and the final febrile exacerbations which accompany these complications. The duration of the disease may be counted by hours, weeks, or even months."

July 4. Found him in about the same condition to-day as yesterday. He has not evacuated his bladder. As he suffered a rupture of the urethra about a year ago, we at once attempted to pass a rubber catheter but failed. We then tried several catheters but were unsuccessful. The stricture had closed down very tightly, and there also seemed to be a curve in the canal through which it was impossible to pass anything. Being afraid of wounding the paralyzed urethra, we desisted and left him until the following morning.

It was now nearly forty-eight hours since his bladder had been emptied, and as we were again unsuccessful in introducing a catheter, we thought it best to resort to aspiration. The needle of a Dieulafoy aspirator was plunged into the bladder about two inches above the symphysis pubis, and about two quarts of urine withdrawn. The operation was an entire success, as not a single bad symptom followed.

We succeeded next day in breaking through the stricture with a No. 8 Van Buren and Keyes' silver sound. After which a catheter was successfully introduced, and his wife, who, I think, was the best nurse I ever saw—was able to catheterize him from this on. Once in a while the parts would become more relaxed, at which time there was a continuous dribbling of the urine, and at these times his sphincter would become very much relaxed. Although we were very careful with his bedding a large bed sore made its appearance over the sacrum. It was surprising with what rapidity these paralyzed parts sloughed out. He remained in this condition until August 13, when he was taken with a severe chill followed by a high fever. His friends were very anxious for counsel and Dr. Hamilton, of Columbus, was sent for. After carefully examining the patient, he was unable to give any hope for recovery. Patient remained in about the same condition until September 23, when he died. On account of the great sloughing, nearly every one of the lumbar vertebræ and the sacrum were exposed to view. Until the second day before his death, there had been no operation of the bowels for sixteen days.

*Necropsy.*—Twelve hours after death, in company with Dr. Ridgeway we examined the vertebral column and his spinal cord with the following result: Beginning at the cervical region extending to the first lumbar, we were unable to

discover any fracture or displacement of the vertebræ. The membranes were found to be in almost normal condition until we came to the eighth dorsal, where they became very much thickened and hardened. When the membranes were divided and the cord itself exposed, a different state of affairs was found to be present. Beginning with the first dorsal and continuing throughout the whole length of the cord, it was found that there had been complete degeneration from the first to the fifth dorsal, the gray more than the white, and more upon the right than the left side. The cord was so soft that we were compelled to be very careful in handling, lest we might not be able to finish the examination. From the fifth dorsal to the terminus it was very hard and when cut open gave that characteristic sound produced by cutting a scirrhus cancer. About the third or fourth, and also at the seventh dorsal vertebræ, were evidences of a hemorrhage. These spots were distinctly marked. As we were not prepared to examine the specimen microscopically, this was all that we were able to learn from the examination.

Although this case, strictly speaking, was not one of railway injury, it was just such a case as might occur at the time of a collision.

*Case 3.*—F. M., aged 36 years; German; switchman; moderately good habits. In attempting to get on back end of switch engine, the hand hold pulled out and he went under the engine. The engine was stopped as soon as possible, when it was found necessary to uncouple the tank from the engine to get him out, as he was wedged in back of the fire box. I saw him a few minutes after the accident occurred and found the following symptoms:

Complete paralysis of both sensation and motion below the dorsal region; complained of sharp pains and tingling sensation extending to soles of feet. Examination of spinal column revealed an apparent separated condition between last dorsal and first lumbar. The first lumbar seemed to have a fracture extending through the body, causing some compression from the left side. I use the term, seemed, for the reason that the fracture was not perfectly plain. The last dorsal was dislocated forward. The space intervening between the vertebræ was the width of the thumb. The case progressed from bad to worse, cystitis in an aggravated form starting up about the third week. The limbs became edematous. Ulcers formed over the sacrum, thighs, calves of legs, and the feet themselves almost separated from the body. The man lived for several months, finally dying from sheer exhaustion, after wasting away to a mere skeleton.

A post-mortem examination was not permitted, as the family desired to bring suit for damages, which they afterwards did, recovering something like four thousand dollars.

*Case 4.*—This case came under our care while I was absent from the city, and I am indebted to Dr. H. R. Kelly for the early history. T. N., aged 23 years; engine-wiper; good habits; formerly farmer. Was down under engine wiping when hostler attempted to move the engine. He was doubled up and wedged under the engine in such a way that it was almost impossible to get him out without jacking up the engine. Examination revealed a dislocation backward of last dorsal vertebræ, the deformity being fully one-half inch. The first lumbar was fractured through the body. There was paralysis of the motors below second lumbar nerve roots, which affected the bladder and rectum to a certain extent. The sensory system seemed to have escaped. It was necessary to use the catheter for about three weeks; very little dribbling of the urine, however, ensued. Great difficulty was experienced in moving the bowels. The knee jerk was present. The case progressed favorably and at the end of several months he was able to get around some. At this time, some ten years since the accident, he is able to work at the carpenter trade. I find pronounced lateral curvature which is so distinct that it is noticeable even when he is dressed for the street. The gait is straddling and labored. The sensations are good, and I am told his only difficulty is in locomotion.

This, gentlemen, is a brief history of four cases that have interested me, and I hope will call forth the experience of many other surgeons. The treatment has been purposely omitted in these cases, as it was the intention to show only the symptoms in certain conditions.

#### DISCUSSION.

DR. MILTON JAY, of Chicago—Any surgeon who has had much to do with railways for any considerable length of time must have had some injuries that involved the spine. To the railway surgeon the name of "railway spine" is a deep term, and I believe it is no longer used, for the reason that

it is made to cover all injuries of the spine up to traumatic neurasthenia. It is easy enough to give a name, but to determine the exact condition of an injury to the spine is frequently exceedingly difficult, and it requires a high order of skill and of scientific attainments to accurately diagnose spinal injuries in the majority of cases. We can have as many different kinds of spinal injuries as of any other organ of the body. We may have injury or involvement of the posterior or lateral columns of the cord. Nowadays a knowledge of physiology and of the pathologic conditions will enable us to determine whether or not the spinal cord is injured. If there be complete paralysis of any part it is positive evidence that the cord is injured, or else there is compression of the cord either by an effusion of hemorrhage, cerebro-spinal fluid or by compression of bone. I believe it is the duty of railway surgeons, when there is anything like paralysis of the spinal cord, to investigate very closely at the seat of injury, provided that injury has been along the spinal column, to know if the compression consists of a depressed portion of the vertebræ. If so, it is good surgery to elevate the depressed portion; I do not care whether it is the lamina, the transverse or spinous processes. If absolute compression exists, the paralysis can not be relieved until the depressed fragments are elevated. If there is an effusion, tap it. If the spinal cord itself is injured, that ends the case. The spinal cord, when severely injured or torn asunder, presents a condition that we can do nothing for.

As railway surgeons, there is nothing that is probably of so much importance as the medico-legal aspect of spinal injuries. Out of twenty cases of lawsuits brought to recover damages from railway injuries, fifteen of them will claim to have sustained injury to the spine, even if the spinal cord has not been touched. In these cases we should make a careful scrutinizing examination, using the battery with a view to testing the presence of the jerks and reflexes, or the absence of any of them. These examinations should be made as early as possible, and the railway surgeon should be prepared when the trial takes place.

DR. REGER—I infer from what has been said that in those cases in which there is paralysis after injury to the spine that they never fully recover their functions. I had a case two years ago of a young man who finding that he was going to fall, jumped off from the top of a rapidly moving train and fell with such force that it necessitated amputation of the right leg. The bones were driven through the soft parts. Paralysis of the lower extremities accompanied it—I mean paralysis of motion, but not of sensation. Any artificial motion would produce the most agonizing pain in his case, yet he did not appear to move a single toe. There was a perpendicular fracture of the first two lumbar vertebræ, and the displacement was almost the fourth of an inch. I could feel it distinctly. He was a very lean subject, and after the amputation of that limb I supposed the case would go on from bad to worse until he died. I applied a couple of narrow padded boards about four inches long to each side of those vertebræ, so that the weight of his body would press the parts together, and applied a plaster bandage over the parts. About four weeks after that was done he began to move the toes of the left foot. He kept on moving the limb, and continued it for over a year, and finally got entirely well. I suppose in this case it was simply an effusion that pressed upon the cord, and that no part of the bone had touched the cord or its membranes.

DR. JAY—Where was the fracture?

DR. REGER—The first and second lumbar vertebræ.

DR. HARNDEN—I have an idea that this subject is pretty well threshed out, and that I can add very little to what has been said, but I wish simply to call attention to one quotation which I made in my paper, that of Dr. Pope, of a collec-

tion and tabulation of 120 cases of spinal injury, in which 99 out of this number, he said, were tinged with the coloring of imposition. I think the subject has been very thoroughly handled of late; it is still engaging the attention of the surgical world, and I believe the more we study this subject the more will it be demonstrated that this element of imposition or fraud is a powerful factor in these cases, and that we should as railway surgeons study to eliminate this element as far as possible. During the war, through some method or process, I know not what, we killed off and buried out of sight the whole element called general debility. We have not heard of it in recent years, and I think now through an evolutionary process we are going to kill off the neurosis called "railway spine." Probably Erichsen never did a more foolish thing, or one which will dim the luster of his renown in the ages to come, so much as the one thing of inventing the term "railway spine." No physician uses it by itself today. I think, beyond any question, that the railways will be greatly benefited through the efforts that have been made by railway surgeons during the past three or four years to illuminate this mysterious subject. I think it is the common experience of the medical gentlemen present to meet with this bugbear in their private practice. A man or woman falls down on a slippery sidewalk, and has prospective damages in view against the corporation of the city. Immediately follow the symptoms, which are developed as a general thing by auto- or hypnotic suggestion or otherwise. The patient will complain of pain in the back, which is the primary symptom usually met with, and although he does not strain the ligamentous attachments of the spinal column or at any rate, the muscles of the back, the lumbar muscles, or otherwise, yet that symptom is of importance, developing into something tangible. It is our duty in railway injuries, especially as surgeons in attendance upon these cases, to be on the alert, to be cautious and quick to detect the incipient symptoms of this "spook."

DR. SCOTT—This paper should have brought out, I think, more discussion in regard to genuine injuries of the spine, and I only wish I were better prepared to discuss it. We must not lose sight of the fact that we do have genuine injuries and serious ones of the spine; that many of them are fatal within a short time. Many of them produce permanent injury, and the Doctor has given us reports of some cases of that character. I have found in my State among railway surgeons that there is a tendency, whenever they run across an injury of the spine, to throw it off and class it among those cases which have been under discussion so much in railway organizations during recent years, and in many instances overlook actual injury to the spinal column or to the spinal cord. We must remember that injuries to the bones of the spinal column, injuries to the ligaments, muscles and membrane are not uncommon, and I think that we should certainly give them due attention. I remember a case in point that I had a little over a year ago, of a man who was struck in the spine in the center of the dorsal region by the drive rod of an engine. The engine was running backward at the time. I thought from appearances he was suffering from a contusion, but shortly after paralysis developed, very much as that described in some cases of concussion of the spine. I was inclined to think, on account of some remarks the man had made, that he was assuming these symptoms of paralysis, but I afterward found that he was not doing so. He finally developed spondylitis. I was fully convinced that here was a genuine injury. I believe such a mistake is not uncommon among railway surgeons. We should remember that in these genuine injuries of the spine the prognosis is not always grave. A man will recover every now and then from a fracture of the vertebræ. They not infrequently recover from the effects of hemorrhage within the spinal canal provided the hemorrhage is not within the spinal cord itself. I do not believe there are any authenticated reports of cases of hemorrhage within the spinal cord where recovery has followed, that is, where it is within the tissues of the spinal cord; but from hemorrhage and effusions within the spinal canal between any of the membranes, we have every reason to believe that recovery takes place and it is not infrequent. I can recall two or three instances of complete paraplegia where recovery resulted, and where I had reason to think the paralysis was due either to hemorrhage or to effusion.

(To be continued.)

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00

SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,  
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.  
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, MARCH 23, 1895.

AMERICAN MEDICAL ASSOCIATION.

In an organization like the AMERICAN MEDICAL ASSOCIATION, some one is always disturbed. A certain number find great fault with the JOURNAL, others are alarmed at what they call the political ring rule, and others think the ASSOCIATION ethics is a most serious rock of offense. Personal criticism of its officers and managers, is common ground for the display of disappointments and all the various slights and offenses, real and imaginary, that may appear. This is the friction that is a part of all organized movements, and indicates growth and progress which is always very promising for the future. The mutual admiration societies who never differ, who have no conflict of opinions on any questions, rarely accomplish anything for scientific medicine. Societies in which there is no struggle to become leaders or to direct its interests have not much influence in the world. In all live aggressive organizations there is a struggle, a restless movement and constant conflict, in which personalities clash and differ widely, but such differences are simply different points of view, which vary incessantly. This is no reflection on the honesty of the men who may be on opposite sides at different times, but evidence of their independence in thought and act.

To refuse to join the AMERICAN MEDICAL ASSOCIATION because of its ethics or want of ethics, or politics, or rings, or dislike of some one prominent in its management is childishness. The ASSOCIATION is not the product of any ring, or political or ethical standard of faith; it is the representation of American medical science; and of its progress and development. This is not to be measured and marked off from year to year, but to be estimated as the results

of years of history. The apparent ring rule of one year disappears the next, the battle over some question of ethics or rule of organization dies out the year following, or appears in some other question and so on, year after year, growing less and less personal, and more and more as a display of restless pent up energies.

The ASSOCIATION goes steadily on, and the solid conservative rank and file keep along undisturbed. Revolutions and sharp innovations are voted down, until the time comes for their free acceptance and indorsement, as the full consensus of opinion by the profession at large. Ambitious men may form rings for their personal advancement, but the soil is unfertile, and the yearly changes of the ASSOCIATION meetings bring new surroundings and new circumstances that are fatal to long success.

This is common every-day history of many other associations and organizations, and even of the church. To refuse to join an association because its members differ with each other in minor matters is weakness, To join and take active part, and defend convictions on all matters where differences exist, is manly and scientific. The science of medicine is not advanced and the great truths of nature evolved, by pharisaic criticism and refusal to take part in the struggle that every live society is passing through.

The AMERICAN MEDICAL ASSOCIATION is *National*, and belongs to the entire profession over all the country. If it is faulty in its management, its members are the real sinners. They are the powers who can control; they can unite and regulate any wrong that may exist; the officers and managers are but servants doing their bidding. Sneers and criticisms and refusals to join the ASSOCIATION because of this or that, are absurd and unreasonable.

The ASSOCIATION will go on, and its JOURNAL will appear regularly, entirely irrespective of the opinion or life of any individual. It is organized for the benefit of every medical man, and through its JOURNAL to bring him in touch with every advance of science, and with the work of the great teachers of the world. Its work and influence belongs to all alike; the practical country doctor, and the theoretical professor meet on the same level, and have equal voice in the control of the ASSOCIATION. It should be a source of pride to every physician that he belongs to the NATIONAL ASSOCIATION, and has a part in the growth and progress of American medicine which is destined at a not very distant period to lead all the world. It should be both a pleasure and duty to attend the meetings, and take part in the many questions which are presented in both the sections and general meetings. The larger and more widely extended its membership the more valuable its meetings become. It is from the opinions of physicians from widely differing sections of the country, that

great truths are evolved. The discussions which follow the reading of papers often contain far more truth and practical suggestion than elaborate textbook chapters. Many of the papers read are the most advanced studies of original workers, far beyond the teachings of the last book.

This ASSOCIATION was not established for any one class of men; it is for all, and its central purpose is to gather and organize the active workers in every department of medicine, and to create interest and sympathy in every new advance of science. It can not represent the views of any one man; it must reflect the opinions of the entire profession. It is a tribunal to which any member may bring his opinions for test and comparison, and may sit in judgment on the views of others. It is literally the final court of resort for medical men, and should be most enthusiastically supported by every practical student of medicine.

#### SUNLIGHT AND FRESH AIR.

So much attention is just now being paid to the prevention and restriction of tuberculosis, and so sweeping and radical are the measures advocated by those who would "stamp out" the disease at once, that it may be well to pause and try to find out "where we are at." The application of the tuberculin test to every bull, steer, cow, calf and heifer between the Atlantic and the Pacific oceans, as is urged by some enthusiasts, may prove to be no more necessary than the proposed notification of every case of tuberculosis and its suppressive or preventive treatment, as though it were as bad as leprosy or smallpox or worse than syphilis. Indeed it is questionable, as has already been intimated in these columns,<sup>1</sup> whether the wholesale tuberculin test may not be as mischievous in its results as the evil it serves to develop—whether it may not fan into flame a general tuberculosis from a latent spark which otherwise might have remained harmless.

Much good, however, is undoubtedly resulting from the attention given to the etiology of the disease and its infectious character, and among the most interesting and important of recent results, from a practical standpoint, are those accruing from the researches of DRs. SHERIDAN DELAPIN and ARTHUR RANSOME of Owens College, Manchester, Eng., the former Professor of Pathology, the latter Professor of Public Health in that institution. These gentlemen have for some time been pursuing an inquiry into the value of the municipal methods employed for disinfecting rooms in which tuberculous patients have lived, as well as into other methods of disinfection and the influence of certain natural agents on the virulence of the *B. tuberculosis hominis*. One of their reports was presented to the Scientific Grants

Committee of the British Medical Association shortly before the last annual meeting of the Association, but has only recently been published. It embraces fifteen elaborate tables, with illustrations, diagrams and text, dealing with the virulence of fresh human tuberculous sputum, the virulence of recent cultivations of the human and avian tubercle bacilli, the effect of drying on the virulence of pure cultures of the same, the action of euehlorin on tuberculous sputum and on cultures of the bacillus, the effect of sulphurous acid, of the soluble products of combustion, of chlorinated lime solutions, of ventilation and of sunlight on the same.<sup>2</sup>

Aside from the numerous experiments which have been made for the purpose of testing the virulence of the tuberculous products used in the experiments, and the influence of collateral factors, such as dryness, ventilation, heat, etc., the investigators conclude that:

1. The disinfection of rooms which have been contaminated with tuberculous products can not be obtained by means of the fumigation methods such as are generally used at present. Sulphurous acid, chlorin and euehlorin, as used under supervision by experienced municipal disinfectors, have proved practically useless. This only confirms the results obtained by KOCH and his pupils in the case of a number of other organisms.

2. The only other method of disinfection which seemed to promise more satisfactory results was the direct application of a solution of chlorinated lime to the walls to be disinfected. This method has given so far satisfactory results, but is attended with discomfort on the part of those who have to carry out the disinfection. It must be remembered that the experiments of SCHILL and FISCHER are unfavorable to the use of perchlorid of mercury.

3. Light is, in the case of the tubercle bacillus, as it has been proved by several observers to be in the case of other organisms, the most important natural disinfecting agent.

The bases of this last conclusion are to be found in Tables XIII—"Effect of Sunlight on the Virulence of Tuberculous Sputum," and XIV—"Effect of Sunlight on Pure Cultivations of the *Bacillus Tuberculosis Hominis*." In the former are given the results of specimens of four different sputa used in experiments on nine guinea pigs, from one-eighth to one c.cm., being injected subcutaneously into the tissue of the leg and into the peritoneum; all the sputa were proved to be infectious in control experiments; the specimens injected were previously exposed to sunlight and air for varying periods—the maximum being during "three bright afternoons"; one of the animals was killed and examined on the fourth, two on the seventh, two on the twenty-second, one on the thirty-seventh, one on the forty-sixth, one on the eightieth and one on the eighty-sixth day after injection. In none was any trace of tuberculosis found. Table XIV gives the results of similar experiments with a pure culture of the

<sup>1</sup> JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, p. 335.

<sup>2</sup> For these tables, etc., see British Medical Journal, Feb. 16, 1895.



bacillus—four guinea pigs being inoculated each with one-half c.mm., of a culture proved to be virulent by control experiments; the culture injected had been previously exposed to sunlight for a maximum period of eighteen and a half radiant hours; the first pig was killed and examined on the forty-third day after inoculation, the remaining ones on the seventy-eighth, one hundred and fortieth and one hundred and fiftieth days. In none was any trace of tuberculosis found.

Do not the results of these painstaking and elaborate investigations tend to show that the radical measures of chemic disinfection, of segregation, of branding and labeling the unfortunate tuberculous are wholly uncalled for or worse? Do they not again demonstrate the sufficiency of the great natural agents of disinfection—sunlight and fresh air? And may not all necessary prophylactic measures in the family of a consumptive patient be safely left to the attending physician, without the intervention of the health officer or municipal disinfecter?

#### A PITFALL FOR THE PROFESSION.

One of the most largely attended meetings of the New York County Medical Society was held last week at the Academy of Medicine in New York city in response to the following call:

WHEREAS, A number of instances have occurred in this city where reputable members of this Society have been arrested for complicity in malpractice cases without even the shadow of a reason for such action on the part of the police; therefore, we, the undersigned, respectfully request you to call a special meeting of the Society for the purpose of ascertaining the rights and privileges of physicians who may be called to attend cases of abortion, etc.

The immediate occasion of this call was the recent arrest of two reputable physicians, members of the Society, who had been summoned to a patient in the house of a midwife, and to whom the patient represented that she was a widow and denied absolutely that any operation had been performed on her or any medicine given to her. The physicians ordered her taken to a hospital, having previously sent for a coroner, who could not be found before it was necessary to remove the woman. She died in the hospital after making a full confession, incriminating the midwife and completely exonerating the physicians; notwithstanding which they were arrested by the police and taken before the coroner, who refused to hear them, and was about to hold them in \$5,000 bail each when, on the intervention of a coroner's physician who knew them, they were released on their own recognizances. The jury, made up of medical men, returned a verdict that the attending physicians had acted in every respect in accordance with their duty.

DR. E. H. GRANDIN, President of the Society, on calling the meeting to order, said:

"An indignity has been imposed upon the medical profession by the police, and their action in a recent case, which may form a precedent unless a protest is made. We find ourselves between the horns of a dilemma. When called to the bedside of a dying woman, if we do not respond we lay ourselves open to the imputation of inhumanity. If we do respond and find the woman in danger from what appears to be the result of a criminal operation, we must take one of two courses: Either report the matter to the police and subject ourselves to the possibility of a libel suit, or keep it secret and, in the event of the death of the patient, run the risk of arrest. We are here to protest against the idea that the presence of a medical man at the bedside of a woman suffering from miscarriage is *ipso facto* evidence that he has committed a crime in the matter. It is the midwives and notorious abortionists who, under the guise of specialists, commit these crimes, for which they are so often indicted but so seldom punished. This crime is on the increase. Are the officers of the law, by their laxity where they should be most active, responsible for this state of affairs? This city should be made too hot to hold abortionists."

In the discussion which followed, Drs. JACOB, MARKS, REED, IRWIN, VAN RANDOHR, TUTTLE, HART and others, including the coroner himself, a Dr. HOEBER, participated—the latter gentleman announcing and attempting to defend the startling proposition that a physician is bound to reveal the secrets of the sick room where he may suspect crime has been committed. After a somewhat exciting session, a resolution was adopted instructing the counsel of the Society to furnish an opinion on the subject-matter of the call as therein recited, and a resolution, offered by DR. MICHAELMAS, denouncing the arrest of the physicians as unjustifiable, declaring that abortion is on the increase, and calling for legislation making it a criminal offense for any person but an M.D. to practice midwifery, was referred to a committee.

It is to be hoped that the Society will not let the matter rest in this stage. It is notorious that criminal abortion is rife in every large city; that the premises of too many midwives are simply slaughter-houses; and that it is the common practice of these hell-hags to shunt their dying victims off on to the nearest physician whenever it can be done. No general practitioner who does obstetric work in any large city of the country is safe in taking an emergency case without pursuing such inquiry as to make him subject to the charge of being inhuman and cold-blooded. The practice of midwifery should be, as DR. MICHAELMAS suggests, confined by criminal statute to regularly graduated physicians, and the abortionist-midwife be made an outlaw.

THE forty-sixth annual session of the AMERICAN MEDICAL ASSOCIATION will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9 and 10, commencing on Tuesday, at 10 A.M.

### THE NOMENCLATURE AND CLASSIFICATION OF DISEASES.

SURGEON-GENERAL STERNBERG has issued a revision of the nomenclature and classification of diseases in use in the Medical Department of the Army. Up to this time the official classification was practically that of the College of Physicians of England, and included many divisions and subdivisions such as zymotic, miasmatic, enthetic, zoögenous, etc., that belong to a past era in the progress of medical knowledge. The new classification is therefore a step in advance taken at the instance of clinical as well as etiologic considerations. The nomenclature used is simple and as free as possible from technicalities. Developmental diseases and the refractive errors of the eye find no place on the new list, as men with such disabilities should not be accepted for service. The dietetic class, which included alcoholism and results, delirium tremens, drug habit and scorbutus has been broken up, and scurvy placed among the general diseases of nutrition with acute alcoholism, chronic alcoholism, delirium tremens and chronic narcotic poisoning among diseases of the nervous system. The class of parasitic diseases is also omitted, scabies being placed among local infections of the skin, and trichinosis among infections. Rheumatic fever, carcinoma and sarcoma appear among the general infections. Their right to this position has not been established satisfactorily, but it is strongly indicated by the tendencies of recent etiologic studies. In order not to dislocate certain local infections too abruptly from their old associations they are entered under "structural and functional diseases of organs," as well as under "infections," so that in consolidating the statistics they may be thrown in either direction as desired by the statistician. Among many minor changes, hernia is placed with accidents and injuries where it properly belongs, instead of being included, as heretofore, among diseases of the digestive system. We will print the circular containing the list in this issue of the JOURNAL.

### DECISION REGARDING THE QUARANTINING POWERS OF BOARDS OF HEALTH.

The Health Commissioner of Brooklyn, Dr. Z. T. EMERY, has obtained through counsel an important reversal of a former decision that had the effect of abrogating the powers of health officers to practice quarantine for the purpose of stamping out smallpox and the like. This reversed decision is a virtually unanimous opinion of the three judges sitting in general term of the Supreme Court of New York, and can not fail to be far-reaching in its influence in all States where the legal system resembles that of New York. This probably includes not less than one-half of the United States. The judges sitting in this term

were JUDGES DYKMAN, PRATT and CULLEN. The decision was signed by the former two; the last named did not sign, for he was not present at all the hearings.

The reversal asserts that the Commissioner of Health has the right to order that persons may be quarantined for the protection of the health of the community, where a proclamation has been duly made that the public health is endangered by reason of impending pestilential disease, that it is the duty of the Board of Health to exercise a proper and vigilant control of persons and things which, from any cause, are liable to communicate contagion. The question of compulsory vaccination was not at issue in this case, and the reversal does not affirm or deny the right to compel that procedure in a direct way. The following are the closing paragraphs of the decision, freed from the technical legal references to authorities, enactments, etc.:

"These relators fell under the control of the Board of Health; they came to the city from infected places, and they were liable to communicate contagion; they were, therefore, proper subjects for isolation and they were quarantined and detained in their premises. That isolation and detention was clearly within the scope and powers and duties of the Board, and that is all it did. The Board did not require the relators to be vaccinated, and that seems to be the error into which the relators have fallen. They seem to assume that the Board of Health intended to compel them to be vaccinated, but the acts of the Board admit of no such construction. There was neither coercion nor compulsion. They were isolated and deprived of their freedom because they had been exposed to smallpox and were liable to be seized therewith, and by communication with others, to spread the disease. That was a legitimate exercise of the power and authority vested in the Board by statute, and it was unnecessary to prescribe any conditions upon which the relators could terminate their isolation; that was done entirely for their benefit and for no other purpose. If they availed themselves of the privileges tendered to them, their acceptance would terminate their quarantine, and their refusal would leave them in isolation until July 1, 1894, the time mentioned in the mayor's proclamation. They refused the condition and instituted this proceeding. The prevention of smallpox is of such paramount importance as to justify all reasonable means for its accomplishment. In the age of the world we live in, security is gained from the awful pestilence of smallpox by reason of the practice of vaccination as a preventive. Its efficacy has been recognized by physicians of all schools for nearly a century. Dr. JENNER, its discoverer, was immortalized by its introduction. Vaccination was accepted and practiced by the entire civilized world within six years from the time of its first discovery, and it has been in universal use from that time until the present. It is stated in the return, and the statement is uncontradicted, that it is a well established scientific fact that vaccination is a preventive of smallpox in the person vaccinated, and it has been for many years demonstrated that thorough vaccination of persons in crowded centers is indispensable to the prevention of epidemic smallpox.

"This statement, as we have narrated, is in accord with the advanced thought of the age in which we live, and it receives our concurrence. We have decided at the present term of this court that vaccination may be required as a condition precedent to the admission of children to the common schools of the City of Brooklyn.

"The propriety and wisdom of the course pursued by the Board is beyond criticism. Its acts have all been within the lines of statutory authority, and they have been discreet and in evident good faith in the presence of an impending pestilential danger."

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## THE AMERICAN LANCET.

After twenty-four years' service in medical journalism, the veteran editor of the *American Lancet*, Dr. LEARTUS CONNOR has retired from responsible editorship, and the publisher announces that the publication will cease from and after the issue of the March number.

Under the guidance of Dr. CONNOR, the *Lancet* has been clean, bright, scholarly and fearless, and the tribute paid him by Mr. GEORGE S. DAVIS, the publisher, is only a just tribute to his worth and merit. In his valedictory the editor says:

"The *American Lancet* has done what it could to promote the advancement of the profession along the highest lines coincidentally with the marvelous changes in and out of the profession of medicine during the past twenty-four years. It has encouraged young men to acquire the art of writing, and old men to continue in the practice of this art, to the end that more facts and experiences of value might be placed upon the written record of the profession. It has encouraged medical society work and sought to multiply medical society workers. It has never neglected to encourage every effort for sound medical education along such lines as experience has shown to be the wisest. To repress the false and develop the true in all directions of the science and art of medicine and among medical workers, has been its constant aim."

## CORRESPONDENCE.

WILMORE, CAMBRIA CO., PA., March 19, 1895.

To the Editor:—Can any of the readers of the JOURNAL inform me of the name of the town in the State of Maine where Professor Usher Parsons was born (he being the first Vice-President of the AMERICAN MEDICAL ASSOCIATION), and if he was a descendant from Joseph (4th) Parsons and Elizabeth (Usher) Parsons, of Braintree, Mass?

There have been many of the Parsons family who have received the given name of Usher. Perhaps the youngest may be Dr. Usher Irving Parsons, of Council Bluffs, Iowa, who is now Professor of Physiology in the medical school of that city.

And can any one inform me about Dr. Hall Jackson, of Portsmouth, N. H., who must have been in practice during the latter part of the last century?

IRVING C. BLAISDELL, M.D.

ANSWER:—Dr. Usher Parsons was born in Alfred, York County, Maine, in 1788. For a notice of Dr. Parsons see Trans. Am. Med. Asso., Vol. XXI, p. 430. There is no notice of him in Thatcher, Williams, Gross, Atkinson or Stone.

## PUBLIC HEALTH.

**Praiseworthy Action of a Railway Company.**—A diphtheria corpse was recently shipped from Hammond, Ind., to Lima, Ohio, and thence to Spencerville, Ohio, where the body was interred. The matter was brought to the attention of the Chicago & Lake Erie Railway Company, over which line the shipment was made, and on a report from the health authorities the superintendent suspended the conductor, train and station baggage-masters who assisted in handling the body. It was found that the

shipment had been made as indicated and the rules of the State Board of Health and of the company violated, because the father of the child was connected in some way with the road.

**Demography of San Luis Potosi.**—The JOURNAL is in receipt of the current series of weekly bulletins, *Demografico-Meteorologico*, of the city of San Luis Potosi, Mexico, compiled under the direction of the Inspector General, Dr. J. E. Monjaras. The population of the city, by the census of December, 1891, is 68,401, composed of 31,919 males, 36,482 females; under 15 years of age, 24,855, between 15 and 60 years 41,444, over 60 years, 2,102. The deaths during the first seven weeks of 1895 were 373—an annual mortality rate of 40.5 per 1000. The *Boletin* makes no comment upon this high death rate which is in excess of the natality rate for the same period, during which only 362 births were reported—an annual rate of 39.2 per 1000.

**Sterilization of Milk.**—Rodet thus reviews in the *Bulletin Medical de Paris* the three principal methods of sterilizing milk by heat: 1, sterilization, properly so called, by a temperature of 110 to 120 degrees C.; this is the only way to kill all the germs and keep the milk for a long time; 2, pasteurization, or heating to the minimum of 75 to 80 degrees, which, while not affecting the most resistant microbic forms, nevertheless inhibits their pathogenic activity and retards the fermentation of milk; 3, the method between these two, of employing about 100 degrees of heat, is the one commonly used and its power of sterilization depends on the length of time it is carried on. Ebullition of the milk, even if short, acts powerfully against the pathogenic microbes and against the acid ferments. Among the drawbacks to sterilization is the brown color which some milk assumes and which offends the eye of the consumer, as well as changes its taste. These changes are of little importance compared with the pellicle which forms on the surface of milk boiled while exposed to the air. This imprisons a certain quantity of cream and hence affects the nutritive value of the milk. Its formation may be nearly entirely avoided by boiling in bottles in steam or boiling water, as in Soxhlet's method. According to M.M. Budin and Rodet the milk prepared according to the latter method possesses a value for nurslings at least equal to raw milk. For milk consumed in cities, the boiled or sterilized method possesses a greater superiority. Contrary to the opinion of certain authors, who attribute a less degree of nutritive value to boiled or sterilized milk on account of its greater digestibility, Rodet thinks that the difference, if any exists, is very slight.

**Prevailing Morbidity.**—The equable temperature of the past week, although below the normal in some regions, has favorably affected the seasonal diseases. Diphtheria in the larger cities has undergone a notable diminution in prevalence, but, as is common, its ravages in the rural districts and smaller towns are reported to be quite severe. The enthusiastic advocates of the antitoxin treatment still continue to attribute the decline to the new remedy; Dr. Herman Biggs, of the New York City Board of Health, is quoted as ascribing a reduction of 40 per cent. in the diphtheria mortality in that city to this cause.—The smallpox situation is substantially as reported in last week's issue of the JOURNAL. Sporadic cases continue to occur in many of the Northern States—St. Paul, Minn.; New Haven, Conn.—among the Yale students—at some points in Ohio and elsewhere; but its increase is mainly in the region south of the Ohio River. The reports are conflicting and, like the "fever and ague" of early days, there is none in the town making the report but in the neighboring town or some other locality, the disease is "raging." Quarantines continue to impede travel throughout the Valley States. Dr. Wingate, Secretary of the Wisconsin State Board of Health, reports, March 18, total number of cases on hand in Milwaukee, 18; in hospital 7, in homes 11; he also reports 5 cases at Sparta, in Monroe County. In Chicago, the Health Commissioner, Dr. Reynolds, is congratulating the community on its escape from the usual second year of the epidemic—citing the following comparative figures: In the last epidemic, 1881-83, there were 1,180 deaths during its first year out of a population of 540,000; in 1894, the first year of this epidemic, there were 1,033 deaths among three times the population; in January,

1882, there were 345 deaths; January, 1895, 55 deaths; February, 1882, 281 deaths; February, 1895, 30 deaths; first twenty days of March, 1882, 171 deaths; first twenty days of March, 1895, 19 deaths. He claims that the outbreak is substantially at an end.—Influenza fails to make any appreciable impress on the general death rate in this country, although its influence on acute lung diseases is quite marked.—What is probably an outbreak of epidemic cerebro-spinal meningitis is reported to be prevailing as a "fearful pestilence" in Floyd County, Kentucky, some fifty deaths being already reported among its sparse population. Dr. B. M. Smack, of Oakland, Ky., has been sent into the region to investigate, and his preliminary report to Dr. McCormack, Secretary of the State Board of Health, confirms the diagnosis.

In Europe, influenza continues to attract attention; the disease does not subside so rapidly as was anticipated, and the official figures of the last week show an increase in London, where the number of deaths from the malady for the first half of the month was 769; this exceeds the total for the entire year of 1894. The death rate of the city for this period reached 41 in the thousand—one of the highest points ever known. In Scotland the death rate in February was 45 per cent. higher than any previous February rate since records were kept. A special cable dispatch to the *New York Sun* says that "the influenza is peculiarly malignant in certain places. Three sisters died of the disease at Rochester this week, and it was necessary to postpone the funeral because all the mourners were prostrated by the same malady." From Berlin, reports indicate no decrease in the spread of the epidemic; there have been since January 1, 730 deaths from this cause in Berlin alone.—An outbreak of what is, apparently, the human form of the foot-and-mouth disease of cattle has appeared among the inhabitants of Schönberg, a suburb of Berlin, and physicians are said to be apprehensive of its spread throughout Europe. Dr. Thorne Thorne was the first to establish the transmissibility of this zöogenous disease to the human family through the milk of diseased cows and its transmissibility by direct contact is well-known to veterinary surgeons. It is hardly possible, however, that the cattle of Europe are so generally affected with the disease as to cause any wide spread of it in human beings. Professor Virchow and a committee of the Berlin Medical Society are investigating the local outbreak.

**Health Reports.**—The Supervising Surgeon-General of the Marine-Hospital Service has received the following health reports:

#### SMALLPOX—UNITED STATES.

Arkansas: Little Rock, February 1 to March 8, 82 cases; 14 deaths; Hollywood, Clark County, March 8, 1 case, 1 death.

Louisiana: New Orleans, March 2 to 9, 2 cases.

Michigan: March 1 to 9, smallpox reported at Detroit, Grand Rapids, Highland Park and Three Rivers; one case of suspected smallpox at Ypsilanti.

Ohio: Cincinnati, March 8, 12 cases, March 8 to 15, 3 cases, 1 death; Lima, March 1 to 8, 1 case, 1 death.

Illinois: Cairo, March 11, 1 case.

Tennessee: Memphis, March 13, 1 case, 1 suspected case.

Texas: Fort Worth, March 2 to 9, 4 cases; Marshall, March 13, 1 case.

Wisconsin: Dover, March 2 to 9, 4 cases; Milwaukee, March 2 to 9, 7 cases, 2 deaths.

#### SMALLPOX—FOREIGN.

(Reported by U. S. Consuls).

Arabia: Aden, January 26 to February 9, 2 cases.

Belgium: Brussels, February 16 to 23, 1 death.

Holland: Rotterdam, February 23 to March 2, 13 cases, 3 deaths.

Ireland: Dublin, February 16 to March 2, 166 cases, 11 deaths.

Gibraltar: February 17 to 24, 1 case.

India: Calcutta, January 26 to February 2, 43 deaths.

Italy: Naples, February 16 to 23, 2 cases, 2 deaths.

England: Leeds, February 23 to March 2, 1 case; Liverpool, February 23 to March 2, 3 cases 1 death; London, February 16 to 23, 75 cases, 1 death.

Russia: Moscow, February 9 to 16, 2 cases 2 deaths.

Scotland: Edinburgh, February 16 to 23, 1 case, 2 deaths; Glasgow, February 16 to 23, 40 cases.

#### CHOLERA.

Ceylon: Colombo, January 26 to February 2, 8 cases, 8 deaths.

India: Calcutta, January 26 to February 2, 28 deaths; Madras, February 2 to 8, 4 deaths.

Austria-Hungary: Galicia, (4 political districts) February 4 to 10, 11 cases, 7 deaths.

Russia: Petrikov Gov't., January 13 to 19, 2 cases, no deaths; Radow Gov't., January 6 to 19, 5 cases, 4 deaths; Suwalki Gov't., January 13 to 19, 8 cases, 7 deaths; Kurland Gov't., December 30 to January 12, 27 cases, 14 deaths; Podolia Gov't., January 13 to 19, 69 cases 37 deaths; Taurien Gov't., January 6 to 12, 26 cases, 19 deaths; Minsk Gov't., January 6 to 12, 5 cases, 3 deaths; Kursk Gov't., January 6 to 12, 3 cases, 3 deaths; Saratov Gov't., January 6 to 12, 3 cases, 1 death.

Turkey: Constantinople, January 29 to February 4, 46 cases, 22 deaths.

#### YELLOW FEVER.

Ecuador: Guayaquil, February 15 to 22, 2 deaths. The Consul-General at Guayaquil writes that "of the seven or eight men of ships' crews dying within the last ten days, none are reported as having died of yellow fever, while the common apprehension is that they all died of that pest. The ports of Peru are quarantined against Guayaquil."

Cuba: Havana, month of February, 4 deaths; March 1 to 7, 5 cases.

Under date of Jan. 18, 1895, the United States Consul at Amoy, China, reports the following relative to the existence of the plague in Amoy: "Several times last summer during the prevalence of the plague in Hong Kong and Canton, rumors came to me that isolated cases were occurring in Amoy. In every instance, however, prompt inquiry of the medical officers of the port, Dr. MacDougall and his assistant, Dr. Wingate, elicited the assurance that no cases of the plague were encountered by them, either in their general practice or in their Chinese hospital, and besides they had kept out a standing offer of a considerable reward for any such diagnosed by a foreign surgeon. But on January 5, I received official notification of the existence of the plague in Amoy, a limited number of cases having occurred. Some of these cases speedily terminated fatally; but the arrival of a Cantonese doctor was followed by good results in saving a large proportion of the patients; and in fact it is now said there are now no cases left in the town. I understand that the disease has made its appearance in the interior towns and villages to the north and west of this port, but of this I am wholly without reliable information."

The following letter has been received from Acting Assistant Surgeon L. P. Gibson, M.-H. S., at Little Rock, relative to smallpox at Hot Springs and vicinity:

"I have the honor to report as follows concerning smallpox in this State: At Hot Springs, the Secretary of the State Board of Health reports that there have been 115 cases and 26 deaths up to date. At Malvern, 4 cases, no deaths; at Donaldson, 4 cases, no deaths; At Hollywood, 1 case, no deaths. The disease has appeared at Brinkly, Ark., the crossing of the L. R. & Memphis with the St. Louis & Northwestern R'y. There are 4 cases with no deaths thus far. The large increase of cases at Hot Springs for the week does not represent the actual number of new cases for that period. A number of them are cases that existed before, but were not discovered. All the cases in this State are traceable to the same source of contagion, Hot Springs.

"Little Rock, Ark., March 16, 1895."

#### ADDITIONAL REPORT OF SMALLPOX.

England: London, February 23 to March 2, 68 cases, 1 death.

Scotland: Edinburgh, February 23 to March 2, 9 cases, 2 deaths.

Russia: St. Petersburg, February 9 to 16, 9 cases, 3 deaths.

#### ADDITIONAL REPORT OF SMALLPOX IN UNITED STATES.

Ohio: Columbus, March 9 to 16, 1 case.

## BOOK NOTICES.

**Suggestions to Hospital and Asylum Visitors.** By JOHN S. BILLINGS, M.D., and HENRY M. HURD, M.D., with an introduction by S. WEIR MITCHELL, M.D. Philadelphia: J. B. Lippincott Co. 1895. Price 50c.

An excellent book of conundrums which hospital visitors should propound to themselves on visiting hospitals, the answers to which are to be found in the conditions as they exist. Notwithstanding that the book has been compressed



into 48 pages, it seems to cover all the points necessary for hospital inspection. The book should be read by hospital stewards, hospital matrons, nurses, and internes, as well as by hospital visitors.

**A Manual of Bandaging**, adapted for self-instruction. By C. HENRI LEONARD, A.M., M.D. Professor of the Medical and Surgical Diseases of Women, and Clinical Gynecology in the Detroit College of Medicine. Sixth edition, with 139 engravings. Cloth, octavo, 189 pages. Detroit, Mich.: The Illustrated Medical Journal Co., Publishers. Price, \$1.50.

This is the sixth edition of this book, and is well worth examination and a place in one's library. The explanatory cuts are numerous, and the text lucid.

**The Anatomy of the Nasal Cavity and its Accessory Sinuses.** An Atlas for Practitioners and Students. By DR. A. ONODI. Translated from the Second Edition by ST. CLAIR THOMPSON, M.D., London, F.R.C.S. London: H. K. Lewis. 1895. Small quarto.

This book consists of a set of plates which show the topographical relations of the nasal cavity and its accessory sinuses. They represent sections made in different directions and photographic reproductions. The anatomic preparations were made in the laboratories of Mibalkovics and von Thanoffner in Buda-Pesth. The plates from 1 to 14 are extremely valuable. The rhinologists can scarcely afford to be without a copy of these exquisite plates. They are very instructive for general practitioners and students, as well as for specialists. We can not speak for plates Nos. 15 and 16, as by some inadvertence they have been omitted from the copy sent to the reviewer.

**A New Surgical Work.** A System of Surgery, edited by FREDERIC S. DENNIS, M.D., and JOHN S. BILLINGS, M.D.

This work is announced by Lea Brothers & Co. as shortly to appear, in three imperial octavo volumes. The list of contributors embraces the names of W. T. Bull, Charles McBurney, and Robert F. Weir, of New York; Councilman, Porter, Richardson, and Warren, of Harvard; Carmalt, of Yale; Keen, White, Roberts, and Wharton, of Philadelphia; Welch, of Baltimore; Park, of Buffalo; Conner, of Cincinnati; Mudd, of St. Louis; and Senn, of Chicago.

**Edwards' Hygiene with Anatomy and Physiology**, Being an Amplification of Edwards' Catechism. By JOSEPH F. EDWARDS, A.M., M.D. Intended for Schools and General Reading. Published by Edward B. Slavin, New York. No date.

It is a great pity that in a book designed for public schools the illustrations should not be more accurate than is the case with most of those in this book. The perspective of the picture on page 8, showing the disposal of organic matter, is bad; and the triangular liver, three-cornered heart and variously shaped intestines in another place would cause the ghosts of Vesalius and Gray to rise from their environment. Extremely ludicrous is the picture of a pugilistic encounter on page 45. Some of the schemes and diagrams are much better, but there certainly can be no excuse for the one on page 121. The text of the book is interesting, if somewhat allegorical and after the manner of fables wherein the good children are always rewarded and the bad are horribly punished. As a work of hygiene we have no hesitancy in recommending the general principles it teaches; as a work of art it is a lamentable failure, and we sincerely trust if the book reaches the dignity of a second edition the author will induce the publisher to have it more appropriately illustrated.

**Text-Book of Chemistry.** Intended for the Use of Pharmaceutical and Medical Students. By SAMUEL P. SADTLER, Ph.D., F.C.S., and HENRY TRIMBLE, Ph.M. Philadelphia: J. B. Lippincott Company. Pages, 950 octavo. 1895. Price \$5.

This book is of a much higher order of chemistry than is usually supplied to students and seems to be well calculated

for the uses and purposes of practical chemists. As a text-book for the use of medical students, it would perhaps be more convenient if the questions had been added as in some of the other works on chemistry, in order that the student might be able to grasp the full meaning and purport of the technical propositions contained in the text. Part I gives a brief outline of elementary physics. Parts II and III describe the elements as divided into non-metals and metals. Part IV deals with organic chemistry. Part V gives a brief outline of qualitative and quantitative analysis, and here original methods are described. A number of assays of the U. S. Pharmacopœia are also added. This book is one of the highest practical character, and while there is a good deal in it that the student of medicine will not particularly need in after life, yet it is well to have once known the methods of mineralogical analysis, even if it shall only serve as convenient pegs of memory on which to hang correlated scientific theories. For pharmacy students and chemists it leaves nothing to be desired.

**Elements of Pathologic Histology with Especial Reference to Practical Methods.** By DR. ANTOINE WEICHELBAUM, Professor of Pathologic Anatomy and Director of the Institute of Pathologic Anatomy in the University of Vienna. Translated by W. R. DAWSON, M.D., Demonstrator of Pathology in the Royal College of Surgeons, Ireland, etc., with 8 plates and a large number of illustrations in the text, some of which are colored. London: Longmans, Green & Company. 1895.

This book has been divided into chapters, English fashion, by the translators, and we find thirteen of them as follows: Chapter I follows an introduction of nine lines, and is devoted to histologic methods of investigation. Chapter II is divided into bacteriologic methods of investigation. Chapter I is divided into three parts, and Part II into six chapters covering the general pathologic histology as follows: 1, Retrograde Changes in Tissues; 2, Progressive Tissue Changes, Inflammation, Infective Granulation Tissue, Tumors; 3 and 4, Tumors or new Formations; 5, Parasites, which includes vegetable parasites, under which heading the Bacteria are included. Chapter VI, Animal Parasites, which includes the protozoa, sporozoa, infusoria, cystoides, trematoides, pneumatoides and arthropoda. Part III, Special Pathologic Histology, divided into thirteen chapters: I, The Blood; II, Circulatory Apparatus; III, The Spleen, Lymphatic and Thyroid Glands and Suprarenal Capsule; IV, Digestive Apparatus; V, Liver, Bile Ducts and Pancreas; VI, Respiratory Apparatus; VII, Urinary Apparatus; VIII, Generative Apparatus; IX, Nervous System; X, Organs of Locomotion; XI, Skin; XII, Eye; XIII, Ear.

The book is beautifully printed; the paper is excellent; the illustrations all that could be desired. The book contains the latest investigations on the subject of which it treats and will repay the most careful study. The photographs of various bacteria, which are shown at the end of the volume, are extremely handsome.

**Manual of Chemistry.** A Guide to Lectures and Laboratory work for Beginners in Chemistry. A Text-book specially adapted for Students of Pharmacy and Medicine. By W. SIMON, Ph.D., M.D., Professor of Chemistry and Toxicology, College of Physicians and Surgeons, Baltimore; Professor of Chemistry in the Maryland College of Pharmacy. New (fifth) edition. In one octavo volume of 502 pages, with 44 engravings and 8 colored plates illustrating 64 of the most important chemie tests. Philadelphia: Lea Brothers & Co. 1895. Cloth, \$3.25.

The fifth edition of this well-known text-book has been prepared with great care, and the changes and additions made were necessitated by the desire of the author to bring the work into close relation with the new Pharmacopœia. The author has not altogether followed the orthography recommended by the Chemie Section of the American Association for the Advancement of Science because, as he states:

"Neither the leading chemical journals nor the U. S. Pharmacopœia have used the spelling." The first part of the work considers the fundamental properties of matter. The second treats of the theories of atomic constitution. The third and fourth, of the consideration of non-metallic and metallic elements and their compounds. The fifth is devoted to analytical chemistry and is also intended to serve the student as a guide to laboratory work. The sixth treats of organic chemistry. The seventh and last parts are devoted to physiologic chemistry. We note with pleasure that the decimal system has been strictly adhered to in all weights and measures, and that the degrees of temperature are expressed in the same system. There are eight colored plates showing the compounds of various metals, benzene derivatives, reactions of the alkaloids, the urine and test for its constituents. The colorings have been very accurately represented and add very greatly to the value of the work. We commend this book to our readers.

**Suggestive Therapeutics in Psychopathia Sexualis**; with Especial Reference to Contrary Sexual Instinct. By DR. A. VON SCHRENCK-NOTZING (Munich, Germany). Authorized translation from the German by CHARLES GILBERT CHADDOCK, M.D., Professor of Diseases of the Nervous System, Marion-Sims College of Medicine, St. Louis; member of the American Medico-Psychological Association; Attending Neurologist to the Rebekah Hospital, St. Louis, Mo., etc., etc. One volume, royal octavo, 325 pages. Extra cloth, \$2.50 net; sheep \$3.50 net. Sold only by subscription to the medical profession exclusively. Philadelphia: The F. A. Davis Co.

The translator says the favorable reception given Von Kraft-Ebing's "Psychopathia Sexualis" induced him to undertake an English version of the work by Dr. A. Von Schrenck-Notzing. The views for which the latter contends are able and are in striking contrast with those held by Kraft-Ebing, and for that reason deserve to be placed in English by the side of Psychopathia Sexualis. The author is a firm believer in the efficacy of suggestive therapeutics and hypnotic treatment in the cases of sexual pervers, paræsthesia and impotence. The author on page 302 gives a summary of results in thirty-two cases, which may be arranged as follows:

Failures . . . . .	5	=	15.625	percent.
Slightly improved . . . . .	4	=	12.5	" "
Essentially improved . . . . .	11	=	34.375	" "
Cured { with later report . . . . .	15	}	12 = 37.5	" "
{ without later report . . . . .	2			
Total . . . . .	32		100	" "

Of twenty-three patients, five were not amenable to hypnosis; eight passed into somnambulism, thirteen into hypotaxis, and three became only somnolent. In three cases the degree of susceptibility is not given by the authors. More than one-third of the cases were completely cured, and in ten of these it was possible to determine by later observation that the cure was persistent. In several cases the period of observation extended over a year; indeed Kraft-Ebing observed one case for two years, and I had the opportunity of watching a discharged patient two years and seven months. Four other patients were kept under observation more than a year, and a somewhat larger number longer than six months.

There is added to this book an appendix which was prepared for the English edition October, 1894, and which has been translated from this manuscript by Dr. Chaddock. In this appendix the facts are confirmed and the theories of the author seem to be well sustained.

The publisher deserves commendation for confining the sale of this book exclusively to the members of the medical profession.

**Transactions of the Royal Academy of Medicine in Ireland.** Edited by WM. THOMPSON, M.A., F.R.C.S., General Secretary. Dublin: Fannin & Company. 1894.

These transactions contain the usual arrangement of the

general rules of the Academy, list of officers, members, student associates, annual reports, and the like. It is then divided into six sections. Section of Medicine, which contains eleven papers. Section of Surgery, containing ten papers. Section of Obstetrics, eight papers. Section of Pathology, seven papers. Section of State Medicine, two papers, and Section of Anatomy and Physiology, seven papers. These last papers are followed by reports of collective investigations in the anatomic department of Trinity Medical College and in the anatomic department of Catholic University Medical School.

These collective investigations are anatomic, and the first is on the point of bifurcation of the abdominal aorta. The following results were given at Trinity College: 74.5 per cent. of the total number bifurcated at the fourth lumbar vertebra; the next place of frequency was on the intervertebral disc between the fourth and fifth lumbar vertebrae, the percentage being 19.2, while in 4.2 per cent the aorta bifurcated on the fifth lumbar vertebra, only 2.1 per cent. on the intervertebral disc, between the third and fourth lumbar vertebrae.

In males the taller the subject, the greater the tendency of bifurcation at the lower level; but in females the tendency, if any, is in the opposite direction.

At the Catholic University Medical School, out of twenty-two subjects examined, the aorta divided in fourteen on the body of the fourth lumbar vertebra, slightly to the left of the median line. Of the remaining eight, seven were opposite the intervertebral disc between the fourth and fifth lumbar vertebrae, and one between the third and fourth.

Another collective investigation was taken as to the level of termination of the spinal cord, and considered regardless of sex, the Trinity Medical School found that in 65 per cent. of all subjects, the cord terminated at some point on the first lumbar vertebra. In the separate examination of sexes, it was found that in males by far the greater number of cords ended on the first lumbar vertebra, while in females the cord has a distinct tendency to encroach on the second lumbar vertebra. In 52 per cent. of the female subjects the cord ended on the second lumbar vertebra, and in 48 per cent. on the first.

Mr. Roughlan, at the Catholic University Medical School, reports having examined nine subjects, in four of which the cord ended at the disc between the first and second lumbar vertebrae, in two at the junction of the middle and lower third of the first lumbar vertebra, in two at the junction of the middle and lower third of the second lumbar vertebra, and in one case at the lower end of the second lumbar vertebra.

Another investigation was made of the presence of the palmaris longus, plantaris and pyramidalis muscles, and the Trinity School found, in examining seventy-eight arms, the palmaris longus in 88.45 per cent. In 11.34 per cent. it was not represented. Considering right arms, it was present in 92 per cent.; absent in 7.9; whereas in left arms it was found in 86 per cent., and wanting in 15 per cent. from which, says the reporter, "it would seem to be more frequently absent on the left side." The plantaris was investigated in seventy-three legs, and found to be present in 93.15 per cent. No preference was shown for either side. In 7 per cent. there was scarcely any muscular belly. In one leg the tendo Achillis was three inches above the insertion. The pyramidalis abdominis was examined in forty-three subjects and found to be equally developed on the right and left sides. It was present in 60.47 per cent., and absent in 39.53 per cent. On the other hand, in females it was only present in 58.4 per cent., and absent in 41.5 per cent. The whole tendon shows the muscle is becoming extinct, this being more marked in the female sex.

It is curious to note the close correspondence of the examinations made in the Catholic University Medical School, which may be fairly said to be the "control" experiment. In thirty-four arms examined, the palmaris was present in 88.82 per cent. As will be seen above, this varies 42 per

cent. from the Trinity Medical School observations. In thirty-four legs examined, the plantaris was present in 97 per cent. The pyramidalis abdominis was present on both sides in 85.7 per cent.; present on one side in 7.2 per cent., and absent on both sides in 7.2 per cent. of the cases. Present on both sides in nine males. In five females it was absent once, and absent on one side once.

There are very many interesting papers in this volume, and the book will well repay careful study. The paper of Dr. Flynn, D.P.H., on "Recent Developments in the Study of Medicine" is worthy of careful perusal. It has especial reference to State inspection of industries and unhealthy areas, and in connection with notification of registration he quotes our Dr. Hewitt, of Minnesota, with approval.

**The Aseptic Treatment of Wounds.** By DR. C. SCHIMMELBUSCH, with a preface by PROFESSOR BERGMANN; translated from the second German edition by ALFRED THEODORE RAKE, M.B. Crown 8vo., pages 266. London: H.K. Lewis. 1894. Price \$1.25.

Dr. Schimmelbusch is the assistant of Dr. Von Bergmann at Berlin, and during the Tenth International Medical Congress many of our readers will remember the appliances for the sterilization of dressings which were there exhibited by Dr. Schimmelbusch under the direction of Professor Bergmann. There are sixteen chapters in the book, divided as follows: I, The Importance of the Aseptic Treatment of Wounds; II, Infection by the Air and by Contact; III, The Material Causes of Wound Infection; IV, Disinfection; V, Disinfection of the Surface of the Body; VI, Sterilization of Metal Instruments; VII, Aseptic Dressings; VIII, Aseptic Sutures and Ligatures; IX, Aseptic Drainage of Wounds; X, Aseptic Sponges; XI, Aseptic Use of Hypodermic and Aspirating Needles; XII, Aseptic Principles Applied to the Passage of Catheters and Bougies; XIII, Sterilization of Fluids for Washing and Irrigation; XIV, Operating in Sick Rooms; XV, Aseptic Operations and Wound Treatment; XVI, Improvisation of Aseptic Dressings for Emergencies and Treatment of Injuries. A rather extensive bibliography and a copious index conclude the volume.

With reference to the sterilization of catgut ligatures, the author says (page 119): "Von Bergmann has catgut treated with a 1 per cent. solution of perchlorid of mercury in 80 per cent. alcohol. The treatment lasts at least forty-eight hours and preferably longer. Catgut is placed in a mixture of sublimate and alcohol, which at first becomes cloudy and must be changed until it remains quite clear; it is afterward kept in ordinary alcohol. Experiments have lately been made with a view to making use of the high disinfectant powers of heat in the disinfection of catgut. For this purpose, steam and boiling water are quite out of the question, for in a few minutes under either, catgut swells up into a formless tangle and is converted into glue. The addition of strongly corrosive substances to the water, such as sublimate, chromic, or carbolic acid makes no difference as the author's experiments show. On the other hand, hot air can be used for sterilizing catgut. . . The catgut is heated for three hours up to 140 C. in a well-regulated, hot air sterilizer; in spite of the great heat the gut keeps its elasticity and firmness." The author thinks, however, that to obtain good results from hot air alone, it is necessary that a temperature of 140 C. should be reached very gradually, and it takes some hours. Moreover, the water must be extracted from the gut by previous immersion in alcohol. If the gut be placed in xylol, it can be brought to 140 much easier. The author gives numerous experiments and concludes by saying that, "in the Royal Clinic at Berlin, the old method of treating catgut with sublimate has been retained."

The details are as follows: 1, a glass receptacle is sterilized for three-quarters of an hour in steam; 2, the threads of catgut are wound upon glass reels or plates, as the case may be; 3, if the gut contains fat, the fat is removed by allowing it to lie in ether for twenty-four hours; 4, after the

ether has been poured off the gut is allowed to lie in an alcoholic solution of sublimate of the following composition:

Sublimate . . . . .	10
Absolute alcohol . . . . .	8
Distilled water . . . . .	200;

5, the solutions are renewed every twenty-four hours, and again every forty-eight hours. This part of the process must last not less than forty-eight hours; 6, the gut is removed from the sublimate solution and placed in alcohol, which should be absolute if but stiff gut is required, or diluted with not more than 20 per cent. of glycerin for a softer form of gut. Sublimate may be added as in the fourth stage of the process if desired; the vessels must be kept well closed. This method is easy to carry out even on a small scale."

This book is destined to meet with a warm reception in the United States, and we are sure that there is need for a handbook of this character at this time.

#### Periodicals.

**MEDICINE.**—A new medical journal will be started in Chicago within a few days. It will succeed the *Western Medical Reporter* which is to be suspended. The journal is to be a high class monthly entitled *Medicine*, under the editorial management of Dr. Harold N. Moyer, and a competent staff of assistants. Mr. George S. Davis, of Detroit, is the publisher. The new enterprise was launched on March 20 at an excellent dinner given by Dr. Moyer and Mr. Henry G. Furber to Mr. Davis. There were present the representatives of the medical press of Chicago, the members of the editorial staff of *Medicine* and the editor of this JOURNAL. All present wished the new venture success.

**ANNALES D'OCULISTIQUE.**—This interesting periodical founded by Florent Cunier, fifty-eight years ago, continued by Worlomont, and at present edited in Paris by Dr. E. Valude and Dr. D. E. Sulzer, (French edition) now has an American edition edited by Dr. George I. Stevens, which is an exact reproduction of the French edition published in Paris.

**THE PETERSON MAGAZINE.** New York: Penfield Publishing Co.—This magazine for March is one of the most profusely illustrated periodicals that finds its way to our sanctum. The physician's reception room table can have no more entertaining magazine than the *March Peterson*.

## NECROLOGY.

**MATTHEW DICKINSON FIELD, M.D.**, of New York city, died March 8, aged 42 years. He was a member of the famous family of Fields, hailing from western Massachusetts, he being nephew to both Cyrus W., and David Dudley, of that name; his own father was a civil engineer. He was educated in arts at Williams College, in medicine at Bellevue Hospital Medical College and then served as an interne. Three years after graduating, in 1882, he was appointed an expert in lunacy at the insane pavilion of that hospital, and in that capacity he had thousands of warped minds and suspects pass under his examination. He was early attached to the surgical staff of the Manhattan Elevated system, and later became the chief surgeon of the railway. He was a frequent expert witness in the courts, in cases where the for a time fashionable plea of insanity was in vogue for the liberation of criminals, as well as in the damage cases against corporations. He was married to Lucy Atwater about ten years ago, and she with two children survive him. He was a member of the Medico-Legal Society, of the Academy of Medicine, of the Society of Medical Jurisprudence, of the Alumni Society of the Bellevue Hospital Medical College, of the Neurological Society and of the County Medical Association. He was also a lecturer at the Bellevue Hospital Medical College. His final ill-health and demise were referable to renal disease, with cardiac complications, that had incapacitated him for professional work since last October. Interment took place at Stockbridge, Mass.

**G. W. SAMPSON, SR., M.D.**, pioneer of the Sandusky Valley, died at Tiffin, Ohio, at the age of 93 years. He practiced

for sixty years, and was president of the first medical convention in Ohio.

A. A. COLLIER, M.D., of Trenton, Mo., March 14, aged 65 years.—James T. Hester, M.D., of Athens, Ga., March 12, aged 53.—R. O. DuBois, M.D., of New York, March 9, aged 36.—John H. Ellis, M.D., of Chillicothe, Mo., March 10.—Mary Jane Lane, M.D., of Webberville, Mich., March 10.—Thomas Gann, M.D., a prominent physician of Jamestown, Ky., March 15.

## SOCIETY NEWS.

**Chicago Ophthalmological and Otological Society.**—The regular meeting was held at the Saratoga Hotel, Feb. 12, 1895, Dr. GRADLE in the chair. There were twenty-eight members in attendance.

The minutes of the last meeting were read and approved.

DR. WILLIAMS reported nine cases of cataract operated on from 1879 to 1888, in which a stitch was taken through the conjunctiva in order to close the corneal wound. These cases demonstrated that the eye is very tolerant of such sutures. In every case the results were good.

DR. BETTMAN said that Fuchs had tried them but had given them up. Their use is now being advocated in France in simple extraction, in order to prevent prolapse of iris and astigmatism, the stitches being put through the corneal tissue.

DR. COLEMAN had tried them and would always advocate them to prevent prolapse of vitreous.

DR. MEYER read an essay on "The Evidence for the Localization of the Visual Centers."

Society adjourned by limitation. C. P. PINCKARD, Secretary.

**The American Climatological Association** will hold its next meeting at Hot Springs, Va., June 13, 14 and 15, 1895. This time was chosen to accommodate members of the Laryngological Association, which meets in Rochester the beginning of the following week. Members desiring to read papers on this occasion will please send the titles as soon as possible to the President, Dr. S. E. Solly, Colorado Springs, or to the Secretary.

J. B. WALKER.

1617 Green Street, Philadelphia.

**The Ohio State Medical Society** will hold its fiftieth annual convention at Columbus, Ohio, May 15-17. It is intended to organize a special committee on medical legislation based upon county representation. The program is one of high scientific value, and a large attendance is expected. The officers are as follow: President, D. N. Kinsman; Secretary, Thos. Hubbard, Toledo; Treasurer, J. A. Duncan.

## MISCELLANY.

**A Theme for Mr. Ernest Hart.**—There were seventy-eight suicides in the city of Chicago during the first seventy-eight days of the present year. The JOURNAL is prepared for the inevitable "wishy-washy everlasting flood" of moralizing and predictions of rapid depopulation of what Mr. Ernest Hart is pleased to style "Porkopolis."

**Pean's Work in Abdominal Surgery.**—During the years 1889 and 1890, 2,200 patients were treated by Professor Pean in his service at the Hospital St. Louis, and more than a thousand were operated on. The number of deaths directly attributable to the operations was seven. From 1864 to January 1, 1892, M. Pean removed 2,100 tumors of the abdomen and pelvis. Of the 585 new operations performed, 47 alone were unsuccessful.

**Yellow Fever Martyrs.**—Dr. H. R. Stout, of Jacksonville, Fla., asks to correct a statement recently made in a New York journal, to the effect that a certain physician of the former

place was the only one who remained during the yellow fever epidemic of 1888. Dr. Stout says: "All the physicians of the city, with one exception, remained here, and not only that, but most of us had the disease, and four of our number laid down their lives serving their fellow men."

**The Profession in England.**—According to the Medical Directory for 1895 there are 26,790 physicians in the United Kingdom, of whom 21,055 are in England, 3,224 in Scotland and 2,511 in Ireland, or a mean of one doctor for 1,240, 1,280 and 1,875 of population respectively. If we add the members of the profession in the Army, Navy and Indian Medical Services we have a total of over 32,000. London has 5,742 practitioners, or one to every 830 inhabitants, while in Paris the number is only 2,237, one to every 1,100 inhabitants.

**Action of Iron on the Organism.**—Rosendahl (*Eira*) has often observed that subcutaneous injections of iron salts in frogs causes gastro-enteritis. The results of his experiments seem to show that the iron salts of the pharmacopoeia are not assimilated by the alimentary canal of man or mammals if this tube is in a normal condition. After their administration by the mouth they can not serve as material for the elaboration of hemoglobin, nor directly influence it. For the treatment of chlorosis homol, homogallol or ferratin are much superior to the preparations of iron in use at present. These new remedies may be destined to replace the latter, for the principal object of treatment of chlorosis is to increase the strength of the blood in hemoglobin.

**Liability of Railways for Surgeon's Malpractice.**—A comparatively new question which the courts are having to settle is that with regard to the extent to which a railway company that maintains a "medical department" is liable for the negligence of its physicians and surgeons. In a recent case where this question was raised, it did not appear that the company was under any obligation by contract to furnish surgical and hospital accommodations for its injured employees, and so far as was shown, its doing so was wholly voluntary. Nor were its employees under any obligation to avail themselves of the facilities for treatment offered, and paid nothing for them when accepted. That the company maintained its medical department for its own advantage and not for charitable purposes only, the Supreme Court of Iowa holds (*Eighmy v. Union Pacific R'y Co.*, decided Jan. 28, 1895, 61 N. W. Rep. 1056) might be presumed, but that did not alter what appeared to be the fact, that it was not maintained to discharge any statutory or contractual obligations. Its duty, under the circumstances, was to select a reasonably competent man for surgeon, and it was liable only for a neglect of that duty and not for any negligence or malpractice of the latter. And in performing such duty, it was bound only to the exercise of reasonable care and diligence.

**Some Things a Physician can Testify To.**—A physician was permitted in a personal injury case, to describe the condition in which he found the plaintiff, giving both subjective and objective symptoms at the time when the latter became his patient, a year and a half after the accident happened. This was objected to. But the Supreme Court of Wisconsin holds, (*Block v. Milwaukee St. R'y Co.*, decided Feb. 5, 1895, 61 N. W. Rep. 1101) that so far as his testimony related to the seriousness of the injury, this was competent. Nor was it liable to the objection that it was hearsay. So far as the knowledge of plaintiff's condition was derived from plaintiff's statements to him as a medical man for the purpose of receiving advice and treatment, the testimony was not incompetent for that reason. It was also stated as an error that the doctor was permitted to testify that plaintiff's condition, as he found it, could have been produced by contact with a wire heavily charged with electricity. And again the court holds that the testimony was both relevant and competent. The doctor was also permitted to give his opinion of the "reasonable probability" of the plaintiff's ultimate recovery from



his injuries. Of this the court says that while it was true that the whole testimony must establish, in the minds of the jury, more than a mere "reasonable probability," and must amount to proof to a "reasonable certainty," this ultimate fact was susceptible of proof by items of testimony which did not, separately, fully establish it. The phrase "reasonable probability" was equivocal. It was for the jury to give force to the doctor's testimony in accordance with the intention of the words used, rather than with a strict or technical definition of the words. This was not error.

**Prophylaxis of Ophthalmia Neonatorum.**—In a recent communication to the Obstetrical and Gynecological Society of Paris, Budin recommends the use of a solution of argentic nitrate, 1 to 150, for the prophylaxis of the ophthalmia of the new-born.—*L'Union Medicale*. He divides the disease into two categories from a clinical point of view—primary and secondary. The former occurs on the second or third day after birth; it is very grave if not attended to immediately. The secondary ophthalmia, occurring from the tenth to the twelfth day after birth, is less grave. Primary ophthalmia is most often due to the gonococcus or the bacillus of Weeks; secondary ophthalmia, to the streptococcus, staphylococcus or pneumococcus. Prophylactic measures are of two sorts: First, hygienic surroundings and exclusion of all contagious diseases—erysipelas, whitlow, conjunctivitis, etc.; second, the washing of the child's eyes as soon as possible after birth with an antiseptic. Crede's method—nitrate of silver, 1 to 50—is the best known. Other solutions used are sublimate—1 to 5,000, carbolic acid, 2 per cent., lemon juice, iodoform, etc. M. Budin, having noticed that Crede's solution often caused swelling of the eyelids and excessive lachrymation during the first few days, employed a solution diluted to one-third—1 to 150. Of 2,004 children treated thus, 2 had cases of primitive ophthalmia. The author recommends that midwives should be compelled to use this means, which entails little trouble.

**Medico-Literary Items.**—The author of the much quoted sketch "The Country Practitioner," has hitherto borne the pen-name of Ian MacLaren. His real name is Watson, the Rev. John MacLaren Watson. He is an eloquent preacher, a hard worker and a genuine Scotsman. He has published a volume of short stories under the title "Beside the Bonnie Brier Bush."

Ginn & Company, New York, will soon publish Daniel De Foe's *Journal of the Plague Year*, or as it is sometimes called, "The History of the Plague of London."

Dr. William H. Thomson will publish through the house of Harpers a religious work "The Parables and their Home: The Parable by the Lake."

Dr. Conan Doyle has been engaged to write a series of historical stories for the *London Strand*. He has chosen the title, "The Adventures of Brigadier Gerard," he being the modern presentment of a cavalry officer of the Old Guard of Napoleon. The last book issued by Dr. Doyle bears the title "Round the Red Lamp, being Facts and Fancies of Medical Life." These stories have not received the same favorable comment from the reviewers that was won by several of his earlier books. One critic says of the later stories that they are always morbid, pessimistic, and that when they happen to be optimistic, they are not exciting.

The number of new books on medical science and hygiene produced in 1894 was 140, new editions 21; this being a smaller number of new books than for 1893. Of this number, 161, there were 145 written by American authors. Fourteen were by English authors, imported in sheets and bound in the United States.

James R. Cooke, of Boston, an Eclectic medicine man, has published a book of nearly four hundred pages on "Hypnotism," claiming to have hypnotized 1,300 persons.

A recent book by Dr. S. Wier Mitchell, "When all the Woods are Green," tells the story of a party of pleasant folk who went salmon-fishing on one of the Canadian rivers.

Dr. Arabella Kenely of London, the author of a medical fiction called "Dr. Janet of Harley Street," has a new work, "Some Men are Such Gentlemen."

It is not generally known that the late Lieut. Frederick

Schwatka, U. S. A., was a medical man as well as explorer, author and lecturer. But such was the fact, he having graduated from Bellevue Hospital Medical College in 1876.

The Appletons have produced Quatrefage's second volume in his Anthropological Series, "The Pygmies." The translation is by Professor Frederick Starr. The author has here gathered all the latest facts regarding the small black races of Africa.

**The Bacteriologic Laboratory of the Harvard Medical School.**—(Prof. H. C. Ernst in *Harvard Graduates Magazine*, March, 1895.) Believed to be the first of its kind in this country in connection with undergraduate instruction, yet it is only nine years since the first lectures were given in it to medical students. Since then no year has passed without an enlargement, either of the laboratory or the scope of its instruction. Its primary function is to teach medical students. In the latter part of the first year there is a required course of lectures and laboratory work, and an examination follows. This course is brief, practical and covers rudiments needed for every practitioner. In the fourth year there is an elective course extending over half the year, and this is more extensive. A second function of the laboratory is the training of specialists giving advanced instruction, and encouraging original investigation. This function is fulfilled by a summer course of six weeks for practitioners and by two courses for graduates during the winter. The third function is the guidance of measures which affect the general public in connection with boards of health. The best example of this is the proved necessity for a bacteriologic diagnosis of diphtheria. The methods for this are simple but require special training and a well-equipped laboratory. The most promising and important research thus far carried on in the laboratory is that of the late Dr. S. C. Martin, whose death arrested his work at its most critical stage. It was an effort to isolate and cultivate the contagium vivum of cowpox with the intent of substituting this for the ordinary vaccine virus. This work was left at such a point that it seems as if money alone were needed for its accomplishment. Important original work is now being carried on by several investigators. It is probable that at least 12,000 examinations for diphtheria will be made during the present year. The Board of Health of Boston has appointed the head of this laboratory to take charge of the work of production of the antitoxin for diphtheria and to be responsible for the efficiency and accuracy of the work.

#### Society Notes.

**THE MEDICAL ASSOCIATION OF GEORGIA** meets in Savannah, Ga., on April 17, 18 and 19, 1895; officers elected are: President, W. F. Westmoreland, Atlanta, Ga.; Vice-Presidents, R. H. Taylor, Griffin, Ga.; W. Tate, Tate, Ga.; Treasurer, E. C. Goodrich, Augusta, Ga.; Secretary, D. H. Howell, Atlanta, Ga.

**THE ILLINOIS STATE MEDICAL SOCIETY.**—The annual meeting will be held the third Tuesday in May, 21 to 23. The annual dinner will be an interesting feature of the occasion. Although this is the forty-fifth meeting of the society, it is the first attempt to gather together the members at an annual feast. The well-known custom of the Massachusetts Medical Society is intended to be followed. Railroad rates have been applied for.

#### Hospital Notes.

At a meeting of the executive committee of the Johns Hopkins Hospital held in Baltimore, March 12, Dr. H. C. Parsons was appointed assistant resident physician, and Dr. Theobald Coleman, assistant resident surgeon.—The cornerstone of the Lamar Hospital at Augusta, Ga., was laid March 12.—The city council of Worcester, Mass., have voted to appropriate \$30,000 for the construction of a new ward at the City Hospital.—The Hygeia Sanitarium at Kalamazoo, Mich., was destroyed by fire March 14. Loss estimated at \$8,000.

### Louisville Notes.

**KENTUCKY SCHOOL OF MEDICINE.**—This institution has sustained a great loss in the death of the President of its Board of Trustees, Rev. John A. Broaddus, D.P., LL.D. Dr. Broaddus was a man of great worth, a prominent educator, a prolific writer, and a great scholar, and there is no man in the United States whose death could cause more widespread sorrow in Louisville than the death of Dr. Broaddus. He was born in Culpepper County, Virginia, Jan. 27, 1824, and died in this city March 16, 1895. As was chronicled in these columns recently, Dr. Broaddus made an address at the opening of the Kentucky School of Medicine and Hospital, and dedicated it to the cause of science, and for the use of the sick poor.

**DEATH REPORT.**—For the past week there were 86 deaths reported. Of these 23 were caused by pneumonia, 7 from bronchitis, 8 from consumption, organic disease of the heart 4, la grippe 2, cerebral meningitis 5, and there were 3 stillbirths. There were 53 males, 33 females; 57 white, 29 colored, 53 single, 33 married. Nine deaths occurred at the City Hospital.

**MATTHEWS.**—Dr. Jos. M. Mathews made the address before the Marion-Sims Medical College of St. Louis, Mo., on the 19th inst., at their regular commencement.

### St. Louis Notes.

**THE ST. LOUIS MEDICAL SOCIETY.**—At the meeting on March 16 the society discussed a resolution introduced by Dr. William Johnston at a previous meeting which urged the Legislature to pass the bill now pending for regulating the practice of medicine. The bill provides that no one shall enter into practice who has not previously obtained a certificate issued by a State Board of Examiners, to consist of seven members, four of whom are to be regular practitioners, three homeopaths and one eclectic. The society rejected the resolution, thus refusing to indorse the measure. Under the scientific program, perishable specimens were submitted by Dr. L. H. Laidley and by Dr. Carson; Drs. Frey and Pollak discussed the special features of the cases. A paper on Ainhum, with a specimen, was presented by Dr. A. H. Ohmann-Dumesnil, and Dr. H. H. Summa reported an operation, illustrated with a specimen. No reference was made to the proceedings of the Committee on Ethics in the Loftus-Marks case. It is understood, however, that all the evidence has been heard, and that the committee is ready to prepare its final report.

**THE BEAUMONT HOSPITAL MEDICAL COLLEGE** held its annual commencement exercises Thursday evening, March 14, at which seventeen graduates were granted the degree of M.D.

**THE BARNES MEDICAL COLLEGE** held its third annual commencement March 14, graduating a class of sixty-four.

**THE MISSOURI MEDICAL COLLEGE** graduated a class of seventy on March 19.

**THE MARION-SIMS COLLEGE OF MEDICINE** held its annual graduating exercises on March 18, conferring degrees on a class of fifty-four. Dr. J. M. Mathews, of Louisville, addressed the graduates of the Marion-Sims College on the evening of March 18.

**JUDGE RASSIEUR**, of the Probate Court, on March 16, denied an application for an inquiry into the mental condition of Arthur Duestrow, on the ground that this question was pending in a criminal court. The application was made at the instance of Dr. A. C. Bernays, who sought in this way to hasten the settlement of a bill for over \$15,000 for services rendered in attempting to save the life of the paranoiac's wife, for whose death Duestrow is now under indictment. The question of the prisoner's insanity is still undetermined in the courts.

**THE PRESENT MISSOURI LEGISLATURE** has passed the following bills relating to medical interests: Making it a felony to detain a person alleged to be insane without examination by reputable physicians; raising the age of consent to 18 years; to prohibit the practice or teaching of osteopathy without diploma; admitting oculists, aurists and dentists to the class of "practitioners of medicine," within the meaning of the statute exempting persons in these classes from jury service, fire department duty, etc; providing for examination of candidates for license as pharmacists by the State Board of Pharmacy.

The following bills have been defeated: Turning Fulton Asylum over to the homeopaths; exempting medical practitioners of all kinds from jury, fire department and military service; to compel labeling of packages of food and drugs with name of all ingredients—a pure food bill; making it a misdemeanor for a druggist to substitute some other article than that named in the physician's prescription without formal permission.

### Washington Notes.

**MEDICAL SOCIETY OF THE DISTRICT.**—At the meeting of the society held on the 13th inst., Dr. Fry reported a case of Caesarian section, both mother and child saved; and a case of symphysiotomy, child saved and mother made a prompt recovery without any alteration in natural gait. Both subjects brought out a full and interesting discussion. Dr. Glazebrook presented some interesting specimens which he had collected in the coroner's department, viz., stab wound of heart, severe wound of kidney from fractured rib, primary ulcer of stomach with perforation and fatal peritonitis, gunshot wound of spinal cord, endothelial sarcoma of vermiform appendix; and gave the histories of each. An interesting discussion followed.

**THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.**—The two hundred and twenty-fifth meeting of the society was held on the 15th inst. Dr. Adams read the paper of the evening, the report of a case of croupous pneumonia complicating scarlet fever. Dr. Sprigg reported a case of nephritis.

**THE BENEFIT FOR THE WOMAN'S CLINIC.**—The directors and friends of the Woman's Clinic gave a very pleasant musical entertainment for the benefit of the Clinic on the 11th inst. The friends of the hospital were out in full force and a good sum was realized. This hospital and dispensary is conducted almost entirely by women physicians and is doing excellent work.

**SMALLPOX IN THE DISTRICT.**—There were two new cases of smallpox discovered last week. Both were children in the same family. They were promptly removed to the hospital and are doing well.

**THE NEW SMALLPOX HOSPITAL.**—The work on the new smallpox hospital will very shortly be begun. The reduction in the appropriation from \$30,000 to \$18,000 will cause considerable delay and possibly some alteration from the original plans. The Commissioners are considering the advisability of, following the original plan as far as the appropriation will go, and asking Congress next year for sufficient funds to carry out the original designs.

**REPORT ON SEWERS IN THE DISTRICT.**—In compliance with a Senate resolution of February 22 last, the Commissioners have had prepared considerable interesting data relating to the paving of streets, the laying of sewer and water mains, etc., in the limits of Washington and Georgetown. A list of streets showing the number of linear feet of each, wholly or partially supplied with sewer facilities, has been prepared by Captain Beach. There are 102,300 feet of unsewered streets running east and west, and 72,250 feet partially sewered. Of streets running north and south, including Georgetown, there are unsewered 108,350 feet, and partially sewered 51,450 feet. In Georgetown there are 5,200 feet of unsewered

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, MARCH 30, 1895.

No. 13.

## ADDRESSES.

### AN ADDRESS

To the Graduating Class of the College of Physicians and Surgeons of Keokuk, Iowa, at the Opera House, March 5, 1895.

BY HON. W. W. DODGE,  
OF THE BURLINGTON, IOWA, BAR.

On an occasion such as this, are we not forcibly reminded of those beautiful words of Longfellow, in his "Psalm of Life:"

"Lives of great men all remind us  
We can make our lives sublime,  
And, departing, leave behind us  
Footprints on the sands of time;

"Footprints that perhaps another  
Sailing o'er life's solemn main,  
A forlorn and shipwrecked brother  
Seeing shall take heart again."

This evening with pleasurable interest we have witnessed the President of the College of Physicians and Surgeons present to the graduates of the class of 1895, their diplomas. One can scarcely appreciate the heart throbbings of a graduate who receives this "letter of recommendation," this "honor," this "distinction" from the faculty of the college that has been the scene of his hours, days and years of study and now like a fond parent witnesses the coronation of his successful labor. The graduate who worthily receives a diploma, which as its very meaning signifies, "is a letter of recommendation," should esteem the event as one of the proudest and happiest of his life.

To the graduate, the young doctor, may I suggest that you guard with jealous care this precious parchment. Frame it, hang it on your office wall, there to remain as a pleasant reminder of the labor and toil of your school days. Treasure it as an incentive to industry, ambition, and the use of your God given talents, so that in the autumn of your days, after you have witnessed the "leaves fall over the roots of the tree of life," your fellow graduates may not only proudly point to you as a credit to your alma mater, but the rising generation may find so much that is noble, sublime and grand in your "Footprints on the sands of time," as to emulate you as an exemplar.

When I received an invitation a short time since from the faculty of this college to address you this evening, I felt that I had been particularly honored, especially as I am not a member of the medical fraternity, but only an humble disciple of Blackstone. Therefore in the course of my remarks, confined to the time limit of thirty minutes, if I should inadvertently use the words "injunction," "mandamus," *et al*, referring to the medical method of the prevention of disease, instead of prophylactic or some pharmacopœia or materia medica term, I crave you give me the benefit of all "reasonable doubt" as to the honesty of my purpose.

From recent statistics I learn that there are in the United States about 725 medical colleges now in operation,

and that there are about 105,183 practicing physicians. In the State of Iowa it is said that we have some 3,618 physicians in active practice. There are seven medical colleges in Iowa; the oldest of these, if I am not in error, is the College of Physicians and Surgeons of Keokuk, and to-night we celebrate the fifty-fourth commencement exercises of this famous institution. It is the source of much gratification and pride, not only to the faculty of this college, but to the city of Keokuk, that the number in the class for this past year is 225, being an increase of nearly 100 per cent., and it is the largest class that has been here for twelve years. The past year shows an attendance of ladies twenty-one in number, two of whom have the honor of graduating in the class of 1895. The alumni of this college now numbers nearly three thousand. The high character of the members of the faculty of this college for learning and ability; the splendid and comprehensive course of study; a thorough equipment in all the essentials of its various departments; the past and present reputation for being one of the foremost and best colleges in the country, is what has given a name to the College of Physicians and Surgeons of this city to attract to it the magnificent attendance of this year, and to warrant a large increase in the years to come.

When one searches the labyrinths of the past for the fountain source of the science of the "healing art," he is led into the realms of tradition, the temples of the gods, and the wonderland of heathen mythology. The more one searches for the morning light, on the early struggles of this mystic art, the more he becomes impressed with the grandeur, the beauty, the beneficent purposes of the blessed science of medicine.

Away back in the dark ages of ignorance and superstition, it seems that the power of God lighted but few of the intellects of those days, and even those favored ones of Him who could heal those that touched but the hem of His garment were regarded by many as sorcerers, or possessed of the evil spirit.

To appreciate the curative methods of the modern physician, it is but for us to consider the means adopted by the ancient doctors of medicine in their mode of treatment of the afflicted. The priests who were the medicine men in those days, would establish themselves near thermal springs, or fountains, and among groves. Here would come the afflicted from every quarter seeking health. These places were nothing more or less than ancient health resorts, without the brass band and Wednesday evening ball of the present day health resorts. The healers of the sick would prescribe bleeding, purgatives, friction, and mineral waters. In many instances there would be recovery and benefit to health by reason of temperate habits, pure air and bathing. It seems that aversion with the ancient physician, as well as the modern,

I am sorry to say, played an important part. If the complaint was obstinate in yielding to the ordinary methods of treatment the fees would not only be increased, but the patient would be taken into a temple, there to be deluded into the belief that he must be purified by prayer, sacrifice and offering to the gods, before relief would come. The imagination of the patient played an important part, and if the ordinary treatment was slow in producing healthful results the priests would resort to the use of snakes and non-poisonous serpents that had been tamed for the occasion, and these horrible creatures were made to play an important part in the healing art, by causing dreams and impressions upon the minds of the deluded and ignorant patients.

As we turn the searchlight of investigation into the perspective of the remote ages of antiquity, seeking for truth and knowledge as to the early beginning of the science of medicine, we find helpful authority in the Bible, as also in heathen mythology. Do we not recall the words of Job, spoken to his tormentors: "Ye are forgers of lies; ye are all physicians of no value." And there is Jeremiah the prophet, lamenting over the condition of his people, and exclaiming: "Is there no balm in Gilead; is there no physician there? why, then, is not the health of the daughter of my people recovered?" We read in the Scriptures that Joseph commanded his servants and physicians to embalm him, this being about 1700 years B. C. Thus it is shown that the Egyptians possessed men who practiced the healing art and embalmed the dead, both of which must have required a crude idea of general anatomy.

It is to Greece, the land of art, that much of the ancient history of medicine can be traced, just as she furnishes every other art with the same historical advantages. Of the early physicians, Æsculapius is the most famous. By some he was considered the son of Apollo. A number of the cities of Greece contended for the honor of his birthplace as they did for that of Homer. Æsculapius, owing to his learning and wide knowledge of the science of medicine was given the title of the "God of Medicine." And there was Hippocrates, a great physician and philosopher, who was born in the year 460 B. C., and it is said lived a century. Because of his great learning and his wonderful discoveries in the field of medicine, and the fact that it is said that surgery was first practiced by him, he has been crowned the "Father of Medicine."

Galen was the most eminent physician during the second century, and the people had such great faith in his teachings that they were as a guiding star to the healers of the sick for a thousand years following. The creeds of Hippocrates and Galen were accepted by the medical profession down to the time of that bold "Prince of Empirics," Paracelsus, born in Switzerland in the year 1493. He was highly educated and made a Professor of the School of Medicine at Basel, and while occupying this place, with great solemnity burned the books of Galen, declaring at that time that he had discovered the "elixir vitæ," by which life might be prolonged indefinitely. He was nothing more or less than a charlatan, practiced the vilest arts, and being dissipated in his habits died at the age of 48 years.

Of more modern physicians, William Harvey will be recalled as the one, who, in 1616, demonstrated the circulation of the blood. There is John Hunter,

the famous anatomist; Edward Jenner, an English physician who made himself celebrated by the discovery of vaccination as a preventive for that dreadful disease, smallpox. This discovery was made by Jenner in 1776 while in the Alps watching the maids milking the cows. On the cows' udders were sores, likewise on the hands of the maids, and while the smallpox was raging in the neighborhood, the milkmaids were free of the disease. Jenner reasoned that the women had been inoculated with the "cowpox" which proved a prevention to the more terrible disease, smallpox. Pasteur, the great French scientist, gave to the world in recent years a preventive and cure for hydrophobia. Koch, the renowned German physician, discovered a "lymph" or tuberculin for the cure of tuberculosis. Americans point with pride to Dr. Samuel D. Gross, the "Nestor of American surgery." There is Dr. Behring, a German physician and student of Dr. Koch, who is credited with giving suffering humanity the "serum" or "antitoxin," as a prevention and cure for diphtheria. This discovery occurred but a few months since. Thus I could continue to name the illustrious descendants of Æsculapius who adorn the pages of ancient and modern medical history.

If, when Paracelsus proclaimed to the world his discovery of the "elixir vitæ," he had not in fact given to mankind a nostrous humbug, but a blessed boon, for indefinite continuity of good health and life, we should have but little use for the physician of to-day. It seems that the Almighty, in His inscrutable wisdom did not intend to confer upon a human being a power, divine in its character and effect. While such a blessing as an "elixir of life" has not come to us through human instrumentalities, let us not rail against the Divine will. While we consider the wonderful advancement in the sciences of medicine and surgery, the thousand and one discoveries for the amelioration of suffering humanity, it is as little as we can do to offer a thankful prayer to the Giver of All, for these rich blessings to mankind.

How true are the words of that Latin maxim: "*Mens sana in corpore sano*," "a sound mind in a sound body." While the stability and maintenance of government depends upon the intelligence and virtue of its people, it must not be forgotten that the health, strength and physical development of the coming generations must be as jealously guarded. In the early days the Romans were so ambitious to have only the finest specimens of manhood that the strictest laws were enacted relative to marriage; the weak and ill-formed were absolutely prohibited from entering into the marriage state, and only those possessing perfect health and strength were allowed to become the fathers and mothers of the warriors, statesmen and philosophers of those times.

In our day, while no such marital restrictions surround the people, all nations are taking advanced steps in the direction of prevention of disease, as far as possible. This is exemplified in the laws of quarantine at our seaports, the establishment of State boards of health, city sanitation, the power given to the health officer and local authorities to destroy buildings, fill up ponds or do such other acts as may be necessary to stamp out the hotbed of disease, and thus prevent the spread of a pestilence. It is by such heroic means that an epidemic, which if unchecked, would carry death and destruction throughout the land, is



prevented. It is to the intelligent physician, aided by the enforcement of sanitary laws, that the community is largely indebted for its good or poor health. It is to the physician that we must look in municipal bodies, to point out the sore spots that breed disease. Imperfect drainage, impure water, poor ventilation, densely populated tenement houses where squalor, dirt and filth exist, are as dangerous to the health and life of the people as a dog with the hydrophobia upon the streets of a city. Is it not true that physicians are the keepers of the public health and that by reason of their medical knowledge, their intelligence, and the knowledge that it is their duty to prevent, as well as to cure disease they can enthuse the people, give a cry of warning, erect bulwarks of defense, and determine the best methods to prevent an invasion of a dread disease? All honor, I say, to the educated, intelligent physician!

To speak of the "family doctor" is, as it were, to allude to a member of the family circle. He is near and dear to every one in the household. When dread disease or accident has suddenly stricken down a loved one, how anxiously we await his welcome footsteps, how, with trustful hearts, we listen to his cheering words, how he inspires us with the hope of a speedy recovery, how uncomplainingly do we follow his advice, and with hopeful smile we take the most detestable medicine he prescribes. His position in the family circle is one of sacred confidence. The secrets of a home are often imparted to him, while the happiness, love, and the all between man and wife are exposed to his honor or his treachery. He comes to the bedside of the suffering mother, when in her hour of untold agony and indescribable torture—when two lives are trembling in the hand of fate—to help with tender care in bringing into this bright and beautiful world of love, sunshine and happiness, a new life to gladden the home. It is from the cradle to the grave, at beck and call, the family physician comes to us in sunshine or storm, in daylight or darkness, like a ministering angel to soothe, comfort and cure. Do I not utter the sincerest of benedictions which come from the heart of mankind when I say, "God bless the dear, kind-hearted doctor?"

Members of the graduating class, I fully appreciate that I can add but little to the wholesome advice and timely suggestions of your instructors during your collegiate course of study; however, I beg the indulgence of a word. Remember, that the world owes no man a living, and that he who eats of the bread of idleness can not hope to succeed. That professional advancement and aggrandizement depends on individual effort. If you desire to reach the goal of fame and riches, remember that ambition, honor, and the use of your God-given powers will do more to aid you, than to pray to Hercules to strangle the serpent of competition. If you do not prosper, do not blame the rest of mankind. The Philosopher Hobbes, of Malmesbury, once said that, "the natural state of man is war." Your professional education has equipped you for the battle of life; from this night on it will be your duty to fight. Whether you will rise above the well-filled ranks of mediocrity depends on your own self, your willingness to continue the irksome search after knowledge, a persistent determination to surmount all obstacles, to keep your eyes toward the summit of professional eminence, where inscribed in living light are the immortal

names of the illustrious members of your profession, May heaven's choicest blessings be in store for you; may you live to enjoy a long, useful and happy life; may the hand of Fate bestow on you fame, wealth and happiness, and in the yielding stone of time may your fondest dream be carved.

## LECTURES.

### LECTURES ON INTRACRANIAL SURGERY.

#### II—CEREBRAL HEMORRHAGE AND ITS SURGICAL TREATMENT.

BY EMORY LANPHEAR, M.D., PH.D.

ST. LOUIS, MO.

By the expression "cerebral hemorrhage," is meant bleeding in the substance of the brain or into the cavity of the ventricles. Until very recently such cases have been regarded as beyond the pale of surgical interference. Indeed, only a few years ago Jacobson declared he could find but ten cases recorded as having been operated upon, and even Horsley—one of the boldest of cerebral operators—as late as July, 1890, advised tying the common carotid in every case of bad cerebral hemorrhage seen within four hours after the attack. But recently quite a number of operations have been reported with improvement in most cases, and surgeons are beginning to realize the brilliant possibilities of certain classes of hemorrhages, viz., cortical or surface hemorrhages, subcortical and ingravescant or progressive apoplexy.

Most authorities have, until lately, advised against operation for the reason (as expressed by Starr, of New York) that "when a hemorrhage has occurred within the cerebral hemisphere, lacerating the tracts and destroying the tissue, operative interference is out of the question, for tissue once destroyed in the brain is not repaired by Nature, and even if repair were possible the surgeon could not reach and remove the clot without further laceration of very important cerebral structures or serious cerebral hemorrhage." Experience has shown, however, that if the clot be removed early and be not too large, serious permanent injury may sometimes be averted; furthermore the brain may be freely incised in certain directions without marked harm, especially if over a clot which has already destroyed the communicating fibers; and the competent surgeon can usually control any bleeding he may cause in the brain or elsewhere.

Unfortunately it is not always an easy matter to make a differential diagnosis between a hemorrhage which may be safely reached by the surgeon's knife and one which is of basal or nuclear origin; nay, more—it is often a matter of some difficulty to find the bleeding point or even the blood clot after trephining. As a consequence the operator sometimes is compelled to adopt the advice of Krönlein:<sup>1</sup> "In cases where the surgeon is reasonably certain that the symptoms of compression are due to hemorrhage, exploratory trephining is to be continued until the hematoma is found." If not located and removed, at least relief from pressure is afforded by cutting a large opening in the skull, provided the bleeding has already ceased.

In the "ingravescant form"—that in which the symptoms are slight at the outset but gradually become more intensified—trephining should be done

before the blood reaches the ventricles; bleeding into the lateral ventricle may proceed from rupture of a vessel of the choroid plexus or the velum interpositum, but only in rare instances as the usual source is some artery in the brain substance, the blood simply breaking into the ventricles after a considerable clot has formed; so it is rarely necessary to open them, if operation be done early.

According to Edes, the most common form of intracranial hemorrhage has its seat in the white substance of the brain which is consequently more or less lacerated; such a clot may vary in size from a mere point to many ounces, filling a cavity nearly as large as the hemisphere. The vessel which most frequently bleeds is that which is given off from the middle cerebral and runs along the outer side of the nucleus lenticularis where it is covered by the external capsule, hence the large number of clots found in the white substance of the internal capsule. Therefore when the hemorrhage is not found as a meningeal or subcortical lesion as anticipated, this is the point to be sought if the symptoms indicate the middle fossa; if the clot be located outside the internal capsule it may be removed with comparative safety through a large opening in the skull—three or four inches by one and a half or two.

Hemorrhages in the thalamus opticus usually originate in the posterior communicating artery or the posterior cerebral and are too deep to be reached.

#### DIAGNOSIS.

No attempt at surgical diagnosis should be made while the patient is in deep coma. After the severer apoplectic symptoms have disappeared, embolism must be carefully excluded as trephining would be wholly inexcusable in the latter disease. The points of differential diagnosis can be found in all good text-books on neurology; they are foreign to our theme and are therefore not considered. It is well also, in determining the character of the disease to exclude hemiplegic forms of intracranial syphilis, and tumors which may be suddenly manifested; though since gummata, if accessible, should be removed as should curable forms of tumor, the differential diagnosis is not so important. The following rules will be found useful in deciding whether or not operation is justifiable when the diagnosis of cerebral hemorrhage is clearly established:

1. When there has been a blow upon the head, and hemiplegia, aphasia or hemianopsia follows, there is nearly always a hemorrhage which may be cured by opening the cranium at the point indicated by cerebral localization.

2. A slight premonitory attack, affecting speech temporarily or producing a heaviness of the hand or foot (or both) for a few minutes, if followed by hemiplegia may be taken as a good point in favor of operation, as the bleeding vessel is probably on the surface or very superficial.

3. When the case presents a history of moderate loss of power or even complete hemiplegia without loss of consciousness, followed in a few hours by the sudden appearance of coma, a marked fall of temperature succeeded by some fever—a hemorrhage has broken into the ventricles or just beneath the meninges, is still progressing and indicates immediate trephining; a day or two afterward will be too late—so if done at all it should be performed within a few hours, if possible.

4. Bilateral hemianopsia (blindness of correspond-

ing sides of both eyes) appearing suddenly is apt to be due to a hemorrhage in the occipital lobe of the opposite side, sufficiently large to be easily found, and justifies exploratory operation.

5. Vomiting, severe occipital headache and vertigo, with or without distinct paralysis, with ocular symptoms of nystagmus or strabismus, appearing suddenly, render a diagnosis of cerebellar hemorrhage probable and indicate exploratory trephining.

6. Paralysis of the third, fourth or sixth pairs of nerves indicates a lesion of the pons and contra-indicates operation.

7. Paralysis of very limited extent, especially if complete, are not often due to hemorrhage, being local palsies rather than the peripheral symptoms indicative of cerebral disease.

8. A very severe headache, followed by gradual but persistently deepening coma, with hemiplegia becoming more and more nearly complete, means a hemorrhage into the great basal ganglia—beyond surgical help.

9. Very sudden and complete hemiplegia and coma (coming on as if the patient were struck with a hammer) contra-indicate operation, particularly if the patient be under 50 years of age; the disease is probably embolism; heart lesions, endoarteritis, a septic process and syphilis strengthen the probability.

10. Profound coma and relaxation without hemiplegia usually depends upon injury of the pons and decide against operation.

11. According to Hughlings Jackson, convulsions, early rigidity and conjugate deviation of the eyes of a spastic form are conclusive evidences of superficial hemorrhage. But convulsions always accompany cerebral hemorrhage in young persons, regardless of location.

12. As an assistance in locating the clot, Durand-Fardel's figures may be quoted. Of 177 cases the hemorrhages were: in the ventricles sixty-six times; in the meninges thirty-one; in the corpus striatum and thalamus opticus twenty-two; in the white substance of the middle lobe eighteen; in the corpus striatum alone thirteen; in the corpus striatum and hemisphere twelve; in the anterior lobes eleven; in the posterior lobes eleven. From which we see that a considerable proportion may be regarded as within the reach of the surgeon.

#### OPERATION.

The surgical treatment of cerebral hemorrhage consists of: 1, ligation of the ruptured vessel; 2, pressure-stoppage of the bleeding if tying is impossible; or 3, arrest of the carotid stream by ligation—all for checking further bleeding; and removal of a mischief-producing clot after cessation of the hemorrhage, for many distressing symptoms may frequently be relieved by the operation.

Of the first: the probable location of the lesion having been decided, the head is shaved and cleaned by thorough scrubbing and washing with sulphuric ether or alcohol, and sublimate solution 1 to 1000, and a large flap of skin and pericranium laid back. A trephine is applied and the "button" removed, when the opening is enlarged to the size of two by three inches over the area involved. The dura is then incised and turned back and search made for superficial bleeding; if found, the clots are cleaned out and the vessel tied if still active, a small thread of catgut being passed around it by a curved needle and gently tied—it not being best to use much force lest

the fragile artery be cut in two. If not found upon exposing the brain an incision is made near the middle of the particular center indicated; this cut must be vertical to the ganglia, *i.e.*, parallel to the fibers of the corona radiata. The knife must be put more than an inch into the brain at the first stroke and the cut ought not to be more than an inch and a half long. The margins of this incision are gently pulled apart (with broad dissecting forceps or two flat blades) and the white substance inspected for the clot. When the clot is not found in the meninges or as a subcortical hemorrhage in the region indicated by cerebral localization, attention must be directed to the lenticulo-striate artery. This vessel (described by Gray as the largest of the antero-lateral ganglionic branches of the middle cerebral) is called by Charcot the "artery of cerebral hemorrhage" from the frequency of rupture. The point at which it most frequently gives way may be reached by cutting about one inch in the direction of the lateral ventricle just behind the lower end of the Rolandic fissure or in the temporo-sphenoidal convolutions at the upper margin. If not found here further exploration is scarcely advisable, though personally I should extend the cut first made so as to open the lateral ventricle, as in Case 4 presently to be related.

The clot being found, the cavity made by it is thoroughly cleaned out with the finger and irrigated with sterilized water at a temperature of 105 degrees. Any bleeding vessel must be caught (if possible) and tied with catgut as elsewhere in the body. When the cavity has been washed out a few strands of catgut are inserted through the cut in the brain, left long enough to protrude through the dura and scalp; or if the ventricles have been opened a very small drainage tube may be put in as advised by Keen. The dura is now closed by a continuous catgut suture—except at the point of drainage—and the scalp also in a similar manner. An abundance of iodoform gauze is placed around and over the opening, with much bichlorid gauze and cotton over all, properly held in place by bandages.

Of the second: when the bleeding point is found but for any reason can not be caught and tied, to check the flow one must first irrigate carefully and then pack the wound tightly enough to stop the hemorrhage. This method of treatment is not satisfactory because the gauze causes as much intracranial pressure as the clot and so the bad symptoms continue; but the packing need not remain more than thirty-six hours and may be very gently removed at the end of twenty-four hours if specially irritating. Improvement will be noted at once. (Even hemorrhage from the superior longitudinal or lateral sinuses may be controlled in the same manner, but the gauze must be left as long as forty-eight hours in such cases.)

Of the third: Victor Horsley first demonstrated, by experimental work on monkeys, that ligation of the common carotid upon the affected side checks the flow of blood in a ruptured lenticulo-striate artery as well as in the middle cerebral, the collateral circulation through the circle of Willis being at first very slight. The temporary cessation of the flow thus secured allows the bleeding to stop, and subsequent collateral circulation does not give rise to secondary hemorrhage. As ligation of the carotid can be done easily and as if careful antiseptic precautions be observed primary union may be obtained, the

operation is perhaps justifiable if performed inside of three or four hours, since by arrest of the carotid stream the clot may not become as large as might be the case if the vessel were left to bleed indefinitely; and so permanent hemiplegia, softening, etc., may be prevented in some cases. But it is not permissible to do this later than six or eight hours after the onset of coma.

#### CASES.

That the first rule laid down as favorable to operation is not without its exceptions is shown by the following case:

*Case 1.*—Thomas L., patient of Dr. J. E. Moses, of Rosedale, Kansas, received a blow upon the head which was followed by symptoms which pointed to hemorrhage in the lower Rolandic area and temporo-sphenoidal region of the left hemisphere, without evidence of fracture. I opened the skull low in the temporal region and removed a large clot from beneath the pia, which came from a rupture of the parieto-sphenoidal branch of the middle cerebral artery. The patient stood the operation well, all the symptoms of compression disappeared and we began to hope for speedy recovery. We were sure there was no possibility of contamination during the operation and the same care was observed at the first dressing when the drainage was removed. So we were greatly surprised when a meningitis arose soon after operation; which proved fatal six days after the injury. The autopsy showed a fracture of the base communicating with the middle ear—hence the meningitis and death.

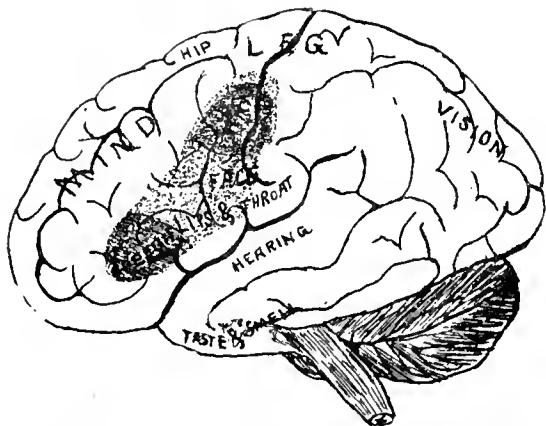
Here is a case that doubtless might have been cured had there been no complicating fracture of the petrous portion of the temporal bone through which a meningitis from infection sprang. A peculiar feature was that there was not, from first to last, a single symptom—save the meningitis—which indicated fracture of the base.

A case illustrating the second rule was reported by myself some two years ago in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. The points of interest may be briefly summarized thus:

*Case 2.*—Dr. W. C. B., in June, 1891, consulted me about an attack of temporary aphasia and paresis of the right hand, arm, foot and leg; this passed away in a short time, leaving him entirely well but anxious. I diagnosticated a slight surface hemorrhage, and prescribed potassium iodid for possible tertiary trouble. Oct. 10, 1891, I was called to Carthage, Mo., by his physician Dr. R. T. Scott. He had had (about ten days before) a return of the aphasia and partial paralysis which passed away after a few minutes. He started for home some little time afterward but fell, totally unconscious and hemiplegic. In the interval between the "stroke" and my visit he never entirely regained consciousness; the hemiplegia was complete and though he could be aroused to a sufficient degree to understand simple things he could speak no word. During the few days immediately before my examination he had been failing very fast as indicated by rapid emaciation, paralysis of the bladder, dysphagia and fever (temp. 100 to 101 degrees F.) with terrible headache and insomnia; strength failing very rapidly. I therefore decided that the patient would die and that he should have the benefit of operation. I opened the skull over the motor and speech centers and found no pulsation of the dura which bulged into my large opening. Upon incising the dura the brain presented a discolored appearance and softening of the arm and speech centers seemed to have begun. The clot underlaid that portion of the cortex which presides over speech and motion of the face and extremities of the right side, and had exerted so much pressure upon other parts of the hemisphere as to render them blanched. The area of the clot is represented approximately in the accompanying diagram.

After removing the softening mass, including a part of the arm center, I irrigated with hot bichlorid solution, 1 to 6000, put in catgut drainage and closed the wound, replacing a part of the bony tissue removed. The duration of the operation was one hour and thirty-five minutes—some time having been lost on account of difficulty with the anesthetic. At one time we thought the patient would die upon the table, but he was put to bed in good shape. After closing

the scalp it was discovered that normal brain pulsation had returned at the opening in the skull. He slept nicely all night—quite a contrast to the moaning and tossing of two or three previous nights of insomnia for which sulfonyl and morphin (gr.  $\frac{1}{4}$ ) had given no relief. At 9 A.M. next day he appeared much brighter and nodded and smiled when asked if he felt better; the headache was gone; considerable motion in foot was obtainable upon requesting him to move. Improvement continued from that time on—the temperature being normal, and primary union being obtained. He sat up on the fifth day and on the twentieth day after operation rode more than two hundred miles. The subsequent history is one of restoration to health with ability to walk and care for himself; but the use of the hand has never been regained, nor has his speech.



From the fact that this patient seemed almost in *articulo mortis*, I am satisfied that the operation saved his life and probably had much to do in preventing permanent paralysis of the leg. Sometimes it is possible to give some relief even after a considerable time has elapsed, as is shown in a case almost precisely similar to the one just mentioned, the interesting features of which I will relate:

*Case 3.*—I. M., of Oklahoma, age 54, came under my care in June, 1892, affected by complete hemiplegia and aphasia due to a cerebral hemorrhage which occurred more than three months before. He complained of much headache upon the left side, insomnia, and general ill health; at times homicidal and suicidal tendencies had been noted following periods of sleeplessness and great irritability. I sent him to the hospital and with the assistance of Drs. T. B. Thrush and J. C. Maxson operated. I removed three one-inch buttons over the leg, arm and speech centers, and joined these openings with bone forceps, placing the fragments in hot bichlorid solution, 1 to 4000. On opening the dura no evidence of hemorrhage was to be seen except a white infiltrate over the speech and lower part of the arm centers. Believing there had been a rupture of the lenticulo-striate artery I cut through the brain to the region of the internal capsule. A large quantity of broken-down brain substance immediately oozed out; so I extended the incision upward and introduced my finger into the cavity, removing two fragments of the clot, each about an inch in length, together with a lot of *débris*. I then irrigated the cavity with sterilized normal salt solution, established drainage with several strands of catgut, stitched the dura and replaced the pieces of skull in a kind of mosaic, carefully suturing the scalp and applying a gauze compress so as to hold them in place; with the usual dressings.

Convalescence was speedy and uneventful. For three days there was a little fever (100 degrees F.) and no improvement was to be seen. But at the end of that time the temperature became normal, all the distressing head symptoms disappeared and then motion began to return slowly in the affected side. In a few weeks the patient was walking around by the aid of a cane with but little difficulty. Motor power has never returned in the hand, but the arm and forearm now have some motion. Speech was not restored. The bladder irritation and obstinate constipation—so prominent before the operation—entirely vanished, the mental symptoms never recurred and the patient regards himself as vastly improved.

The only case upon which I have operated which comes under my third rule was this:

*Case 4.*—J. P. E., male, age 52, a patient of Dr. Kistler, of Kansas City, I first saw at 4 P.M., on March 31, 1893. I found a hemiplegia of the left side which came on thirty-two hours before, while he was straining at stool; for some hours previously he had complained of vertigo, and had mentioned a "bad feeling" in the head and a heaviness of the left hand and foot two days before, at which time he went to bed with some vomiting—asccribed to biliousness, and for which a cathartic was administered; from this came the straining which caused the bleeding. He had a temperature of 100 degrees F. His mind was not much affected until more than twenty-four hours after the attack, but for eight hours there had been wild delirium and at the time of examination he suddenly became comatose. A severe convulsion would occasionally appear upon the paralyzed side, from which I expected to find a hemorrhage just beneath the membranes. I therefore ordered him to be carried to the German Hospital.

At 9 P.M., coma was complete, so without any anesthetic I opened the scalp and removed a piece of skull two inches by four inches over the motor area. The dura was very tense and pulseless and upon cutting the dura the brain protruded prominently into the opening; at which relief of pressure the patient began to show such signs of returning consciousness as to require a little chloroform. There were no surface indications of hemorrhage, so I cut inward through the parietal convolutions until the greatly distended ventricle was reached. Here there was a large quantity of semi-fluid blood, and broken-down brain tissue, which I removed as gently as possible and then irrigated with hot normal salt solution. As oozing into the ventricle continued persistently a little iodoform gauze was gently packed in the wound and the ventricle and allowed to protrude through the dura. Bulging of the brain was far less marked and after the dura was sutured around the gauze packing, cerebral pulsation was found to have returned. The usual dressings were applied.

At 10 A.M., April 1 the patient died—the attending physician said from "shock." Owing to my departure from the city no autopsy was held, so the source of hemorrhage was never determined.<sup>1</sup>

## ORIGINAL ARTICLES.

### SEVEN CASES OF CEREBRAL SURGERY.

BY C. E. RUTH, M.D.

PROFESSOR OF DESCRIPTIVE AND SURGICAL ANATOMY, KEOKUK MEDICAL COLLEGE; PROFESSOR OF CLINICAL SURGERY AT ST. JOSEPH'S HOSPITAL, KEOKUK, IOWA.

Believing that cerebral lesions not accompanied by fracture or even trauma represent a large proportion of the cerebral cases requiring relief at the hands of the surgeon, I present the following cases in support of that view:

*Case 1.*—May 9, 1891, was called to see L. G., age 5 years, who had four days previously sustained an injury by falling fifteen and one-half feet, striking her head on a plank sidewalk. No evidence of fracture of the skull was found at that time or subsequently. She slept eighteen hours in twenty-four, temperature 99.5, pulse 72. Sensation and muscular coördination normal. Appetite was good and bowels regular. Slight mental hebetude. Right side of head and face greatly swollen and discolored. Extravasation of blood under the ocular and palpebral conjunctiva. Left pupil responded to light readily. Swelling prevented inspection of the right pupil. A small swelling was found to the left and slightly behind the bregma.

Diagnosis, intracranial clot. Operation was made as soon as possible, the small swelling to the left of the bregma was cut down upon and a clot turned out

<sup>1</sup> I believe this man would have been saved if the operation had been made a few hours earlier, before the blood broke into the ventricles. That my patient died is no objection to the rule I have given, as a number of cases of progressive hemorrhage have been treated surgically by other operators with brilliant results.



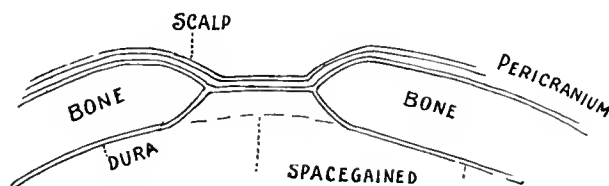
which had formed between the bone and pericranium. Removal of a small disc from the center of this pericranial denudation brought another clot into view, which had formed over the anterior branch of the middle meningeal artery between the dura and anterior border of the parietal bone. Recovery was complete in two weeks without event.

*Case 2.*—C. B., age 71 years was struck Feb. 22, 1892, by the limb of a tree weighing eighty-five pounds which had fallen forty feet. The blow was received slightly to the right of the median line and in front of the fronto-parietal suture. The scalp wound indicated that the blow glanced slightly backward. I did not see the patient for several days after the injury, at which time the scalp wound had healed. Muscular incoördination marked and memory *nil*. Left patellar tendon reflex was abolished. Owing to dangerous cerebral compression symptoms, and noting no improvement in his mental condition on March 10, 1892, I trephined his right parietal bone beginning at the posterior part of the old scalp wound and extending backward three inches. On opening the dura a large amount of subarachnoid fluid was discharged. No clot was found. There was no laceration of cerebral tissue but arterial and especially venous engorgement was marked. Recovery took place without incident and was complete in three weeks. This patient was entirely relieved from former severe headaches which had occurred every two weeks for many years.

*Case 3.*—Jan. 18, 1893, I was requested to be present at an autopsy made by Dr. Kinnaman on J. T., aged 9 years, colored, who had died suddenly at his home under suspicious circumstances. Removal of the scalp showed contusion of its under surface, one and one-half inches in diameter, behind the fronto-parietal suture and to the left of the bregma. Removal of the skull cap showed an immense blood clot which extended from vertex to base and covered almost the entire left hemisphere of the cerebrum. The cause was evidently a blow on the vertex at the site of the scalp contusion and probably produced almost instant death. The skull in this case was very thin and possessed great elasticity. No fracture of the skull.

*Case 4.*—This case I place here out of order in point of time because it is traumatic in origin. Oct. 10, 1895, Peter V., aged 9 years was brought to me with a history of injury received in September, 1894, while in a wagon drawn by a badly frightened horse in a runaway. The nose was broken and driven backward and when I saw the case four months after injury, I found a scar crossing the nose at lower end of nasal bones, well out upon the left cheek, and about an inch to the left of the median line a small sinus discharged pus in considerable quantities. Pus was also being freely discharged from both the lachrymal sacs. The parents said that his nose though raised considerably at the primary dressing, was not its usual height. He was unconscious twenty-four hours after the injury, then appeared to recover completely save the discharge of pus previously mentioned which had been continuous since three weeks following the injury. Within four weeks he begun vomiting in the morning about 4 o'clock and then vomiting occurred at irregular intervals during the day up to the present. Parents noticed that for the past month he has not been as bright intellectually as normal, could not say some words he formerly spoke well, did

not see well, could not grasp anything firmly with the right hand and dragged the right foot. Would fall if he was not steadied when he attempted to walk. Pupils responded pretty well to light but a little sluggishly; convergence was impossible. Eye movements otherwise normal. Temperature normal, pulse 70. Diagnosed cerebral traumatism, with secondary degenerative changes in the left frontal lobe extending well backward near the middle line and towards Brocha's convolution. Trephined the left supra-orbital region. The pulsating dura bulged strongly into the opening. All the membranes were adherent from former inflammatory changes and the cerebral tissue greatly softened. With a cataract knife and small trocar I explored the major part of the anterior left frontal lobe, but found no fluid accumulation of any kind. Some broken-down cerebral tissue was removed, one-half inch opening was left in the dura and large gauze drain introduced. I could find no fracture of the horizontal plate of the frontal bone. Drainage was maintained for three weeks and at least calculation three drachms of broken-down cerebral tissue and old clot was discharged. Improvement in his mental condition was prompt, soon appeared normal, and he was able to speak any word that he had formerly known. He was able to walk without aid of any kind within one week after the operation. Great swelling occurred of the palpebral tissues with eversion of the conjunctiva. At the end of the second week tears were discharged at the old drainage points in the forehead but are now closed. Though the wound was dressed daily no suppuration has taken place.



It is too soon to make a positive declaration of the results in this case. The remnant of an old blood clot which seemed to be the basis of the bond of union between the membranes was almost certainly produced by the original injury, and forces one to the conclusion that early operation would almost surely have saved this boy much of the danger through which he has passed with better prospect of perfect recovery. In each of these cases there was no fracture, and the ages were from 5 to 71 years, yet in each there was a serious if not a fatal lesion. The only rational treatment must be that of removal of the products of trauma, whether that be blood clots, increased accumulations of cerebro-spinal fluid, abscess, or devitalized cerebral tissue. By early operation we may hope to give the damaged brain a chance of restoration by improvement in its circulatory possibilities before permanent impairment of function, paresis, paralysis, epilepsy, idiocy or death of the individual. In Case 3 death was probably instantaneous. In Cases 1 and 2 operated upon, one in four days, the other three weeks, recovery was perfect.

We have no hesitation in saying that all cases of cerebral trauma not accompanied by fracture in which symptoms of compression, dangerous, pronounced and persistent motor or mental disturbance

occur should be operated upon. No age is exempt from traumatic intracranial lesions without fracture, as is shown by my three cases in children and one in a man of 71, as well as a case reported to me by Dr. Gaston of a man 50 years of age who received a blow on the occiput which produced rupture of the middle meningeal artery under the anterior part of the parietal bone which was fatal from secondary inflammatory trouble about the clot. No fracture. The site of the application of the trauma or the course of the branches of the middle meningeal artery will indicate the points to be explored in the absence of localization symptoms. We can see the necessity for a guarded prognosis and can not pronounce our patients positively well till the lapse of many weeks or months, and should keep them under observation so as to detect the first evidence of danger.

*Case 5.*—E. B., age 36. Epileptic since 14 years of age. Memory and general intelligence greatly impaired. Nystagmus pronounced. General health good. Paretic on left side from infancy, with very little use of the left hand and drags the left foot. Convulsions started in the left side to which they were confined until they became general ten years ago. No history of injury or marked assymetry of the skull. Jan. 14, 1894, I removed three inches of bone over the fissure of Rolando, and identified the arm and leg centers with brain electrode. Convulsions were defective in development, pale, and widely separated by broad and shallow sulci. Recovery was prompt and apparently complete in two weeks and the relatives thought they noted marked mental improvement but that is to be taken with considerable allowance. He contracted double pneumonia from which he died at the end of one month from the operation. This case was operated upon in the hope that it might lessen the frequency and mitigate the severity of his epileptic attacks and thus, if possible, save what intellect he had.

*Case 6.*—W. W., age 38. Steamboat raftsman. Well and exceptionally strong till Oct. 18, 1893, at which time he became suddenly and completely paralyzed in the left arm and leg. He was infected with syphilis eighteen months previously. April 14, 1894, six months after the onset of the paralysis, I diagnosed the cause of the paralysis to be embolic obstruction of the ascending parietal and frontal arteries to the motor area of the right side, and removed three and one-half square inches of bone along the fissure of Rolando. Brain was anemic, pulseless, did not bulge into the opening, and no muscular response could be obtained by the electrodes beyond a general tremor. No abnormal resistance could be detected. Recovery was complete from the operation in three weeks and at the end of six weeks he was able to walk by the aid of a chair, but the gain that was at first promised in the arm was not maintained. His skull was scant one-half inch thick and composed almost entirely of dense compact tissue. He left the city at the end of seven weeks but returned in October, 1894. Nov. 17, 1894, I did a secondary operation on him before the Eastern Iowa District Medical Society, in which I nearly doubled the space from which the bone was removed, being mainly extensions backward from the upper, and forward from the lower end of the Rolandic fissure. Improvement following the secondary operation has not been as marked as that following the first one, and is probably due largely to the lapse of time since the primary lesion and

teaches us another lesson in promptness. He can now walk by the aid of a cane.

This case would seem to indicate that reduction of the cerebral tension to below normal by removal of bone and establishment of drainage, may bring about considerable restoration of function in portions of brain supposed to be damaged beyond the possibility of repair, from embolic obstruction of a terminal artery. At the secondary operation in this case, I learned that the edges of the old opening were beautifully beveled, equally from the outer and inner tables, and that the pericranium and dura were blended to the opposite side, so that the actual gain in cerebral space is represented by one-half the thickness of the bone, less the normal convexity of the part, for the membrane will pass directly across from the bony attachment at one side to that of the other, if it is not carried outward by intracranial pressure. From this, it will be seen that the gain in cerebral space, by removal of the skull, will be relatively greater with a small opening. In this case it was nearly one-fourth inch, for the thickness of the skull was scant one-half inch. This relief of tension may also enable neighboring parts of the brain to take up part of the work of a destroyed or crippled center, as is the case where a center is excised.

*Case 7.*—Nellie P., age 5 years. Was well until after a fall at the age of 1 year, at which time she could walk and talk some. Following this fall she had nine convulsions in three weeks. Three weeks later she had spasmodic contractions of the entire left side for twelve hours, followed by complete paralysis of the left arm and leg. Twenty days later she had an intense fever accompanied by general convulsions for eight hours, closing with movements only of the left side. She has never spoken since the attack and could not walk again until one year ago. Drags the left leg and does not use the left arm. Now has frequent general epileptic seizures and is idiotic. May 23 did right-sided craniectomy and removed three inches of bone over the fissure of Rolando. Found defective development of the cerebral convolutions. There was no assymetry of the skull and no evidence of fracture. Though I am convinced that this patient sustained a cerebral injury from the early fall, which prompt and intelligent surgery might have readily recognized and removed, the time for such procedures had gone by. She took the anesthetic badly and died in eight hours.

Early signs of collapse in this case prevented application of electrical tests for the motor centers, and the ultimate result has not lessened my skepticism regarding the justifiability of craniectomy operations in cases of idiocy, even if due to traumatism when there is no assymetry of the skull, and the history of injury dates back to early life and has been of several years' standing. In the adult we can hardly expect marked improvement in motor disturbances after the lapse of one year with or without operation. In Case 6, paralysis of the arm occurred twelve hours before that of the leg, and would indicate that the ascending frontal and parietal arteries arise by a common trunk from the middle cerebral; the ascending frontal was first plugged and the embolism, probably specific in origin, developed backward so as to involve the ascending parietal in twelve hours and thus produce complete paralysis of the motor area of the opposite side.

## WHEN SHOULD CONGENITAL CLEFT PALATE RECEIVE SURGICAL TREATMENT?

Read before the Chicago Dental Society.

BY C. S. CASE, M.D., D.D.S.

CHICAGO.

This is a subject upon which there is a decided difference of opinion among eminent specialists who pursue distinct methods of treatment. I believe this to be mainly due to the fact that in the two general classes of treatment for congenital cleft palate, that which relies upon artificial means for its success is performed by the dental profession, while the other, or surgical operation, is confined almost entirely to the medical profession. And as in other instances, when these two professions are called upon to treat the same character of disease or deformity, there has never been in either profession an intimate knowledge of the method of treatment peculiar to the other, or an appreciation of its inestimable advantages in certain conditions. Were the relations of the two professions of a more intimate nature, these things might become so adjusted ethically as to render interference at times by one or the other inexcusable and, possibly, subject to the law of malpractice.

Dr. Norman Kingsley, of the dental profession, who has doubtless had the largest experience in the treatment of congenital cleft palate by the artificial method, has published the following radical opinions in reference to treatment in this deformity: "The only cases in which surgical interference is justified are those rare ones of slight separation and with an abundance of tissue where the division of the muscles would not be essential to success. Of the hundreds of cases that might seek surgical aid, very few would come under this exception; and although the practice has been tested in a thousand cases by the most eminent surgeons of their time, it has resulted in such a uniformity of failure, considered as a beneficent operation, that it should have been utterly abandoned long ago."

Although this never could have been written with a full knowledge of the success of surgery when employed during babyhood, or at a time, I claim, when surgical interference should be considered as imperative as the operation for lacerated perineum and other conditions which are discovered and demand surgical treatment as early as advisable after birth; yet most unfortunately it is true, that almost every professor of surgery in medical colleges, who has had more or less experience in operating for congenital cleft palate, will perform this operation before his class upon every patient who presents for treatment, of whatever age or condition of cleft, or tissues.

I can understand how there may be an occasional case of cleft palate with sufficient redundancy of tissue to warrant a skillful surgeon in attempting an operation for a patient after the age of 5, 10, or even 15 years, and with every probability of obtaining a natural palate that will meet all the requirements of speech. But successes of this kind are so very rare they prove nothing, neither do they justify the wholesale attempts that are made where there is no possibility of doing more than to surgically unite the borders of the cleft. And far too often, as Dr. Kingsley says: "When the only apparent object was to gain *éclat* by the skillful use of the knife in a difficult case before an admiring audience, and with

no possible hope of even a union or surgical success."

Surgical success in these operations consists apparently in a permanent closure of the fissure by uniting the tissue along the border of the cleft. But this is not success, unless the only real object that is worthy of consideration under the circumstances can be attained, *i.e.*, a palate which in conjunction with the pharyngeal muscles will enable the patient among other things to completely close the naso-pharyngeal passage. This is absolutely necessary for perfect speech; not only to obtain the proper quality of tone, but to enable them at times to forcibly expel all the air, which is the vehicle of voice, through the mouth, and often through a narrowed opening with intensified force,—as in speaking the words hiss, hush, etc. And again, in those vocal interruptions which can only be perfectly produced by a complete closure of every avenue of escape of an accumulated pressure of air, with the production of a sudden vocal explosion at the lips, or between the tongue and different locations along the roof of the mouth or palate, as in pronouncing the letters B, T, K, etc.

I have been told recently by an eminent surgeon that even after a staphyloplastic operation, the velum palati could be surgically extended to any desired length. This is a claim which I believe is not justified by anything which has yet been accomplished. If so, a practical proof would be hailed with joy and go further towards establishing this very doubtful claim than the bare assertion of any man however eminent.

It has been my intention for some time to bring the subject of this paper prominently before the surgical profession for general discussion, with the hope that it might lead to a careful comparison of the advantages of artificial vela and obturators, with the surgical operation known as staphyloplasty in congenital cleft palate.

In presenting this paper to the Chicago Dental Society, I feel very much like apologizing for occupying your valuable time with a subject relative to which so few dentists are actively interested; and yet it has seemed to me eminently proper that a question relative to an operation which in all its branches belongs distinctively to dental and oral surgery should emanate from a dental society, whatever larger influence I may hope for it in other quarters where only one branch of the operation is so unhesitatingly practiced under all conditions, and where little is really known of the other from a practical standpoint.

I shall not go into the causes and differential conditions of cleft palate, or attempt a detailed description of any particular method of treatment; but will endeavor to treat the subject from a popular standpoint, taking it for granted that my hearers of the dental profession are sufficiently well informed in every branch of this subject for the purposes of this paper.

What is the principal object of the patient, or friends of the patient, in submitting to an operation of this kind? It is almost invariably for the purpose only of perfecting or benefiting articulate speech, which is often so impaired in tone and vocal articulation as to destroy every hope and possibility of a life that otherwise would be an ornament to society and successful in every undertaking.

At the close of last year's term of school, I received a letter from a young man who had come to me two

years before with speech so imperfect as to be understood with the greatest difficulty, and for whom at that time I inserted an artificial palate. Accompanying the letter was a program of the graduating exercises of the High School of Manistee, Michigan, in which he was down for the "Salutatory," having been given the highest honor of his class not only, but a position which could not be properly filled by a person with indistinct or imperfect utterance of the English language. The following is a part of his letter: "I have sent you under separate cover an announcement of the graduating exercises of the class of '94, of which I am a member, thinking you would like to see the part you have played in the exercises. For I owe it to you that I am to take part." He has since written me from the University of Michigan, where he is taking the classical course with high anticipations of the future because, as he says, his friends now tell him that he speaks with perfect articulation.

This is only one of many similar instances in my practice and the practice of other specialists, showing the perfect success of artificial palates that have been inserted after the age of 15.

For the purpose of bringing before you unquestionable evidence of the value of the artificial method of treatment in congenital cleft palate, I have selected from my *clientele* two patients who are with us this evening, whose experience as regards time in wearing an artificial palate is widely different. The one gentleman, now 30 years of age, began about 15 years ago, while the other, a young man 19 years of age, will be remembered as coming before this society a year and a half ago, two weeks after the insertion of his first artificial palate. At that time he was presented by me merely to show the improvement principally in the quality of his tone, and in certain enunciations that were previously impossible. When you hear these gentlemen speak, as they have kindly consented to, after the reading of my paper, you will be convinced, I think, that were you to meet either one in private conversation—where the opportunity of using a lower tone than is possible in this hall would be greatly to their advantage—that nothing in the character of their speech would suggest the deformity under which they labor.

The treatment for congenital cleft palate of whatever character, is usually the crowning event of a patient's whole life; for upon its success in enabling him to speak distinctly depends his future. It is often the one event for which they have been saving and looking forward to for years; and what is of a far more serious nature in throwing the responsibility of a being's future upon the operator who attempts the correction, it is usually the only operation they will undergo, whatever its final result. By this I do not mean they will not allow the operator to perfect or improve his first operation; but that after they have first investigated the subject of treatment, choosing the method which seems to promise the greatest benefit, and the operator upon whose skill so much depends, they usually will forever abide by the consequences. In some instances their means will not permit a second outlay of money, to say nothing of other things, for a second or different operation, the success of which they have much reason to doubt. In other instances, if the operation is a surgical one, which is successful only as to the perfect union of the fissure without material improvement in speech, or

with an improvement which is not equal to that which certainly could have been obtained by a skillfully adjusted artificial palate, the latter operation is rendered impossible, unless the cleft is disunited for the proper insertion of the artificial velum, an undertaking that will rarely be submitted to, even if it were possible for results equal to those which might have been obtained in this way at first.

Of the hundreds that are yearly added in private and hospital practice to the list of patients having a partial or complete disunion of a once surgically united cleft palate, few ever apply for a second operation of any kind for various reasons. It is doubtful if many of these patients could acquire the ability to successfully use an artificial palate with the muscles of the natural velum and uvula stiffened and contracted by the cicatricial tissue of the operation, when so much depends upon the mobility and sensitive activity of the natural muscles in acquiring the power to properly use an artificial velum as an adjunct of speech; just the same as the muscles of the hand acquire the ability to use an instrument of any kind in the accomplishment of an object which could not be attained without that particular instrument skillfully fashioned for the purpose and made to do the bidding of muscle and brain in the production of beautiful music or the restoration of a decayed tooth. If the muscles have lost the possibilities of their natural cunning, either by disease or by a surgical operation, the most perfect brain and instrument are powerless to accomplish more than indifferent success.

When patients have come to me from time to time with a surgically united cleft, realizing the inadequacy of their operation and with the hope of improvement by artificial means, it has been my custom to tell them that nothing could be done without first opening the suture, at least through the soft palate, and then with no promise of success beyond the probability of an improvement in their speech.

I have one patient who is at present the Auditor of the Toledo & Ann Arbor R'y, who underwent surgical treatment for congenital cleft palate when quite a boy at the hands of those eminent surgeons, Drs. Agnew and Garretson. I found the soft palate perfectly united, but anterior to this in the hard palate there was an ovoid fissure about the width of a cent. This was covered by a plate with a flexible extension made by Dr. Patterson, of Kansas City. When I first met this patient, about six years ago at Jackson, Mich., he was very skeptical as to the benefits of any mode of treatment. He was accompanied by his sister who had brought her daughter, who was suffering from the same deformity, for consultation, or rather for investigation of my method of treatment. When I heard his strongly expressed doubts as to my ability to render a service that would enable his niece to speak perfectly, I privately sent for one of my cleft palate patients, whom I introduced to them with no explanation. After quite an animated conversation, in which my patient did most of the talking, I told them that the young man was wearing one of my palates. At this they were greatly surprised and could hardly believe it until they had examined the palate and saw the cleft which was very large and apparently quite difficult to treat. It is needless to say that this decided the operation for his niece, which proved so successful that later—about three years ago—he insisted upon my making the attempt



to construct an artificial palate for him without opening the suture in his soft palate. I found upon trial with a certain form of flexible rubber palate that the requisite posterior extension or veil of the palate could be rolled up and thus thrust through the fissure, where it was firmly buttoned in place by a lingual extension of the rubber. When in place, the artificial velum now unrolls to the proper width and extends fully three-fourths of an inch beyond the posterior border of the surgically united palate, without even then coming in contact with the posterior pharyngeal wall, until raised by the muscles in the act of closing the passage to the nose, on the principle of a valve, the same as all artificial vela are successfully worked. This instrument he has used quite successfully, and, as he writes, "with marked improvement in his speech; especially in using the telephone which had previously given him much trouble."

We have with us this evening a gentleman about 30 years of age, who was also operated upon surgically when a boy with the usual result to speech, so far as I can learn, of all operations performed after 5 or 10 years of age. When he came to me about six months ago I found the fissure perfectly closed, but with the velum palati so rigid and short that it could not be made to reach within a half inch of the posterior pharyngeal wall, in consequence of which his speech was quite imperfect, especially in quality of tone and in those vocal enunciations which require a complete closure of the naso-pharyngeal passage. After weeks of consideration, he finally consented to have the suture opened through the soft palate for the introduction of an artificial velum, which you will find has brought about an improvement in his speech that is not often possible in so short a time under the most favorable circumstances for patients at his age.

The next patient I wish to present to this society is a woman upon whom as perfect a staphyloplastic operation has been performed as is possible. You will find upon careful examination of this case that the operator has taken advantage of the most approved and modern method of cutting those tense palatal muscles on either side which have so often been the cause of ultimate disunion of the suture on the one hand, and, on the other, when union has been permanent, in a tenseness, immobility and shortening of the velum that aborted its every possibility of becoming a useful adjunct of speech. I do not wish to be understood as exhibiting this patient—who now speaks so imperfectly as to be understood with the greatest difficulty—as a fair sample of the invariable result in speech arising from a staphyloplastic operation, for I have met with a number whose vocal articulation was far more perfect. On the same principle also, this is true of many with open clefts who have received no treatment whatever. My main object in presenting this case is to show a condition which may follow the most skillful and successful operation—considered from a surgical standpoint—performed during adult life with every advantage of an abundance of palatal tissue, and one which I have good reason to believe is a fair sample of the relative improvement to speech in a large proportion of all staphyloplastic operations that have been performed later than infancy, or very early childhood. I also present this case as an illustration of what many skillful surgeons are willing to attempt for patients

even older than 40, with no probability of success considered as a beneficent operation, and with nothing in fact but the bare possibility of surgically closing a fissure that has never given them trouble beyond the disadvantage of imperfect speech, which their operation can not remedy. It is a sad commentary upon surgery when its most skillful operators are willing to subject some poor human being to an operation that causes great suffering, with loss of time and money; and worse than all, places him beyond the pale of possibilities that might result from other hands.

Unfortunately, these instances are not confined alone to the medical profession, but have arisen from the ambition or cupidity of skillful dental oral surgeons whose education should give them a perfect knowledge of the advantages of the artificial method. Why would it not be far more commendable for these gentlemen to allow, and even advise, such patients to first try the artificial method, and then if that fails, the surgical operation could be performed as well—a thing which can not be said of the artificial method if the operations are reversed as to time.

To recapitulate the claims of my paper, the first point I have attempted to make and conclusively prove is that the artificial method of treating congenital cleft palate for patients under 15 or 18 years of age can be relied upon when skillfully performed, as furnishing a sure means by which may be attained perfect vocal articulation, free from the undesirable nasal tone which is characteristic of this deformity. And while the same success can not always be promised at a more advanced age, a decided improvement in speech has invariably resulted in all cases where I have been allowed an opportunity to properly develop the artificial palate according to the needs and possibilities of the muscles; and, on their part, there has been a proper persistency in training the voice to speak distinctly. There are many instances where patients have begun wearing artificial palates as late as 30 years of age whose speech in ordinary conversation would not produce a suspicion of their deformity, as instanced by one of the patients whom I shall present at this meeting.

2. With the surgical method of treating cleft palate, when performed later than infancy or very early childhood nothing like the above results have been attained, with perhaps an exception in a few isolated cases. Certainly nothing to warrant the most skillful surgeon in operating, as they commonly do, for patients older than 20, or even 10, where the cleft extends partly through the hard palate, and with the tissues of the soft palate comparatively scant from non-use during the age of its growth and development.

3. When should congenital cleft palate receive surgical treatment? I answer most emphatically, as soon after birth as safety to life will warrant. But after 5 years of age and even earlier, be the cleft great or small, the operation should be performed only in those rare instances which promise an unquestionable assurance of resulting in the desired length and mobility of the united velum palati.

The following is taken from the approved minutes of the January meeting of the Chicago Dental Society at which the above paper was presented:

"The several patients to whom Dr. Case made reference in his paper were presented to the society, and through the medium of short extemporaneous speeches demonstrated the fact that in every instance

their power of speech was fully in accord with his claims.

"One young man gave a remarkable exhibition of his ability to whistle, which was a surprise to all who knew the impossibility of performing this function with a cleft of the palate, unaided by surgical or artificial means."

A. H. PECK, Secretary Chicago Dental Society.

## SLEEP THE RESULT OF DIFFERENTIATION.

BY GUIDO BELL, M.D.

INDIANAPOLIS, IND.

### SYLLABUS.

There are no atypical cells in the organisms; for this reason and others there must be something guiding all biologic processes—species in action is identical with vitality.

The fundamental functions are assimilation and proliferation; differentiation is the tendency of bringing assimilation and proliferation in contact with the outer world under most favorable conditions.

These influences are either food and air or disengaged (cosmic) energy. Food is preeminently chemic change and is carried on a neutral road through the body; cosmic influences are carried in an electrical form also on neutral roads. Blood and nerves are neutral in consequence of their metaplastic nature as hair and nails are.

All biologic phenomena are subject to the law of conservation of energy but controlled by species.

Trypsinogen and inogen are transformed by a specific irritation into trypsin, or mechanical force, respectively. Similar to this, we have to assume a product in the cerebral cell which, on irritation, becomes an "imprint" consuming oxygen. The nerve cell puts itself asleep.

It is proper and correct that "experimental science ought to vigorously forbid itself all research relative to first causes." But excluding such a research as not pertaining to experimental science we have taken our aim too short in physiology.

Within the last fifty years, since medical sciences have been conceived from the standpoint of induction and taught so in regular schools, it became evident that medical practice did not make equal progress as science did, and that American medical practitioners with less schooling can well compete with their European colleagues.

The cause of this seems to rest in the fact that the young practitioner can not translate easily the language of science into that of practical life. It is difficult for him to get the essentials of a phenomenon by abstraction and to compare them with his doctrine. He learns using terms without a clear conception; he speaks of constitution, temperament, vitality and so on and refers to them in his judgment and action.

It seems to be just and commendable to draw forth these terms from indistinctness, and to lay down the "known" and the "knowable" but not yet known.

My endeavor is to plead in this article on sleep for the term, vitality. I choose an object to be concise and clear, and I select sleep because she, a natural healer, offers the best opportunity of viewing nature's workshop.

I define vitality as the metaphysical principle active in the development of the individual and in procreation. Both changes and disorders, inherited and acquired in life, must be included in a given case. Vitality is identical with species or type. I will try to show that the law of conservation of energy can not be understood in biology if not placed under the control of species. Only such forms of energy are disengaged in the cell, and so much of each as are in accord with its design.

Sleep is a normal condition of the human body; it is periodical rest with a higher or less degree of unconsciousness due to inactivity of the nervous system. Not only the avenues by which we receive

impressions are closed, but also the mechanism through which our various relations with the outer world are maintained and regulated, is cut off.

But not all organs sleep; some find other means to be equal to their duties. This variation is explained by the laws of differentiation.

All biologic functions must be studied in the simplest forms of life—the cells. The cell consists of a cell wall, plasm and a nucleus. But some living matter has been observed without a cell wall and even a nucleus can be missing. Thus in the simplest living being there is nothing but protoplasm, a network holding together a gelatin or fluid, and consisting of carbon, oxygen, hydrogen and nitrogen.

But life is not mere chemic change; it is rather chemic change in the services of the metaphysical principle of species which in juxtaposition develops the individual and in postposition creates the offspring. (Juxtaposition and postposition are inadequate terms, because the individual is not made, but precreated and developed.)

We must accept the metaphysical control for the following reasons:

1. Every cell and every organ in the human body is strictly typical in normal and pathologic condition; if forms are made under control, the forces producing them must first be controlled. Only such forms of energy are disengaged and so much of each as are in accord with the design.

2. There is a correlation between all functions under a central power.

3. Only certain substances are absorbed; matter absorbed either benefits or injures the cell; but to a certain degree of irritation the cell retains its integrity.

4. Intellectual and moral qualities of man can not be brought under the law of conservation of energy without acknowledging a metaphysical principle in close contact with matter and energy. *Cogito ergo sum* is the deduction of the general axiom; *species, ergo vivens*. Species creates the individual in abstracto and makes it the subject towards objects.

5. We perceive objects not as they are but as they affect our senses; but we get a correct perception over imperfect and faulty apparatus.

6. Only an organism can be sick and may recover health by maintaining the typical form, although chemically changed.

7. Transmission of changes and disorders from parents to offspring means only that species may suffer as well in postposition as in juxtaposition.

8. In nerves and muscles of a dead body, there is no disengagement of electricity and of mechanical force; but an unrestrained chemic dissolution takes place.

Both intellectual and animal life are manifestations of the same metaphysical principle. Type or species leads every disengagement of energy in organic action. But before we consider energy in its relation to matter and especially in its modifications in an organism we must call attention to a misunderstanding commonly met with, that forces act directly at a distance and that energy makes a round from masses to masses.

If it is true that where there is one substance there no other can be and that matter and energy can not be separated; then we may not use expressions as "free or communicated energy;" energy being inherent to matter can be active and disengaged only. Light is communicated neither to the eye nor to the

rock, but disengages energy although differently in the eye and in the rock. Furthermore it must be emphatically said, that disengaged energy is not the real cause of a phenomenon, but that cause is within a thing and only the inciting cause is from without; but disengaging and disengaged energies combined constitute the phenomenon. Simple as these assertions may seem to be, they are essential in our conceptions and their disavowal has led to grave mistakes.

Energy in inanimate masses is disengaged with or without transformation or it is latent. In living organisms we observe the same conditions of disengagement but subject to the biologic laws of maintaining and of developing the type. In most cases disengagement goes on with a partial transformation that means the disengaging energy with that to be disengaged appearing in partly new forms. Warmth affecting wood disengages warmth and, partly, chemic change and light. But if transformation becomes the prominent feature, as in ignited gunpowder, we call disengaged energy adequate. The spark is the adequate energy of burning coal and sulphur and of decomposing saltpetre; warmth disengages chemic change. As a result of this chemic change, we receive substances whose energy is partly used in changing the aggregation of their molecules into gases. Gases disengage mechanical force by expansion. Expansion is mechanical force and is inadequate to the bullet, disengaging its energy without transformation.

But we have to assume a third condition of energy. A spark without gunpowder does not move the bullet; it disengages some warmth in the bullet but does not change its form or place. But as soon as warmth has accumulated to a certain degree, a part of it disappears, changing the aggregation of the molecules only to reappear in its original form when temperature goes below the known limits. This warmth on which aggregation depends has always been called latent, but in a wider sense all energy is in a state of latency if persistent and not disengaging. This must be said of chemic change forming physical bodies; there is a relative rest from which unrest of other energies may be judged. We speak of adequate, inadequate and latent energy only relatively to their prominence.

Comparing the same conditions in living organisms, I must confine myself to a few examples. Much moisture and warmth are required to disengage chemic change in a seed, but once started a metabolic grouping will continue in all substances absorbed by the cell. Light disengages electricity in the eye; light is the adequate energy for the substance in the optic nerve, as sound is for the ear, but neither is light to the ear nor sound to the eye adequate, although both are connected with nerves. But meanwhile a spark may ignite any quantity of gunpowder, and the disengagements in eye or ear are corresponding to intensity and quality of the irritation. To dead organs the same irritations are not adequate any more.

We find, also, inadequate energy active in the organism for absorbed food or poison. Assimilation in its various forms is preëminently such a disengagement; although a mere chemic changing, how manifold are the processes and products! A billiard ball rolls with the very force and in the very direction imparted; two substances put in a vial will surely

form the body expected. But what a variety of chemic combinations has been discovered by chemists and all consisting of but a few elements? Every organ furnishes its specific products, mostly beneficial, but sometimes injurious if not changed anew or eliminated. This grand display has caused a wonder at all times, and the fact that substances are produced not found in the physical world has led to the belief in a supervising force of chemic change as the real cause of life. But exposing this fallacy, our authorities restricted themselves to forms and phenomena, excluding all researches relative to essentials of life.

The third state of energy, that of latency, appears in organisms frequently so modified that instead of latency we better speak of energy at disposition. We observe in gland cells, for instance in the pancreas during the state of repose, granules accumulated which we may claim for some reasons not to be protoplasm, but the substance ready for a moment's call of an irritating nerve to be transformed into the specific product of the gland. Corresponding substances in muscles and nerves form the hypothetical stratum for an explanation of their activity. These substances represent energy at disposition.

Of the cosmic influences, or disengaged energies, our senses receive a few, but with a remarkable sensitiveness as to intensity and quality. Others, as electricity, we do not perceive; we feel heat and shock and notice light into which electricity has been converted, but not electricity itself. And light, the source of all life, is not disengaged at all in the human body as long as there is life within. This great restriction in disengaging energy we notice in every living cell in various ways protects life within certain limits and is the cause on one side of restoration after exhaustion and on the other of recovery after sickness. But all restriction ceases when life is extinguished and unrestrained physical laws prevail.

If we are inclined to accept a monistic conception of nature, in that sense that intellectual and animal life have the same origin, I feel satisfied to have shown by this discussion that species is really the principle of life. But to prove it by demonstration, I will proceed to the part of this essay dwelling on sleep.

The simplest living matter consists of protoplasm and an enlivening principle whose lower border line projecting in individuals is reflected in the organs of our senses.

Living matter assimilates, it absorbs substance, merges the material into other chemic groups similar to its own, and eliminates substances not useful to its design; living matter also proliferates, that means it separates and divides masses accumulated by assimilation in new forms like its own with a certain degree of independence.

Groups of cells develop to distinct forms and organs of a specific function as nerves, glands, bones, muscles and so on and these specific functions may become so prominent that assimilation seems to be rather an auxiliary action and that proliferation ceases entirely in certain tissues as in hairs, nails, blood. A mother tissue is necessary for the new formation of such tissue. This process is called metaplasia and is one of the results of differentiation.

Differentiation of tissue as well as of organs causes their independence to yield to a central power with the

result of a more distinct individuality of the organism as a whole. But dependence of tissue and organs, and the more marked individuality of the whole organism make a shifting from variety to a new species difficult and impossible. Virchow says: "Darwinism has no room in pathologic anatomy of man."

Assimilation and proliferation are really the prerogatives in living matters towards inanimate masses as crystals. They are the fundamental functions of life in the simplest forms as well as in the most complicated organisms; they are active in all organs of different and various specific functions which may explain the correlation of these functions and also the dependence of each from the whole. These various and different functions are specific and the result of differentiation as perception, motion, respiration, digestion, circulation and secretion.

All these specific functions have in common the tendency to bring assimilation and proliferation in contact with the outer world, under most favorable conditions, and the means of accomplishing this are the organs.

The external influences are either substance in form of food, drink or air (latent energy in a general sense) or disengaged energy in its origin either directly or indirectly cosmic. Latent energy or food, drink or air entering the body begins a chemic change and means a plus to the household which interchanging gradually diminishes.

There are connective, muscular, glandular and nerve tissues in the human body and each with various metaplastics, and besides this a procreative tissue in the sexual organs. These five mother tissues maintain their character even in metaplastics, but nourishing will be different in mother tissue and metaplastics. Another difference will arise from the specific functions. The glandular cell produces, for instance, trypsinogen, glycogen and so on, the muscular fiber, inogen, both to be disengaged with or without transformation. For muscular tissue it may be an explosion or a process similar to bulging, dividing and separating in proliferation. But for nerves the primordial substance must be produced by their respective cells or mother tissue which on irritation appears instantaneously in an electric nature. For this reason we assume molecules constituting nerve substance to be homogeneous and their electricity to be latent, as warmth is latent in fluids and gases. Therefore their energy is excitable in an instant. Certainly there is not an electric current in nerves. Nerves have lost their individuality as hair, nails and blood have; but their neutrality enables them to be carriers of irritation.

The next conclusion will be that neither nerves nor blood have scientifically the prominence in the household of man that is asserted in our text-books. The latter distributes food or latent energy, and the former cosmic irritation or active energy; both maintain a neutrality but of the greatest importance. The fundamental functions of life rest in the mother tissues. The weakness of both the humoral and neuropathology is manifest. Blood and nerves are the routes our therapeutics take, but our attacks must be directed to assimilating and proliferating tissue.

Of the forms of disengaged energy from without, some are received by our senses and are answered by a reaction of electrical polarization. Soon the whole

nerve is placed in a state of electric irritation, a "nerve-current" is formed and this irritation is carried to the central organ and from there on other roads back through the whole system especially to muscles, glands and so on.

As we observe in simple organisms, as in hydra, an endoderm absorbing food and an exoderm receiving irritating energy, so we have two systems for the same purpose in higher differentiated organisms.

But organs receiving disengaged energy become exhausted periodically, according to the law of conservation of energy, require rest and are restored by rest. This is the standpoint we have to assume in judging exhaustion leading to sleep.

Herbs and animals fit themselves to the surroundings and protect themselves in order of self-sustenance and development. This tendency is also expressed by differentiation.

Individuation begins with formation of organs, for protection of which in the development of man the greater part is cast off. I mean the fetal membranes. But the remaining part, the skin, serves as a coat of mail and an exit for excretions, and at the same time gives space to peripheral receivers of the organs of perception remotely located. But no other, unless disengaged energy, and only one form and a certain form, finds an entrance at each receiving place; thus light is referred to the eyes, mechanical force to ears and fingers, chemic change to nose and tongue; meanwhile millions of sentinels are dispersed all over the surface, the filaments of cutaneous nerves. For warmth we have no special sense and not for electricity. What a contrast the human skin presents! Impermeable to all substances and influences as long as it is unhurt, the skin is the bearer of apparatus sensible to all grades of quality and intensity of energy from near and far.

Energy of the sun excites electric vibrations of the ether, which, entering the atmosphere, are transformed into light and reach us either directly or reflecting from the surrounding world as color, sound, motion, warmth and so on. These relations to the outer world are the cause of the variation of the body, of its gain intellectually, and of its loss bodily and certainly of our intellectual and moral life.

But on the other side we observe that the functions of the kidneys are more important to health than those of our eyes, and the activity of the stomach and liver more necessary to life than the senses of smell and taste. Indeed we may miss these organs without being aware of the want.

Assimilation and proliferation are good house-keepers, caring less for earning than for managing the earnings. But in earning, expenses are made.

The internal organs, those as well of perception and motion as all specifically active in assimilation in the wide sense, are not simultaneously or equally developed, neither do they reach an equal perfection. Some organs belong to fetal life only, others to a late period in life; the most constant organ is the heart, the first and last in action.

The law of conservation of energy teaches us that we perceive but variations of things and that all phenomena are the result of various forms of the same energy. Only gravitation will not submit to this law, but according to Helmholtz, gravitation or universal pressure is the source of all energies to be considered both in physics and biology.

The quantity of heat necessary to raise the tem-



perature of a kilogramme of water one centigrade is called a unit of heat. Any kind of mechanical work, compression, percussion or friction of bodies produces heat; the mechanical work necessary to produce a unit of heat is the mechanical equivalent of heat. The amount of electricity necessary to produce a unit of heat would be the electrical equivalent of heat.

The mechanical equivalent of heat is known by experiments to be 424, that is a power which would raise a kilogramme of water 424 meters or 424 kilogrammes of water one meter will also raise the temperature of a kilogramme of water one centigrade.

But equivalents are less important for our purpose, because we can not yet consider phenomena of life from a mathematical aspect. If we only know that no energy is lost but that it disappears entirely in one form before it reappears in another, and that the substance after a disengagement is not fit for a disengagement in the same form; then we are enabled to explain how a controlling power may prevent overheating, combustion and decomposition and inducing absorption; how it may lead molecules into certain homogeneous chemic groups, and how these processes influenced from without and repeated a thousand fold in every instant may be carried on here and there in various ways, but uniform and conforming to the whole.

Blood is a metaplastic tissue; we did not observe so far a proliferation of blood cells. The red corpuscles have neither a membrane, nor nucleus and being solid are no cells; their new formation requires a mother tissue. Therefore we can not speak of blood diseases. Blood is a neutral fluid; it may be contaminated as a stream is polluted by surroundings; but it does not contaminate itself. This peculiarity qualifies blood so well as a carrier of food. The chemic interchange is diminished to a minimum on account of its metaplastic nature; oxygen is absorbed by the red corpuscles as charcoal absorbs gases and is carried to all organs and especially to the brain where it is mostly needed; opium and other poisons are transported over this route to distinct cells of the brain where a chemic change may take place with the result of paralysis; the product of the thyroid gland takes the same means of transportation to the brain. At least we can not find any other cause for the degeneration of the brain where the organism is deprived of this gland. Perhaps prohibition of chemic interchange may explain also the germicidal power of blood serum.

Blood heat, although remarkable for its stability and warmth of the whole body seems to be overrated in its importance to the economy. Fever heat indicates only that chemic change is disturbed. Danger arises from this disturbance exclusively.

Chemic interchanging begins in the tissue proper and assumes such complicated and variable appearances that only a few facts can be ascertained. Of food ingested, air, water and solubles enter the organism in a purely osmotic way, but not without an exchange. The exchanged substances loosen chemic groups in the food, without thus rendering them resorbable at stations beyond; this may be repeated, leaving finally waste matter only.

Substances absorbed begin an endless series of metabolic changes. We must assume that these chemic changes are as strictly controlled as production of heat is or any other transformation. Assimilation is

mainly chemic change of accumulated masses which slowly decrease to end with elimination of wastings through kidneys, skin and lungs. But we must keep in mind that all processes take place in cells and that their inciting cause, be it from a neighboring cell or a microbe or poison is controlled by physical laws only; biologic control belongs to reaction in the cell exclusively. Every cell acts as a relative individual, prospers and suffers or remains indifferent to irritations of neighbors. But to remain indifferent means in biology to be protected; protection is within certain limits towards normal and pathologic irritation. At times the constitution of the plasm is weakened, some chemic groups can be loosened easier, or certain substances in the blood have a peculiar influence on distinct groups. For this reason they are termed poisons or medicines; then the reaction in the plasm becomes abnormal and the inciting cause with the reaction in the cell results in a condition which we call sickness or disease.

In general, we construct the law of conservation of energy as follows: In nearly every disengagement there is transformation present; disengaging energy of higher intensity disengages so much more energy of another form, and in the contrary absorbs so much that the functions of the quantities before and after the disengagement are not altered; both energies before the disengagement are equal to the energy afterward in the new form. Practically we say, what is loss to one organ is gain to another. We can at least understand that there is not so much loss of substance on account of assimilation, but that metaplastic tissue being practically eliminated from the economy, and although of greater stability, increases consumption and wasting in the mother tissue.

It becomes now our duty to demonstrate consumption and wasting in the nervous system. As blood is the carrier of food to assimilating and proliferating tissues, especially qualified by its metaplastic nature and a neutral distributor of food to all organs, so cosmic influences affecting our senses as color, sound, motion, pressure and so on, are transferred by carriers equally neutral, the nerves. We assume a metaplastic origin for the nerves, too, because they grow from the nerve center and are new formed from there. And as blood is transported to a central station to be distributed from there to all districts, so all irritation by disengaged energy from without is sent through sensory nerves to the brain, to be followed by orders to muscles, glands and so on.

There are vital railways and telegraphs in the organism. But there is still another conformity, in the receiving stations. Teeth, saliva, gastric juice and others act upon food, and adapt it for absorption, but the apparatus of our senses does the same with irritation of cosmic influences. Light does not affect directly the optic nerve, nor does sound irritate the nerve of hearing, and certainly the nerves of smell and taste may not be incited unless a receiving apparatus has selected carefully the form and quality of disengaged energy and has adapted it to the respective nerve. How would it be possible that nose and tongue can discriminate, when chemist and microscopist have already reached the limits of their skill! How light, sound and odors are delivered to sensory nerves we do not know. The veil is partly raised from the finer structures of retina and labyrinth, but we do not understand the wonderful pictures.

Is visual purple analogous to gastric juice in transforming light into electric irritability? We know the nerve to be a good carrier of irritation on account of its metaplastic nature, but we only presume the form of its disengaged energy to be of the electrical kind, a polarization, termed "nerve current" but not an electric current. I have to repeat yet with emphasis, that blood and nerve have a great stability of their own and that they can not become sick; their normal and abnormal conditions depend entirely upon their respective mother tissue and the surroundings, just as hair and nails do not contract a malady but suffer with the disordered mother tissue.

Nerve irritation is conveyed to the nerve cell to reappear there in a new transformation. But we have to attribute two metaplastic processes to the nerve cell; one as we have seen in the formation of nerve substance and the other in the production of little corpuscles similar to trypsinogen and glycogen which, on nerve irritation, appear as the specific products of the cerebral cells. Their existence is not yet proved by direct observation, but is highly probable according to conclusion by analogy. Every irritation must leave a permanent impression on the products of the cerebral cells; these imprints affecting mind are repeatedly tested, selected, arranged and preserved. Whether the same nerve cell produces nerve substances and these corpuscles, and how the processes in cells and filaments are carried on we do not know.

But we may understand somewhat of the magnitude and diversity of their work when we are informed that the brain contains 600,000,000 of nerve cells and twice and thrice as many filaments connecting them, and if we join anatomy with physiologic activity we take into consideration that many irritations are required for the conception of light, and many more to get the idea of green, of shape, of leaf, of growth and of life, and that the endless series of irritations must be tested, selected, arranged and preserved. These imprints must be regarded as eliminated from the economy because they are metaplastics. We are aware now of the great consumption and loss resulting from their production. Exhaustion is the natural consequence; but nerve cells do not differ in this from other mother tissue. The difference rests in their restoration only.

Nerve irritation is adequate energy to the corpuscles produced by the cell, but not to the plasm maintaining the same. Repeated irritation and over-exertion produce hyperemia and swelling connective tissue, but no impressions in the exhausted cell. Its specific activity ceases.

The exhausted cell is not specifically active, as the nail does not grow in case of fracture of the limb because the connective tissue (in a general sense) is engaged in producing a callus. But there are other factors checking activity of the brain cell, also, as impaired constitution of the plasm, interruption of nerve irritation, poison, shock, hypnosis. The cell in normal condition may be exhausted, but its integrity is not impaired. If there are different influences having the same effect, there must be another cause of sleep which is common to all and different from each. Sleeplessness during nervous excitement, and in neurasthenics, dreams and so on, indicate that periodical exhaustion does not more than induce sleep.

Many animals go well fed into a winter sleep.

Certain fishes and amphibia sleep in a similar way during the dry season. Dr. Fred Cook, of the Peary expedition, reports that Eskimos are in a semi-comatose condition during the night of several months, that menstruation ceases, that all births are counted from the time of the reappearing sun and that nevertheless they sleep every twelve hours although not exhausted. The temperature of their blood is half a degree higher than ours. And then we know that quietness, darkness and coolness have much to do with sound sleep. All these facts convince us that exhaustion in the cell induces sleep, but that the cell, self-ruling, demands sleep and it puts itself asleep. Sleep is really to be compared with other resources of nature maintaining welfare and life; as hypertrophy, vicarious functions of skin, lungs and kidneys, the changing fur in winter and so on. Muscles hypertrophy in official duty and their action is *en masse*, but nerve cells, active individuals, find relief only in periodical rest.

Pflueger maintained the theory that brain cells are very sensitive to want of oxygen and that this want is the cause of sleep. This theoretical conception is in contradiction with many facts, and it will be necessary to go into details to reach a proper understanding. The plasm of cerebral cells is probably not more sensitive to a want of oxygen than in other cells, but this want seems to be felt mostly at the disengagement in their products forming "imprints."

The condition of the blood has much to do with our mental activity and, on the other side, hard brain-work influences the quality of the blood.

Full blooded youth is intellectually fresher and needs more sleep than the dry stupid senile. He who sleeps dines. Methodical reasoning is less tiresome; clear thinkers as Lessing, do not dream; all such assertions connect with the idea that supply and consumption of blood are in a causative relation to our capability of perceiving and reasoning. But if our thinking should depend on the supply of oxygen exclusively, then the full blooded would be our philosophers and the pale and lean would pass in sleeping the time for action. In fact, Pflueger asserts only, that sound and plentiful blood and especially its oxygen nourishes the cerebral cells. But if we say, these cells feel a want of oxygen not in their sustenance but in their specific action, then all contradictions mentioned above are dissolved and this theory is placed in the right light excepting in one point. We have to place the cause of all vital phenomena in the cells, specifically active.

For this reason we adopt the following explanation of sleep: nerve irritation is followed by reaction in the cell with the result of granules, already separated, being transformed into the specific products; oxygen of the blood is required for this transformation and enters into this chemic change. Nerve irritation fixes the amount of oxygen and partly the quality of grouping. If the plasm be exhausted or the impressions too weak, then the product will be deficient and the imprints are either indistinct, unfit, or they are missing. A correct perception requires a well fed cell, a vigorous irritation and oxygen at disposition.

Besides removing some absurdities of the storing-up theory, our conception explains the objectivity that is in every perception. The impression of light is reaction of the cell and is subjective, but the perception of blue is an alteration due to the exciting cause and is objective. We comprehend also the

truth in the proverb, "he who sleeps dines." We also understand that full blooded youth demands more sleep than old age, and we find it correct that clear thinkers mature their thoughts and close up periodically to begin anew later. The cause of sleep rests in the cell; it puts itself asleep whether there be oxygen or not. Want of oxygen is not in nearer causation to sleep than want of irritation in repose, darkness and monotony.

We must bear in mind that every organ has a two fold function; one in its official capacity towards the organism and one in its private capacity for self-sustenance. We observe both functions increasing and decreasing in glands and muscles, not bound to periods; in others as in the heart and in the lungs there is work and self-preservation well compensating each other and consequently uninterrupted. But brain cells have only one resource of restoration and one way of caring for their welfare viz., periodical rest.

It is apparent now that we can not speak of sleep in the fetal brain, because it is active scarcely in any other way but in differentiating and in developing.

Want of oxygen being the cause of sleep is an easy formula of a mechanical conception of nature, but it is also a fair example of the shortcoming of such a conception. I refer to cases of total blindness and deafness as of Laura D. Bridgman, where the sense of touch was the only means of developing a bright intellect of wide range. If the human organism were a machine only, how could it be possible that intellectual powers could be unfolded in such a high degree when all avenues of communication with the outer world seem to be closed?

There is a miniature world within the human body that seeks a union with the greater world, and the organs of perception and motion are the means and ways to accomplish this. They are really the servants and if one fails another will be tried.

A result of the inactivity of the brain cell is unconsciousness in one direction and idleness of nerves and muscles in the other as a matter of fact. Yet all organs show a slower and weaker activity during sleep, but can we expect anything else from decreased or missing irritation?

Whether muscles sleep, may be decided by a few words. Muscles are real dynamos which mostly on nerve irritation transform chemic change into mechanical force; they are more or less in a constant tonus. Some muscles become exhausted and rest occasionally; thus they take a chance during sleep. Some others are never in a state of repose. But none, even if it should be in action now and then only, is, when exhausted, the cause of unconsciousness. Most of the muscles may rest but they do not sleep. Even nerve irritation is not necessary for all muscles. The heart contracts without any palpable excitation from without (confer Romberg, Berlin, *Klin. Woch.*, March 27, 1893, and JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, vol. XXII, No. 17). Sympathetic and pneumogastric nerves regulate only the heart's action.

About both motor and sensory nerves and their peripheral apparatus not much remains to be said. They are telegraph wires and apparatus; there is an equal loss in their wear and tear, whether in use or not, and consequently no periodical exhaustion.

The aim of viewing nearly the whole field of phy-

siology from a higher standpoint is to give it a wider scope and to bring abstraction again nearer to reality. The great gain that will be derived is that we will understand better the merits of functions and the value of symptoms; we learn weighing them.

If we are in doubt whether we should resort to intubation or tracheotomy, or to expectant treatment, the question arises, What is the worse, weakness of the heart, or want of air? Then we weigh symptoms; and to weigh them, constitution and vitality is practically more important than a detailed diagnosis.

## ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

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(Continued from page 439.)

### CHAPTER VII.

**Lungs:** The lungs in the dependent portions were greatly congested with blood, and presented a mottled purplish and red appearance. The lower portions of the lungs, when cut, resembled the congested lungs of pneumonia, and in circumscribed portions effusions of blood had taken place.

The muscular structures of the thorax, when cut and exposed to the atmosphere, presented a brilliant scarlet hue, like those of patients poisoned with cyanid of potassium.

**Abdominal cavity:** Alimentary canal, exterior surface of stomach somewhat congested. Internal mucous membrane of a deep purplish and brownish-purple and red color, with variations in the depth of the color, presenting a mottled appearance. Under low magnifying powers, suitable for the examination of the mucous membrane of the stomach by direct light, an intense congestion of the capillaries and small blood vessels was observed.

In some places the epithelium of the mucous membrane of the stomach had been removed, and the capillaries were exposed and ruptured, and from the points of rupture issued small flakes or coagula of blood, resembling those so frequently found in black vomit. The epithelial cells of the mucous membrane were detached in large numbers; they could also be removed readily by slight and delicate scraping with a spatula.

**Black vomit:** The stomach contained one pint of black vomit, of a dark purplish color, resembling in all respects defibrinated and altered blood. Under the microscope, the black vomit was found to contain numerous colored blood corpuscles, variously altered, also cells from the mucous membrane of the stomach, and also broken capillaries. In this case the black vomit resembled in all respects blood which had been defibrinated and mixed with gastric juice, or with a mucoid fluid. This specimen of black vomit, taken from the stomach twelve hours after death, contained some fibers, and the sporules and thallus of a plant resembling the yeast plant. The yeast plant appears to be most abundant in the acid black vomit of life, and appears to be dependent in large measure for its rapid development upon the articles of food consumed. If much sugar be introduced into the stomach with the food, the growth of this plant is rapid in a stomach which has lost its muscular and diges-

tive power to a great extent. The sporules of these plants appear to be ever present in the atmosphere, and they increase rapidly whenever the proper conditions, as in the disabled stomach of yellow fever with its albuminous contents, exist for their growth and development. The odor of this specimen of black vomit was putrid and disgusting, resembling that of decomposing blood. When heated upon the sand-bath the odor emitted was very disgusting and overpowering, and excited nausea. Specific gravity of black vomit 1026. Reaction of black vomit alkaline. The surface of the mucous membrane of the stomach, as well as the black vomit itself, emitted strong fumes of ammonia, in the form of free ammonia, and its carbonate and sulphid. When a glass rod was dipped in strong hydrochloric acid and held over the mucous membrane of the stomach and over the black vomit, heavy dense fumes of chlorid of ammonium were evolved. The alkaline character of the black vomit was evidently due to the decomposition of the urea, and its elimination as carbonate of ammonia by the gastric mucous membrane. The black vomit was carefully tested for urea, and yielded this substance in considerable amount, as well as ammonia and its carbonate and sulphid.

Analysis of black vomit: Reaction alkaline; alkaline reaction dependent upon ammonia; emits heavy fumes of chlorid of ammonium in the presence of hydrochloric acid; specific gravity of black vomit 1026.

One thousand parts of black vomit contain:

Water. . . . .	906.00
Solid residue, 94.00	
Organic matters, 85.40	Albumin, colored blood corpuscles, mucous corpuscles and epithelial cells, 77.14
Saline matters, 8.60	Extracative matters, urea, ammonia, etc., 16.86.
	Organic matters. . . 75.46
	Saline matters. . . 1.68
	Urea, ammonia and fatty matters . . . 9.94
	Saline matters . . . 6.92

Still further to confirm the existence of blood in the black vomit, the ash derived from careful incineration was tested for iron, and was found to contain this substance in amount equal to that which would be found in 77 grains of blood.

Microscopic and chemic examination of blood from cavities of the heart: The blood from the cavities of the heart contained several loose, golden-colored fibrinous concretions. The blood was fluid and did not coagulate upon standing. The odor of the blood twelve hours after death was putrid, but not so disagreeable as the black vomit taken from the stomach after death. The colored blood corpuscles were crenated and altered in form in some instances; many of the corpuscles, however presented the usual appearance, while others were more round and smaller than in health. The blood from the cavities of the heart and from the large blood vessels contained numerous fibers. In twelve hours after death the blood manifested even within the heart itself the presence of living vibrating animalcules. Upon standing, these increased in numbers. They were also, as we have just seen, present in the black vomit of the stomach. The fibers must have been formed or originated in the following ways:

1. They existed in the blood before death, being received through the pulmonary apparatus. We can not adopt this view, because they are entirely absent from the fresh blood examined during the life of the patient.

2. They arose spontaneously in the blood after death, as a result of the putrefactive process. The

adoption of this view would involve the adoption of the theory of spontaneous generation, which, as far as our investigations have extended is, in the present state of our knowledge untenable.

3. They penetrated from the stomach into the blood, finding ample space for entrance through the broken capillaries and through the eroded surface of the gastric mucous membrane.

The germs of the fibers existed in the tissues during life, and even in a state of profound health. They were prevented from germinating by the chemic changes (compositions and decompositions) characteristic of health. After death they multiplied rapidly and found a ready entrance from the tissues into the blood vessel system through the pores of the capillaries and small veins, described by Conheim. These so-called stomata vary in size from 1-1000 to 1-10,000 of an inch in diameter; and if it be true that there are really openings or pores in the small veins, we have an explanation of the mode in which the minute vibrios might readily find entrance into the blood from the surrounding tissues. The surface of the blood from the heart presented an oily appearance, and the microscope showed the presence of minute globules. When a drop of the blood was allowed to fall upon a piece of white filtering paper, the center presented a bright red appearance from the presence of the colored corpuscles, while the central colored spot was surrounded by a bright red golden colored border.

The reaction of the blood from the cavities of the heart was acid.

Chemical analysis of the blood revealed similar results to those obtained during life; thus, the colored blood corpuscles were normal in amount; fibrin greatly diminished, and in fact entirely absent; bile and urea present in large amount. The fact that the fibrin was diminished even in the acid blood would establish the important fact that the diminution of this element in the yellow fever blood was real and not apparent, and dependent merely upon the presence of ammonia. The acid reaction of the blood appeared to have been the result of post-mortem change and may have been induced by the vibrios. The acid reaction may also have depended to a certain extent upon the relation of phosphoric and sulphuric acid and acid phosphates in the blood, in consequence of the arrest of the action of the kidneys. The brilliant scarlet color of the blood upon exposure to the atmosphere, and of the muscles of the thorax without such exposure, may be due to the presence of urea and phosphoric acid and acid phosphates, the accumulation of which in the blood was dependent upon the arrest of the function of the kidneys. To the same cause, that is the cessation of the action of the kidneys, must be referred the remarkable bloodiness of the tissues; the watery element of the blood is not properly removed by these organs and the blood vessels become in consequence, filled and distended with the altered blood. The passive hemorrhages observed in the various organs, stomach, lungs and even in the muscular structures, must be referred to the destruction of the fibrin of the blood and to the great destruction of the blood in virtue of the cessation of the action of the kidneys, liver and stomach. It results also from the same causes, viz.: The fluid character of the blood and the great distention of the blood vessel system with an abnormal amount of altered blood, so that when a canula is plunged into



and through the walls of the heart of a yellow fever subject, even hours after death, the blood will flow in a continuous stream through the canula, and some pints may thus be drawn off.

**Spleen:** Somewhat enlarged and softened. Weight ten ounces. Splenic pulp and structures changed readily and rapidly to the arterial hue when exposed to the oxygen of the atmosphere. Under the microscope, the splenic pulp was found to consist of altered red corpuscles, granular masses and numerous oil globules. The decoction of the spleen presented a brownish, purplish, reddish, mahogany hue, quite different from the golden hue of the decoction of the heart and liver. Upon chemic analysis the spleen contained both bile and urea.

**Liver:** The liver presented a yellow and brownish-yellow appearance. The portal system of capillaries appeared to be congested with blood. A few small slate-colored spots were observed upon its surface. The structures of the liver were firm and appeared to be firmer than in health; considerable force was required in mashing the structures in the wedgewood mortar previous to analysis. Upon analysis the liver yielded animal starch, grape sugar, urea in considerable amount. The decoction of the liver yielded urea to a less amount than the decoction of the brain. Under the microscope, the liver was found to be loaded with oil globules, and many of the cells were greatly distended with yellow oil. The oil globules were also deposited within the meshes of the fibrous tissue of the liver. Owing to the large amount of oil present within and around the liver cells, they were indistinct in their outlines. The accumulation of oil in the liver was undoubted. The color of the liver, especially upon the cut surface, was that characteristic of yellow fever, and its consistence was as usual, also as is usual in this disease, increased. It would appear that albuminoid or fibroid granular matter transudes through the blood vessels of the liver, as through those of the kidney. It is probable that the peculiar alterations of the liver in yellow fever, cause obstruction to the free flow of blood through its hepatic and portal veins and capillaries, and in such obstruction we may find some explanation of the congested portal circulation, and even of the gastro-intestinal hemorrhage, or at least a favorable condition to its establishment.

**Bile:** Specific gravity of the bile from the gall bladder, 1040. The bile presented a dirty, greenish-yellow hue, was thick and grumous, and under the microscope was found to contain numerous cells of the mucous membrane of the gall bladder. Mucous membrane of gall bladder deeply congested, and at the same time discolored by bile. When viewed in mass the bile presented a greenish-black color. It was highly concentrated; a few drops being sufficient to color of a golden color half a gallon or more of water. As is usual in yellow fever, the amount of bile in the gall bladder was small, only 120 grains being obtained. This diminution of bile appears to be characteristic of yellow fever; the gall bladder as a general rule is small and contracted, and contains a small amount of bile, rarely exceeding 150 grains, and rarely not reaching 90 grains in intermittent, remittent, pernicious and malarial hemorrhagic fever, and in typhoid fever, on the other hand, the bile is more abundant; and as a general rule the gall bladder after death is distended with bile. In yellow fever, bile is also absent from the intestinal

canal, and it would appear from these facts, as well as from the jaundice of yellow fever, that in this disease there is an occlusion of the hepatic ducts, in a manner similar to the occlusion of the excretory ducts of the kidneys.

Result of chemic examination of bile: Specific gravity of bile, 1040. The specific gravity of the bile was above that of the serum. Did not coagulate by heat. The proper reagents failed in producing any crystalline constituents.

Solid residue in 120 grains of bile:

The whole amount contained in the contracted gall bladder . . . . .				grains	15.66
Solid residue in 100 parts of bile . . . . .					13.05
" " 1000 " " " " . . . . .					130.50
Water " " 1000 " " " " . . . . .					869.50

**Kidneys:** Weight of kidneys, ten ounces. Kidneys congested on the exterior, more especially in the cortical portion, but of a more decided yellow color than in the kidneys of health. When sections were made the kidneys presented a yellowish color, resembling kidneys undergoing fatty degeneration. The kidneys, with the exception of a few circumscribed, small slate-colored spots upon the exterior, presented an appearance and color similar to that of the heart and liver. Under the microscope, the excretory cells and tubuli uriniferi of the kidney were found to be loaded with oil globules and granular, fibroid and albuminoid matter. The oil globules were diffused throughout the excretory cells, tubuli uriniferi, Malpighian corpuscles and fibrous textures of the kidney. The arrest of the urinary excretion, appeared, after prolonged and careful microscopic examination of sections of the kidney, with Valentin's knife, to have been due to the filling up of the Malpighian corpuscles and tubuli uriniferi and excretory cells with oil globules and granular, albuminoid or fibroid matter; and also to the stagnation and conglomeration of the colored blood corpuscles in the delicate capillaries of the kidney. The capillaries of the kidneys were filled with colored blood corpuscles.

The bladder contained no urine, and it was evident that the patient had not excreted any urine during the last forty-eight hours of life, and many of the symptoms during life were without doubt due to the arrest of the urinary secretion.

We have thus presented the results of the laborious and careful investigation of this case, which required my undivided attention for the entire period in which it was under observation, to the exclusion of all other business or interruption, with the exception of a few hours devoted to sleep and meals, not exceeding seven hours out of the twenty-four, each day, the remaining seventeen being devoted to the investigation; in order that a true picture might be presented of the relations of the changes of the blood to those of the various organs. Each case studied in this manner becomes a living exponent and demonstration of the nature of the disease, just as the description of one animal will to a great extent serve as the accurate description of the entire species to which it belongs.

*Case 2.*—Charles Collingberg; native of Iowa; attacked with yellow fever July 30, 1871; died in Charity Hospital after the supervention of black vomit August 4. Came to New Orleans four weeks previously; occupation, flat-boatman. Supposed to have contracted the fever on the bark *Mary Pratt*, from Cienfuegos, which had arrived a short time before with sugar. Is said to have slept for four nights previous to his attack upon the *Mary Pratt*.

According to official reports, this was the first case of yellow fever which occurred in this city during the

summer of 1871. Although the number of cases of yellow fever which occurred in the summer and fall of 1871 was small, yet the disease appeared to be of a violent and fatal nature; thus up to October 6, out of thirty-seven cases, which occurred during the preceding sixty-nine days, sixteen terminated fatally, thus giving a mortality of 43.2 per cent.; and the active and fatal character of the disease was still further manifest in its comparatively short duration; thus of these sixteen fatal cases, one terminated on the third day; one on the fourth; two on the fifth; five on the sixth; four on the seventh; one on the eighth; one on the ninth, and one on the sixteenth day.

According to the official reports of the Board of Health, 114 well marked cases of yellow fever occurred from the date of the first case, July 30, to that of the last, December 18, and of this number fifty-five terminated fatally; that is the mortality reached the extraordinary figure of one death in 2.07 cases, or 48.24 per cent.

In the case now under consideration, (Geo C. Collingberg) the blood from the cavities of the heart, as well as the black vomit, and the structures of the heart, liver and kidneys were subjected to careful microscopic examination, a few hours after death. The blood from the heart presented the characteristic golden colored areola, when dropped upon bibulous paper, and under the microscope the colored blood corpuscles presented a crenated and stellate appearance. No animalculæ or sporules, or vegetable organisms were observed, even under the highest powers of the microscope. Numerous vibrios were observed in the black vomit taken from the stomach after death. The muscular structures of the heart presented a pale, yellowish-brown, flabby appearance and contained much free oil in the form of globules. The liver presented the characteristic yellow color, and contained much oil, deposited in the form of oil globules in and around the secretory cells of this organ. The kidneys presented a yellowish-brown color, and the excretory tubes were filled with yellow granular matter. I injected, by means of a syringe, (the nozzle of which was plunged through the skin) into the cellular tissue of an active dog both black vomit from the stomach and fluid blood from the cavities of the heart, and also applied the black vomit to the mucous membrane of the eyes. The animal also swallowed a portion of black vomit and blood, after fasting. No ill effects were observed and the animal remained apparently well and active.

In the case of Newton Simpson, who was attacked on Oct. 11, 1871, and died with urinary suppression and profuse black vomit, on the ninth day of the disease, the textures of the body, divided by the knife, presented the bloody appearance usual in such cases of yellow fever; urea was detected in the blood, brain and liver. The heart contained in all its cavities dark fluid blood, which gave an acid reaction at the time of the post-mortem examination, ten hours after death. Under the microscope, many of the blood corpuscles presented a crenated, wrinkled appearance, others were swollen, while others again presented the usual appearance.

I could after careful examination, with high powers, detach no animalculæ, or simple vegetable or animal forms, although the search was conducted with great care, with powers of various degrees, from one-fourth to one-eighteenth of an inch objectives, and the highest

oculars. The blood was fluid, with little or no fibrin, and no fibrinous clots; the fibrin was in so small an amount, and in such a soft and unstable condition that it was impossible to determine the quantity. Specific gravity of blood 1046.

1,000 parts of blood from the cavities of the heart contained:

Water . . . . .	852.70
Solid residue . . . . .	147.30
Fibrin . . . . .	Traces.
Saline constituents . . . . .	9.80

From experiments which I have conducted, it appears that the specific gravity of the blood in the cavities of the heart after death from yellow fever is less than that contained in the large blood vessels. This appears to be due to the fact that the heart continues to circulate the blood, or to force it through its cavities during the last moments of life, the red blood corpuscles are arrested in the capillaries, and only the more tenacious constituents of the blood are returned to its cavities during the last moments of life. In this case, the spleen was somewhat enlarged and softened, and its "pulp" consisted of numerous colored corpuscles, oil globules and granular masses; but no living animalculæ or vegetable forms were observed. Blood corpuscles of spleen not specially altered in appearance. Oil globules abundant in spleen.

The reaction of the blood from the liver was acid, and at the end of twenty-four hours numerous prismatic crystals, of the triple phosphate of lime, magnesia and ammonia formed in the fluid oozing from the cut surface of the liver. The blood of the liver contained numerous oil globules, but no specific animalculæ or vegetable organisms.

The results of the microscopic examinations of the structures of the heart, liver and kidneys were similar to those detailed in the report of the case of John Allen.

In the case of Jacob Siegarist, age 26, native of Germany, who was attacked Oct. 12, 1871, and who suffered with well marked yellow fever, characterized by suppression of urine and alkaline black vomit, and who died on the seventeenth day of the disease, urea and bile were found in the blood and in all the organs, brain, liver, spleen and heart. At the necropsy, performed three hours after death, both cavities of the heart contained warm fluid blood, which gave a slight acid reaction to litmus blue paper and upon standing coagulated, forming a soft gelatinous clot which possessed no contractile power. The aorta, vena cava and pulmonary veins in like manner contained warm fluid blood, which coagulated imperfectly upon standing.

(To be continued.)

## APPENDICITIS.

DEDUCTIONS FROM TWO HUNDRED AND SEVEN CASES OPERATED ON, WITH TABULATED REPORT.

Read before the Chicago Pathological Society, Dec. 10, 1894.

BY JOHN B. MURPHY, M.D.

CHICAGO.

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(Continued from page 437.)

I will endeavor to give a short outline of the various conditions found in operating for appendicitis:

1. Where the abdominal wall is infiltrated, and the abscess is opened without opening the unaffected portion of the peritoneum, there may be: *a*, a small circumscribed abscess with the appendix forming part of the wall; *b*, a small abscess with a tract leading to a larger abscess deeper; *c* a large abscess filling the iliac fossa, containing fecal concretions, or a gangrenous appendix floating in pus, all closed in with firm adhesions. (This condition never exists in the early stage, and in this class of cases the adhesions protecting the peritoneum should not be broken to remove the appendix); *d*, there may be multiple abscesses with no connecting sinuses. This is a comparatively rare condition. In one of my cases, a second abscess was not opened and the patient died of pyemia four weeks later; *e*, there may be an abscess in the opposite side of the abdomen; it usually appears in the same relative position to the left anterior superior spinous process as the abscess does to the right. There is no connecting sinus. It never occurs in early cases, and is more commonly found a week after operation and three or four weeks after the onset of attack, and should be opened and drained.

2. In another class of cases, where the peritoneum is opened and no adhesions to the anterior abdominal wall found, a circumscribed abscess may be found situated on the posterior wall of the abdomen, over the promontory of sacrum and the appendix and pus surrounded and walled in by adherent omentum and intestine. This is the most common condition found in the early stage. The location of the abscess may be near the median line, near the margin of the pelvis, close to the crest of the ileum, over the kidney, posterior to the cecum, or on the margin of the liver, as in two cases. The occurrence of a suppurating appendix on the surface of the liver or adherent to its margin is due to the congenital deformity and malposition of the cecum, so perfectly described by Cushman, and the distension of the colon with gas does not aid in making a differential diagnosis between appendicitis and cholecystitis. Still the most frequent location for the appendix is in the neighborhood of the McBurney point. The exact position of the appendix can be found by following the white fibrous bands along the convex surface of the cecum to the base of the appendix. In all of these cases the field of operation should be thoroughly protected by carefully packing with strands of iodoform gauze, retaining the ends outside. The adhesions are separated, the pus sponged out and the appendix liberated from its adhesions; a ligature is then placed on the appendix, and one on its mesentery. In all the cases where the peritoneal cavity is opened directly, the appendix should be removed. Where the appendix is situated above and behind the cecum, in close proximity to the liver, the induration can be detected behind the cecum, and must be reached by pressing the cecum forward, packing around and opening the abscess, locating the appendix and removing it.

3. Where the abscess is circumscribed in the pelvis, and the appendix is found hanging over the brim or attached to the uterus, tubes or ovaries, the appendix is located by following the bands on the cecum; pus sponged out, appendix amputated and a long glass drain inserted.

4. In another class of cases the peritoneal cavity will be found to contain a large quantity of free pus with no limiting adhesions, the bowel may be smooth

and glossy, not in the least congested or eroded of its endothelium. All of these cases recover. On the other hand, the bowel may have a livid blistered appearance, entirely excoriated of its endothelium, and very much distended, showing a paralysis of its muscular wall. The great majority of these cases die. In either of the above cases, the appendix may be adherent or free; it is usually perforated and gangrenous. In both, the appendix is located by the fibrous bands on the cecum or by the sensation to the touch by its swollen, hard and enlarged condition; it must not be confounded with the indurated omentum. Extensive drainage, both of glass and gauze, should be employed, and no irrigation.

5. We find a class of cases when there is a small quantity of pus located around the appendix, with partial adhesions protecting the peritoneum and with flakes of lymph extending some distance. This condition may be caused by a perforation of the appendix; by a gangrene of the mucous membrane, local or general, without perforation; by a simple ulcer of appendix without perforation; by accumulation and retention of muco-purulent material in the appendix, with only an abrasion of the mucous membrane of that organ.

6. Specific ulcers in the appendix without perforation or infection of peritoneum, as: *a*, tubercular, of which we had one case with recovery; *b*, typhoid, three cases, all recovered. Both of the latter conditions produce all of the acute symptoms, pain, vomiting, tympanites and elevation of temperature. But with the typhoid, prodromal symptoms and marked elevation of temperature exist *before* the pain, nausea and vomiting. In these cases when the appendix is located at the time of operation it will be found very much enlarged at seat of ulceration, with the distal end distended with accumulations.

7. A class of cases when the canal of the appendix is partially or completely obliterated, or a stenosis of the canal is produced sufficient to cause retention of material in distal end, causing recurrent attacks. In one of the cases of this kind there was a fecal stone entirely surrounded by connective tissue, the mucous membrane having been completely destroyed and the canal obliterated in a previous attack; there were no adhesions around the appendix. In many other cases portions of the canal were found obliterated and in others a stenosis or narrowing of the canal; the latter is the most annoying variety, as there are frequent recurrences of attacks, and the patient is rarely ever free from pain or sensitiveness in that region. As far as I can learn from the literature, the credit belongs to Dr. Henry O. Marcy, of Boston, for being the first to perform the operation of appendicectomy in the intermediate stage for the relief of this class of cases. The operation was on Dr. Samuel B. Nelson, Nov. 9, 1886, and the report was published in the *Boston Medical and Surgical Journal* at that time. The patient recovered and left the hospital in eighteen days.

8. Appendicitis stercoralis: In this class of cases there is a large accumulation of feces surrounded by mucus or muco-purulent secretion. The attacks of pain are severe and recur frequently. They are usually accompanied by a temperature not exceeding 100 or 100.5 degrees, and vomiting is a very pronounced symptom. The attack resembles one of intestinal retention, as frequently a movement of the bowels can not be produced for four or five days. The cause of the symptoms of intestinal obstruction has not been







clearly explained, but I believe it a reflex phenomenon, as we have exactly the same symptoms produced in obstruction of the ductus cysticus with gall stone. The appendix in cases of this kind is very much enlarged at the distal end—small at the proximal; its mucous membrane is thickened and contains a large quantity of hardened feces.

The mortality in my cases, including all grades, and operating on every case of appendicitis, favorable or otherwise, which came under my observation, is 9.93 per cent. Total number of cases operated to date 207. The following is a tabulated form of the cases operated on since my last publication, March, 1894:

In the literature of this subject, I wish to call attention particularly to the contributions, each presenting various phases of the disease to a greater advantage than the other, of McFadden Gaston, Kraft, McBurney, Fowler, Maurice Richardson, Bryant, Shrady, Wyeth, Sonnenburg, Robt. T. Morris, Senn and McArthur.

#### DISCUSSION.

DR. D. W. GRAHAM—In making a post-mortem a few weeks ago, searching for the cause of death, the appendix was examined and it was a good illustration of what we might call an abnormally developed appendix seven inches long. It was not bent on itself but was lying between the abdominal wall and the ascending colon, the end resting against the liver, over the kidney, and was perfectly normal in structure. It hardly had a mesentery at all, but was simply embedded in the peritoneum, at the line of reflection from the large intestine, on to the abdominal wall, and was perfectly straight.

I am satisfied that we have an anatomical deviation from what is called the average normal size and position of the appendix more frequently than is generally supposed, and I am satisfied also that it accounts for many cases which seem to be very erratic in behavior. Those cases, for instance, which Dr. Murphy has described where the abscess appears on the left side, I believe are accounted for by an abnormally long, displaced appendix. If the appendix I have described had become inflamed and an abscess had formed about its tip the abscess would have been in close connection with the liver and kidney, so that the most probable diagnosis would have been abscess in connection with the liver, or a perinephritic abscess. I recall a case where the attending physician had made a diagnosis of suppuration of the liver where the early history seemed to point to the appendix, but an abscess could be made out. I did not make any exploration but simply opened a large abscess and drained and in the course of two or three days the usual fecal stone appeared, showing that it was a case of appendicitis and perforation. I think more attention should be paid to the point I have mentioned, in studying the pathologic anatomy of appendicitis.

DR. A. I. BOUFFLEUR—It is somewhat gratifying to note that we are gradually coming around to a position where we admit that we do not know very much about what we have to deal with when we have a case of appendicitis, and we must also admit that we do not know when we should operate, unless it be immediately, as soon as we recognize the case as one of appendicitis. I think it is generally the case now that surgeons, especially, will admit that there is no such thing as stating what appendix is going to slough off, become neurotic and perforate, or what one is going to recover. Such being the case we have a good deal yet to look forward to in the line of the true conditions present in the different cases. That we may hope some time to be able to distinguish clinically between a catarrhal appendicitis and a destructive form of appendicitis is certainly something we must look forward to with considerable pleasure, but that we will ever reach that status I am not now thoroughly convinced. The specimens Dr. Murphy presents to us this evening are illustrative of some of the conditions from a pathologic standpoint which I think would bear a little further consideration in addition to that given by him. In the first case, the one in the large bottle, we have an appendix of reasonable length which is not especially thickened but has at the distal part about an inch of the surface of the mucous membrane which is distinctly necrotic. Now the reason for this necrosis is that there has been a thrombosis of the artery which supplies the appendix, which according to Fowler is usually a terminal artery or there has

been a very intense inflammation which is always of microbic origin. If a thrombus forms in this artery we are sure to have destruction of the appendix beyond that point. Sometimes the artery goes to the end without giving off branches and then returns, in which case we will have destructive necrosis between the point of obstruction and the base of the appendix. When we have a case before us we do not know, whether in the course of a few hours that mucous membrane will necrose from the intense inflammation, or necrose as a secondary process to the obstruction of that vessel; and as a matter of fact it does not matter much, because both usually result in perforation and serious trouble. The next specimen calls up the inevitable stone, which as a matter of fact probably, plays a very small part in the production of appendicitis. I think the stone theory of appendicitis is losing ground rapidly. While it is present quite frequently yet it by no means has the prominence it formerly had in the production of this disease. It is asserted that the stone causes necrosis simply by pressure. The ordinary collection of feces which we find is so soft and small, compared to the lumen of the tube it could not possibly cause destruction in that way, but occasionally we do find one large enough and hard enough to cause pressure necrosis. The percentage of these little collections of feces that are hard enough to cause pressure atrophy is so small, according to Fowler, that we may look upon that as being practically no special cause at all. Furthermore, if you will take occasion to examine the appendix in laparotomies where it is supposed to be normal, you will find in the large majority of appendices these small collections of feces, without any symptoms of appendicitis. The third specimen, the recurrent one, I think is a very good illustration of what some prominent Eastern operator has found in cases of recurrent appendicitis, namely, that it is a parietal inflammation; in other words, there is more than the mucous membrane involved. Dr. Murphy spoke of this as a catarrhal inflammation, which is probably true of the mucous membrane, but here there is also, from uveal inspection through the bottle, considerable thickening of the interstitial tissue of the wall. In that case we have what is described as the second stage of appendicitis, or at least that stage which is manifest in the recurrent type or interstitial form of appendicitis. In addition, we have the next stage with the peritoneum involved. This classification is a convenient one and we may in time be able to differentiate between the three anatomic forms, but since the wall of the appendix is so thin and the infection is usually intense, we have rapid involvement of all the coats of the appendix which not infrequently ends in destruction. In view of the fact that we are as yet unable to determine which case is going to terminate fatally within a few hours, and also that an operation, when delayed, is practically useless in these cases, the primary or early operation is gaining favor very rapidly, and as it can be safely performed under the ordinary circumstances surrounding one in a house, it has a great many things in its favor as a legitimate operation. It is an easy and safe procedure unless too much is attempted. Emphasis should be placed upon the fact that it is not always necessary to remove an appendix to relieve the emergency of your patient's condition. In cases attended with abscess formation the mere opening of the abscess with thorough drainage will tide the patient over the emergency condition and enable you to subsequently remove the appendix under much more favorable conditions and give the patient permanent relief with the least amount of danger. I have seen two cases in which I am convinced, had I let the appendix alone, merely draining at that time and at a subsequent time removed the appendix, I would have given my patient a much better chance for recovery from the primary trouble and ultimate recovery from the whole trouble.

Again, as to the point Dr. Graham makes, I would say that the position he mentions is one of the recognized normal positions of the appendix, posterior to the cecum. We have four or five positions recognized as being normal although some are quite rare, and that is the reason why we have a change in the location of the abscess cavity, but when the appendix is involved the change in the location of the pain is as a rule very slight, if the appendix is on the right side of the body; the first pain being generally referred to indefinite parts of the abdomen, the second pain being referred to what is called McBurney's point.

DR. LE COUNT—I was very much interested in the last case reported by Dr. Murphy, where the appendix laid behind the cecum underneath the peritoneum. In the great majority of cases the appendix lies in the true pelvis on the right side; less often it is found behind the cecum; two

or three times I have seen the appendix in the position mentioned, and one very rare location was interesting to me where the appendix was entirely extra-peritoneal in the mesentery of the small intestine where that joins the cecum. We were unable to find it except by cutting the bowel open and probing the opening of the appendix. In the majority of cases it possesses a mesentery of its own. In regard to the terminal artery of the appendix, it certainly is surprising that in this condition emboli are not found more frequently. In regard to the necrosis that occurs, it is nearly always due to the specific action of the organism and not to pressure. One condition noted by Dr. Murphy was the rarity of catarrhal appendicitis. The condition usually is not an inflammation of the mucous membrane but begins as a microscopic abscess in the submucosa, in the lymphatic elements that in other conditions act as filters, and seem to act that way here. A coalescence of these takes place in the submucosa and in the mucous coat. I have examined two or three appendices from cases that were clinically catarrhal appendicitis and in all of them these microscopic abscesses were found in the submucosa, a condition that could not be called, in a strict sense, catarrhal appendicitis.

Dr. H. N. MOYEA—When I was in general practice I saw, first and last, a good many cases of appendicitis and as far as I know none died, and none got well. I do not know of one that would not have been better for operation, which ought to have been made at once. I do not see any necessity of differentiating clinically. The only thing to do is to find that you have appendicitis and then operate.

Dr. J. B. MURPHY, in closing the discussion, said: The last comment of Dr. Le Count is very interesting to me, and I wish to mention that in this case I call catarrhal appendicitis there are to be noted a number of necrotic spots; they look like ecchymoses, but they are not. There is an infiltration of the mesentery more marked than I have seen it in suppurative or gangrenous cases. I noted that the ligature cut the entire mesentery. I do not know that I understood Dr. Bouffleur in connection with foreign bodies. There were 4 foreign bodies in 193 cases, that means about 2 per cent. There were 38 per cent. of enlarged, hard, resisting concretions which produced trouble, not the soft material the Doctor speaks of. If he had reference to foreign bodies such as cherry stones, etc., being uncommon in connection with appendicitis, I agree with him, but the fecal stone is important when it is present in 38 per cent. of the cases. The one I show to-night is of an average size, and you can see that a stone as large as this existing in the appendix must produce pressure upon the wall. I was glad to hear Dr. Moyer, a man from the medical side of the profession, announce himself as he did, that we should make a diagnosis of appendicitis and be satisfied with that, not trying to make any further differentiation until we make the operation; then we can clear up the other manifestations, the same as Dr. Le Count does in a post-mortem.

## SOCIETY PROCEEDINGS.

### American Electro-Therapeutic Association.

*Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26, and 27, 1894.*

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 446.)

### DIRECT CURRENT DISTRIBUTION.

This automatic adjustment of the pressure to meet the constant requirements of a multiple system of translators may be somewhat imperfectly indicated by a water analogue.

When the apparatus here shown is at rest, the water stands on the same level  $L^0$  in all the pressure tubes  $E, F, G, H$ , as was the case in Fig. 4. It is assumed that the rotary mechanism of the pump is constructed in four parts or sections fixed upon one shaft, each part revolving in a separate compartment of the inclosing box. One of the compartments is constantly open for the free circulation of the water, but the other three are controlled by gates or valves numbered 1, 2 and 3.

If now the shaft be revolved by its pulley at a constant speed, while the valves in the cross or multiple arc branches containing the three water wheels are closed, a pressure will be developed by the action of the constantly open section of the pump which will raise the water in the higher tubes to the levels  $L^1$  and  $L^2$ , and allow it to fall in the lower tubes to  $L^3$  and  $L^4$ , and this difference of levels between the

higher and the lower tube will represent the pressure available for useful work in the manner explained in connection with Fig. 4. We may also assume that unless the speed be varied, this useful difference of pressure will remain constant while no wheels are operated.

Now let the valve of wheel 1 be open. A flow will take place through its multiple arc branch, and cause a revolution of wheel 1 and also a slow rotation of a turbine wheel indicated in the main supply pipe (through which all the water passes) and by means of a connecting shaft and bevel gearing, the centrifugal governor at the left of the sketch will also be revolved. When sufficient velocity is attained, the governor will raise gate 1, thus admitting additional water, until the amount of flow is sufficient to properly operate wheel 1 in spite of the friction of the current in the pump and pipes, this friction being compensated for by calling into action the first additional section of the rotary pump when gate 1 is opened. In other words, the pressure delivered by the pump at the cross branch which contains wheel 1 (which pressure was sufficient to properly operate one or more water wheels before any of them were set in motion) is by the flow of current which occurs when that wheel is started, maintained at the proper standard, and this operation of maintaining the proper pressure is brought about by the stimulation or reinforcement of the action of the pump which results from the current flow.

The starting of wheel 2 affords a second path for the propulsion of water through the closed system of pipes, and the greater volume of flow through the turbine wheel increases the rapidity of revolution of the governor and raises still farther the vertical spindle which it controls, until gate 2 is opened and a second additional section of the rotary pump is utilized. A further similarly increased action may be assumed to take place when gate 3 is opened. When any one of the three gates is closed as a result of stopping the revolution of one of the wheels and thus retarding the flow through the main or turbine wheel, a reverse action takes place, the volume is automatically diminished, and the pressure which would tend, in the absence of the regulating mechanism, to increase, and thus make the remaining wheels run faster, is maintained constant, and hence the action of the remaining wheels is unaffected.

A combination of the series and multiple arc ideas was suggested by Mr. Charles F. Brush, very early in the progress of electric lighting. The practical application of his idea is roughly illustrated in Fig. 10. Here a group of translators arranged in multiple arc is placed in each building or area and the different groups are connected in series. By this means the enormous mass of copper required for successful multiple arc distribution is greatly reduced, because a small current may be divided among a few lamps constituting one group, and transmitted through many groups successively over a small wire. While securing this desirable result of a reduction in the cost of conductors, this system is open to the danger which always attends a series circuit having many translators and therefore requiring very high voltage, and it is also defective in that the extinguishing of any translator increases the current through the others of its own group and tends to decrease the current through all the other groups. The practical difficulties which resulted from these conditions were so serious as to be prohibitory, and this method has never been extensively used in electrical distribution.

The difficulties which were inherent in such a multiple series system as that proposed by Mr. Brush were practically obviated for the purpose of large cities as well as of areas of more moderate size, by an invention of Mr. Edison known as the "three wire system." This method was in fact brought out simultaneously with Edison's publication in this country by Dr. John Hopkinson of England, and each of these inventors patented it in his own country. It allowed of avoiding the difficulties of the multiple arc system in a large investment for conductors, and the difficulties of the series system in the matter of independent control of each of the translators, or as I have said, it so far mitigated these difficulties as to make it practically feasible to spread incandescent lamps or motors of moderate size over a considerable area and enable them to supply numbers of scattered consumers, while each translator might be operated without affecting any other.

In Fig. 11 I have shown how this system is practically applied in lighting, for example, large areas of New York City. The two dynamos at the left of the sketch are connected in series; lamps in multiple arc are connected in groups between the positive or red conductor and the compensating middle conductor and also between the middle conductor

and the blue or negative conductor. The system, as a whole, may thus be said to be divided into two multiple arc sections or divisions, one on the positive and the other on the negative side of the middle wire, and these divisions are in series with each other, the larger portion of the current passing out on the positive, through the two groups successively and returning by the negative. While the system is balanced, that is while an equal number of lamps is operated in multiple arc in each of the two groups in series, the middle conductor by which these two groups are connected serves simply to carry the current from one subdivision of the positive section to one or more subdivisions of the negative section, and so simply has an "intergroup" function.

But as one of the objects of the invention is to allow of the individual control of every lamp, without affecting any other lamp, we find that when one of the positive multiple arc subdivisions is turned out, the dynamo on that side will send less current to the system, while the dynamo on the other side supplying the negative division will continue to send the same current as before, but the fraction of its current which is not needed by the remaining lamps on the positive side will pass up the middle wire and join near the lamps the current which has passed through the remaining positive lamps, forming with them a volume sufficient for the negative side. If, on the contrary, a reduction were made on the negative side, the current produced by the negative dynamo would be lessened and the excess of current on the positive side which was not needed on the negative would flow from the lamps toward the dynamo, through the middle conductor, thus making this middle conductor perform a compensating function between the two multiple arc groups which are operated in series.

By such a system as this thirty lamps, for example, may be operated by one-half the current which would be required if they were connected in simple multiple arc, and as a consequence of this reduction of current, the outgoing and return conductors may each be made one-half the size that would be required in the simple parallel system. In addition to this, inasmuch as this one-half the current is projected through the conductors with twice the pressure that would be exerted in a simple multiple arc system, the use of this double pressure allows of the further reduction of one-half in the size of the positive and negative conductors. In short, if the two outside conductors are each made one-quarter as large as before, they will perform their work as economically as before when connected in the manner shown in Fig. 11. The addition of the middle conductor (if of the same size as those on the outside), raises the expenditure of copper to three-eighths of that required in the simple parallel system.

A careful inspection of this figure, in connection with the numbers placed along the conductors indicating that current for so many lamps is flowing at the particular point at which the numbers are located, will show that the middle wire carries but small currents for any distance; that these small currents are in some parts of the system in one direction, in other parts in the opposite direction, and that in some sections of the middle conductor there is no current at all. This state of things exemplifies the normal functions of the compensating wire of the three-wire method, and it is because of this practical perfection of compensation that all the devices are independently controllable. It is usually considered necessary to provide each of the dynamos of such a system with means of independent regulation, so that if the circuit becomes materially unbalanced, the dynamos can be properly adjusted with relation to each other so that each will generate the total E. M. F. necessary to do its work successfully. In practice, however, where more than a half dozen lamps are to be placed upon one service, that is to say in one building or area, a branch from each of the three wires is introduced into the building and the translators are so connected as to place an equal number on each side of the middle wire. Thus a very close approximation to a local balance is maintained throughout the system, and departures from a close total balance are comparatively rare.

The incandescent lamps ordinarily operated on a system of this kind are made to work with 110 to 120 volts, according to circumstances. If such lamps could be successfully made for 220 to 240 volts and of the same candle power as at present, they might be connected across the outside wires of the three wire system, inasmuch as each of the three wire dynamos delivers a voltage equal to that required by lamps of the present type. With such high volt lamps a system could be operated with all the economy of the present three wire system as to cost of copper and drop in the

conductors, and the middle wire might be omitted. Or, if such lamps were to be built for general use (and they have been constructed in limited numbers) they might be connected with a three wire system as the 110 volt lamps are now connected, and the standard of voltage of each of the dynamos, and consequently of the system as a whole, might be doubled, thus providing for four times the number of lamps now operated within a given area, or for greatly increased length of conductors without exceeding the present percentage of conductor drop.

The practical importance, to the physician, of a correct conception of the operation of this law of the distribution of electrical potential along one or many parallel circuits, in proportion to the resistance encountered, receives clear illustration in the extreme case of applying currents fatal to human life in electrical executions. I have witnessed two such applications, and as a result of the first one, I had the pleasure of participating in the discussion of the able paper read by Dr. Carlos F. MacDonald before the New York Academy of Medicine, March 16, 1892. In this paper Dr. MacDonald summarized the phenomena which he had observed at the first seven executions under the present New York law. In response to his invitation, I analyzed the electrical conditions which I observed at the death of McElvaine, the Brooklyn murderer, for the purpose of pointing out the fact that a much greater electrical energy was applied than was apparently necessary to effect the result, because owing to the plan pursued in applying the electrodes, the greatest portion of the resistance encountered by the current was probably not in the vital organs, but in and near the surface contacts and the bony structure. As a result of this assumption (and I think it is susceptible of proof) the greatest fall of potential and therefore the greatest expenditure of joules of energy must take place outside of the brain and other nerve centers, and must fail to have any appreciable effect upon them and upon the heart and lungs, where complete paralysis is in such a case desired.

Perhaps I may be pardoned if because of my very limited opportunities for observing cases which seem to carry the most force to the physician's mind, I use this somewhat repugnant illustration, and reproduce a diagram made in connection with the discussion I have mentioned, and quote one or two of the points then emphasized.

In opening the discussion, our esteemed Fellow, Dr. W. J. Morton, remarked that it was not the mere voltage that must be relied upon to kill, and it seemed to me then as it does now, that from this text a practical sermon might well be preached by some medical authority, applying the principle to the remedial uses of electrical energy in your everyday practice. I may be able to so state the conditions that some one will thus draw the proper practical deductions.

Perhaps a desirable form of expression is that the lethal or remedial effects which attend the flow of a given current, at a given density in any tissue, for a given time, are proportionate to the distribution of fall of potential or expenditure of the total applied voltage.

I think I may say that the fact that alternating currents were used at the execution of McElvaine does not probably cause the problem to vary in any great degree from the conditions expressed in the diagram now before you. In its details I have for simplicity assumed that no variation is met, and the force of the lesson we may draw is not lessened, though it may be found that new factors are introduced by the substitution of alternating currents of varying periods, for the direct distribution to which I am supposed to restrict myself.

To apply a pressure of 1,000 volts, alternating from 200 to 300 times a second, and maintain that pressure for an appreciable time against the resistance of the human body, from the forehead to either leg below the knee, does not probably greatly increase that resistance at the instant of contact. Or, if it has such an effect, the maintenance of the so-called current reduces the effective resistance so speedily that we get from 1,000 volts, an expenditure of energy at such a rate as snuffs out the life of the criminal more quickly than neural impression can be carried from the point of contact to the seat of sensation in the brain.

The energy that kills is therefore (with a given frequency) the product of three factors: 1, the electrical pressure or electro-motive force that is applied to the surfaces of the body; or, in more accurate technical language, the effective difference of potential (in volts) between the electrodes, shown by the Cardew voltmeter; 2, the rate of expenditure of this potential in each unit of resistance (or impedance) in the body, or the number of volts fall of potential to the ohm



(amperes) shown by the ammeter; 3, the time (seconds) shown by the stop-watch. The volt-amperes (watts) give the rate at which the work of destruction is going on; the volt-ampere-seconds (joules) are the measure of energy expended or heat developed in the body during the time of contact.

There is another condition to which I have barely alluded, namely, the "density" or degree of concentration of the current, and the resulting energy expended through the vital centers. While the path of greatest strength of current—or in other words, greatest expenditure of watts—is usually represented by the shortest route or nearest approach to a straight line between the electrodes, this is an exceedingly general statement and the exceptions will probably be found to be numerous. The correct view is probably that the densest current is usually the most direct, with less and less effect on either side, because with increased distance to be traversed, the resistance is greater.

None of these factors are well settled as yet in their relation to the energy actually required to cause instant and painless death. By "death" I mean, now, not alone cessation of consciousness of a perfectly healthy human being in an interval too brief for thought to measure, and the establishment of conditions which produce gradual and final expenditure of the stored nervous energy of the brain and the subordinate centers of distribution of vital force—such as the pneumogastric nerve and the spinal column—I mean, also, total paralysis of all the vital organs and of the nerve centers by which they are directly or indirectly vitalized, so that when the current is broken there can be no reflex action of the muscles, such as would indicate the presence of residual life energy or a possibility of its resuscitation.

I think none of these factors are settled, because it is not yet known how small a resistance may be found when only those parts of the body which must be paralyzed, and only the surface tissues which most readily lead the current to those parts, are included in the circuit. That the contact surfaces used in practice are excellent (and satisfactory) no intelligent witness of one of the later executions will deny. The peculiar scalding effects of the current at the edges of each of the electrodes nearest to the electrode of opposite polarity, and for some distance along the track most readily followed by the greatest density of the current, has been attributed—erroneously, I think—to the contacts themselves, and to the idea that accidental surface moisture has been followed by the current and heated till dissipated in vapor.

In the diagram Fig. 12 I have tried to indicate graphically that near each electrode the area of comparatively good conducting material (moisture-filled tissues) which lies in the line of least resistance, is limited, and a high degree of current density results, until in its course from one electrode toward the other the current finds an expanded path and can spread itself over a larger area without departing very much from a direct line, or at any rate without encountering largely increased resistance. Within this area of great current density or large expenditure of volts to the unit of cross-section of the connecting tissues, the few blood vessels, nerve channels and moisture ducts oppose so great a resistance to the rush of energy as to occasion a great drop of potential, and thus great heat, and the moisture is quickly raised in temperature to the scalding point. Much of it must have been turned to steam under the epidermis and perhaps in the minute blood vessels, and those portions of the body close to the electrodes are parboiled if a large current is maintained.

A little reflection, even from the standpoint of a layman, suggests that with the exception of the 490 watts or 18,000 joules assumed to be expended in and near the vital organs, this large energy may be regarded as uselessly applied. The correctness of this general view was suggested to me by the intensity of the heat observed at the electrodes and the fact that the temperature which I measured at the knee joint was 120 degrees F. (or higher) for nearly two hours after death. Could the same amperes be expended exclusively at the life centers, it might be found that only a low alternating voltage, perhaps 100 or 200 (with 100 to 200 periods per second) would be ample, and that such a concentration in the centers of nervous activity might allow of the reduction of the time to a fraction of that which has thus far been considered necessary.

The idea of "concentration" or great "density" of current is I think best illustrated by imagining the body to be made up of a number of separate paths or circuits connected in multiple arc. In Fig. 13 I have imagined that the brain and spinal cord form a path of low resistance, (say 25 ohms); that outside of this main channel are two circuits of higher resistance, (say 50 ohms each) representing the heart, lungs

and that part of the circulatory system within the trunk; that farther out are two others, still higher (say 100 ohms each). The same voltage (70 volts) being expended in all these five paths, the sub-divided currents through them vary inversely as their resistances, and the central channel receives two-fifths of the entire energy expended in the group. The joint resistance of all the paths is by this assumption only 10 ohms.

It is interesting to note that within the past year the method of applying the current in these executions has been modified to the extent of keeping up the full voltage for only five or ten seconds, and then reducing it to 200 or 300 volts, sufficient to maintain the sudden rigidity of the muscles and complete the permanent paralysis of the nerves which is brought on by the first powerful shock. As a result, after a contact of something less than a minute's duration, there is a complete collapse, with no reflex muscular manifestations or apparent tendency to resume the normal functions of life, and no objectionable scalding of the surface tissues because the maximum heating energy is applied for so short a time.

I have thus illustrated what would to a non-professional mind seem a matter of great importance, namely the determination of the relative resistance of various parts of the body, with the forms of electrodes adapted to the work of electro-therapy and under the influence of the different currents now used. This would probably give more accurate ideas of the effects produced internally by external application of electrodes of given form and area of contact, and point the proper practice in concentrating or diffusing a given current flow under given physical conditions.

During the discussion of which I have just spoken, Mr. A. E. Kennelly, then consulting electrician at the Edison Laboratory, with whom I attended the execution of McElvaine, made a suggestion which is best expressed in the words of his letter to me:

"I think that a high pressure brought to bear upon a man's body between any two points, finds the resistance initially just what we measure it by the bridge, but that it breaks down at a rate rather difficult to foresee. Also that valuable experimental measurements could be made (as you suggest) of the resistance in different parts of the body, *A B*, in the diagram. (Fig. 14.) A battery or dynamo current (direct or alternating) is applied, of the right and readily-supported strength, at convenient points, (say the extremities *C* and *D*) by means of wet bandages. Sponge-faced electrodes, *F, G*, connected with an electro-meter *E*, are then moved from point to point, various distances apart, and the fall of potential studied. I suspect—without pretending to know—that the resistance of the body and its distribution from point to point mapped out by this method, would be maintained in ratio or relative proportion under fatal pressures, even though the absolute resistance fell everywhere.

"I think that an accurate knowledge of the resistance from point to point of an average human body might assist occasionally in the diagnosis of disease, and the comparison with the resistance of a corpse might have useful results to show."

That eminent scientist and teacher, the late Prof. John Tyndall, has left upon the pages of modern progress a record which every student of the physical sciences should examine with minute care, in an address delivered at the Royal Institution of Great Britain early in 1879; he made the following beautiful expression:

"It was my custom some years ago whenever I needed a new and complicated instrument, to sit down beside its proposed constructor and to talk the matter over with him. The study of the inventor's mind which this habit opened out was always of the highest interest to me. . . . Such minds resemble a liquid on the point of crystallization. Stirred by a hint, crystals of constructive thought immediately shoot through them. . . . They have the penetration to seize the relationship of facts and principles, and the art to reduce them to novel and concrete combinations."

If my fragmentary remarks on this subject of electrical distribution have conveyed a hint to some such mind, the highest object of my paper has been accomplished.

#### DISCUSSION.

DR. J. H. KELLOGG of Battle Creek, Mich.—said he had been especially interested in the last suggestion of the speaker as to the varying resistances of the body being made a means of diagnosis. The same thought had occurred to him four or five years ago, but he had found what seemed to be an insurmountable difficulty—a variation in the thickness of

the skin in different individuals, and the difficulty in so adjusting the electrodes as to have identical conditions. He had concluded that the only accurate method would be to introduce the electrode beneath the skin. Another difficulty which he had met with was the fact that the skin itself presented such a large proportion of the resistance of the entire body that there would be but a very small margin for investigation as to the variations in the different bodies. He would like to have the reader of the paper propose some way of overcoming these difficulties.

MR. JENKS said that his knowledge did not extend beyond the suggestion, in fact this suggestion had been made to him by Mr. Kennelly. He was not aware that any experiments had been made which would throw any further light on this subject.

DR. MORTON said he did not wish such a valuable paper to pass by without saying something in recognition to the author. He did not feel competent in any sense to discuss those intricate electrical problems from the standpoint taken by the author, but there were certain questions which suggested themselves to the minds of physicians. He had been especially interested in the statement that physicians were applying a certain amount of *energy* to the living organism—energy against energy. He was also pleased in the reduction of the expression energy, to terms which we could all understand. If the physician used the Franklinic current his mind was occupied with electro-motive force; if he used the constant current, then current strength was prominent in his mind, etc. We first thought a great step had been made when the milliamperè meter was introduced, but we now know that we should take into consideration also the question of voltage.

It was true that we might express electrocutions in terms of horse-power, and speak of them as two, three or four-horse-power deaths; the author said we must go still further and take in the elements of time and express the effect of the current in joules. This would mean that we must go still further in our practical work and express it also in joules.

This subject of electrocution was a grewsome one, and in his opinion we, as electro-theraputists and physicians had nothing whatever to do with it. We should relieve and cure people and not deliberately take any part in causing the death of any human being. So far, he had always refused to witness these executions, although he had been invited to do so. He believed with Monsieur D'Arsonval, who put forth that startling theory that these criminals were not really killed by electricity. He thought it was even now a question of the old Scotch verdict, "not proven." This being the case, the person performing the autopsy was responsible for the death of the criminal, so the responsibility was again turned upon the medical profession where it did not belong. In order to prove that the death was due to electricity, we should wait for decomposition to occur, and not perform an autopsy within a few minutes after the application of the current.

In conclusion, the speaker said he welcomed such a paper, and particularly the subject of measurement reduced at last to one of energy instead of voltage and current strength.

DR. DICKSON said he agreed with the last speaker that when we stopped at using the milliamperè meter we had not done all we should do.

(To be continued.)

### Louisville Academy of Medicine.

Regular meeting was held March 18, 1895.

DR. I. N. BLOOM was the first speaker, and said: I wish to show this negro woman, about 40 years of age, whom I saw for the first time on February 22, having been sent by Dr. Satterwhite. At that time she exhibited an eroding ulcer, about the size of a penny piece, involving the left ala of the nose, on its outer margin. While I was in some doubt as to the diagnosis, between epithelioma and lues, I noticed her fingers, which present the characteristic signs of hereditary syphilitic dactylitis. The woman, however, says that her fingers have only become so in the last two or three years. She was married about twenty years ago, but has been separated from her husband a number of years. In addition she complained, when she first came under my observation, of severe headaches, not to be located in any one part, more severe at night. Under the mixed treatment these have almost disappeared, and as you can see the ulcer upon the nose is almost entirely healed. I show this case chiefly on account of the dactylitis. These cases are seen with extreme rarity. I was in the hospital in Vienna for years, as Hospitalant, and saw very few cases. In out-patient, hospi-

tal and private patients, I do not think I have seen more than twelve cases. The text-books would lead us to believe that they are common. I have not seen them, and would like to ask if any of the Fellows have seen a similar case. I see typical cases of syphilitic manifestations repeatedly. This case presents no other features of interest.

DR. T. C. EVANS—I happened to be present in Dr. Bloom's office when this patient came in, and noticed the dactylitis. It has the appearance of that seen in congenital syphilis. I have seen five or six cases in children with hereditary syphilis, but this is the first case I have seen of acquired syphilis with dactylitis.

DR. AP MORGAN VANCE—It perhaps happens that the general surgeon sees a good many more of these cases than the specialist, he being consulted for some "bone trouble." I have seen considerably more than a dozen cases, I think, in my fifteen years' experience.

DR. W. C. DUGAN—I wish to show a specimen removed from a case operated on yesterday. It is the omentum and sac removed from a femoral hernia. There is one point I want to bring out in reporting the case: Day before yesterday at 2 o'clock, she complained of pain in the femoral region; her family physician was called in and diagnosed femoral hernia. He used taxis for a few minutes as did the patient also without success. I was sent for and found a large tumor in the groin, no pulsation or coughing, no tympany. Pulse 80, and good. No perspiration. The patient was inclined to joke, in fact, all the symptoms showed there was no great impression of the nervous system. I looked on the case rather as an omental hernia than an intestinal; and was inclined to let it go until morning, but fearing there might be a small piece of gut, I operated that night. Dr. Evans administered the anesthetic. An incision was made through the abdominal wall, not cutting in through Gimbernat's ligament as usually advised, but Poupart's ligament, cutting through the sac, and made a radical cure. Here was a case with a pulse under 80, no constitutional distress, had vomited only a few times, yet the gut was almost gangrenous. This shows that we can not tell what we are to find. If I had let her go until morning, gangrene would have occurred. She is doing well now and will soon be up.

DR. VANCE—I think Dr. Dugan was right in not letting an incarcerated hernia go from night until morning. It is right to give the patient the benefit of the doubt.

The paper of the evening was read by Dr. John F. BARBOUR. Subject,

### THE PRESENT STATUS OF LINEAR CRANIECTOMY.

The author stated that the first case operated upon was by Dr. Fuller of Montreal, in 1878, for idiocy, and that the operation was not done again until 1890, when Lannelongue performed it. The latter's statistics were quoted. These were written four years ago, but since he has been silent. All reports lack as to the state of the patient before operation. Its object is to give full scope to the brain by lessening resistance, there being premature ossification. The following pathologic conditions were mentioned as causing idiocy:

1. Microcephalus.
2. Hydrocephalus.
3. Arrested development of the convolutions.
4. Poroncephaly from congenital malformations.
5. Pseudocysts from pathologic malformations.
6. Hypertrophic sclerosis.
7. Atrophic sclerosis.
8. Tumors of the brain.
9. Meningitis chronic meningo-encephalitis.
10. From pachydermatous or myxœdematous cachexia due to absence of thyroid gland.

Eighty-nine operations were tabulated. There were sixteen deaths; the results were practically *nil*, in twenty cases; of the remaining fifty-three, four recovered from the operation, one had epileptiform attacks less frequently, and in forty-eight there was improvement but the details were meager and unsatisfactory. There is hardly an operator who has submitted a later report. The history of the case reported, which occurred in the writer's practice, was as follows:

There was no history of syphilis, idiocy or insanity in the family. At four months the anterior fontanelle closed, and the symptoms dated from this time. There was no sphincteric control; the child could not sit alone erect, it had a pained expression, low whimpering, epileptiform seizures as many as twenty-four times in a day. She was extremely restless, recognizing only her milk bottle. The operations were done by Dr. Vance—linear craniectomy April 6 and

June 16, 1893. The immediate effect was remarkable. Three hours after, when spoken to she noticed, and followed a bright toy with her eyes; had an intelligent look, and the pained expression was gone. The subsequent history is that the child is in even worse condition than previously, but the epileptiform attacks are less frequent.

His conclusions were as follows:

1. Premature synostosis of the cranium does not occur in idiocy.
2. The arrested growth of the skull is due to the arrested development of the brain and not *vice versa*.
3. The lesions to which idiocy is due are profound, varied, extensive and by no means susceptible of relief by craniectomy.
4. The results obtained by operation are slight, doubtful, or nil. So that over against this operation we must write in letters of fire: "*Mene, mene, tekel upharsin.*"

#### DISCUSSION.

DR. VANCE—I have operated twice for microcephalus by linear craniectomy. The first patient was 9 years of age, and died seven hours after the operation from an accident. I take it, caused by boiling water being used in the irrigation. The second case described by Dr. Barbour is not improved. I saw the case a short time ago, two years now since the operation, and it is the subject of inanition, the mother never having been able to get it to take anything but the bottle. I agree with the essayist perfectly that craniectomy should be obsolete, especially in the light of the causes of idiocy. The operation in itself is not very dangerous. I think it possible that the instruments used take too narrow bites and the bone perhaps can ossify, as shown by one of the illustrations exhibited by Dr. Barbour. This is especially the case with the one devised by Keen, of Philadelphia; the one devised by Hopkins is wider. I will not do the operation again.

DR. W. C. DUGAN—There is only one logical conclusion in regard to this operation, and that is that it should not be done. I have operated twice; that is, have examined the brain of idiotic children post-mortem. One was a boy 16 years old, who died at the asylum from an attack of malignant dysentery. In taking off the scalp it was noticed how short was the bi-temporal diameter. As soon as the calvarium was detached the intracranial pressure was shown, and afterward the skull top could not be pushed down. The connective tissue predominated and explained the size.

At a meeting of the Kansas State Medical Society in 1885, a child was shown, and I noticed this same condition, a short bi-temporal diameter, and advocated the operation of multiple trephining to allow expansion, not knowing it had been previously done. I think that the premature ossification is due to lack of brain development rather than the opposite.

DR. WM. BAILEY—I think the pathologic conditions are in doubt as to the cause of this premature ossification. In the case which Dr. Dugan reported, where did the extracranial pressure come from if this were not a case of early bony development? I agree with the conclusions offered by the essayist. I consider of the eighty-six cases reported, the sixteen which died were the most successful.

DR. BARBOUR—I suppose that in the course of time, when we become more civilized, we will give those who are so congenitally undeveloped as to be hopeless, the benefit of euthanasia. It is a significant fact that no second report is made by any of these operators. The primary effects of the operation are remarkable, and many of the brilliant reports are due to this temporary effect. I can not understand why they are produced. I think the bottom has fallen out of the operation thoroughly.

DR. W. C. DUGAN—I have a case under my observation which is causing me no little anxiety, and I wish to report it, hoping that some Fellow of the Academy can help me out: The patient is a member of a prominent family. She has been a nervous character all her life, and there is a nervous element in the family. She has been in the hands of various surgeons and physicians. The question in my mind is, Should the menopause be brought on? At the time of the menstrual periods she is worse, but during the month she is more or less nervous. She is not satisfied with anything and wants to run away. She complains of pain in the womb and left side—on examination nothing marked could be found; slight tenderness on the left side; the right ovary only could be felt. Are we justified in bringing on the menopause? To-night she is very nervous, though it is the middle of the interval between periods. She has these spells of what might be called hystero-epilepsy and remains in them for a number of hours. She eats but little, but is

fairly well nourished. She is about 26 years of age and married, has conceived three times but aborted at two or three months. She wants the operation done.

DR. F. C. WILSON—It seems to me that the operation of ovariectomy in this case would be justifiable. As far as child-bearing is concerned, the prospects are it is unlikely, if she conceived, that she would go to full period of gestation.

DR. VANCE—It seems to me possible that the malposition of the left ovary might explain the nervous phenomena. I would certainly make an exploratory incision, and if the ovaries were healthy would leave them.

DR. FRANK—The subject is very interesting and important, and a difficult question to decide. I believe that an exploratory operation is justified, and if it is found that one or both ovaries are diseased they should be removed. I do not think one is justified in removing appendages which are perfectly normal. I believe that the consensus of opinion is that the ovaries have nothing to do with such attacks and few patients are benefited by operation.

One year ago I had under my care a patient who had hystero-epileptic seizures at menstrual periods, and there was always great ovarian tenderness. She was 19 years of age, menstruated first at 14, and married one and one-half years later. I operated and found the ovaries apparently normal, and contrary to my better judgment, the patient having previously begged that something be done for her relief, I removed both ovaries and tubes. On section the ovaries showed numerous cysts not Graafian follicles, but destroyed ovarian structure. The tunica albuginea was very dense over the ovaries. This case is similar to Dr. Dugan's. I do not believe one is justified in removing ovaries if no pathologic lesion is seen. Seven or eight months after the operation on this patient was done she was having no attacks and was well.

DR. WATHEN—I am sorry I did not hear the report of the case that I might speak of the subject more intelligently. I have done the operation a good many times for great nervousness, removing ovaries that were not enlarged but partly or entirely cirrhotic. In these fortunately I have had almost universally good results; all were practically restored to health; several had been invalids for years, one for thirteen years, and all could walk about within a few weeks. Those cases of hystero-epilepsy have not done well; all recovered from the operation and apparently for awhile were better, but they usually recurred. One case was very much benefited, but the tube was found filled with pus, and this probably had been the cause of the trouble. It has been the experience of abdominal surgeons who have operated on a great number of these cases that the results have not been satisfactory. In the operation done for hystero-epilepsy when there are not well marked lesions, unless it is plainly shown that the sieges are due to the ovaries, and so far as we can judge caused by ovulation and menstruation, we should remove the uterus with the ovaries and tubes. If done through the vagina nothing is added to the mortality and there is no abdominal wound left for a hernia to develop.

In conclusion, I would say that I am opposed to the removal of the tubes and ovaries for the relief of hystero-epilepsy unless we are convinced that ovulation and menstruation are the cause of the trouble.

DR. DUGAN—I have operated on two cases for hystero-epilepsy and both are well. One, Miss F. H., aged 22, had been an invalid for many years. She had epileptiform convulsions at her periods with melancholia in the interval. She was emaciated and had been bed ridden most of the time for two years. She was operated on at St. Joseph's Infirmary, under chloroform. She had great trouble from vomiting for four or five days, but afterward nothing but hot flushes for eighteen months. The ovaries were cirrhotic, like cartilage, hard and fibrous. When operated on she weighed 100 pounds; she was perfectly well a short time ago when I saw her, weighed 180 pounds and said she did not know what it was to be sick. With such an experience I am inclined to go back and practice what others have discarded.

DR. FRANK—Two weeks ago I saw a case in consultation, and made the diagnosis of appendicitis, but advised waiting for urgent symptoms. The patient was up and out of bed, bowels alternating constipation and diarrhea. There was pain in the right iliac region and a marked tumor on the right side pointing in the direction of the axillary line; it was hard, painful and fluctuating. There was no doubt as to the diagnosis. The remarkable thing is that the man has been up and about, has a temperature, pulse 102, chills irregularly, and perspiration every two or three days. I will operate tomorrow.

CHORUS—"Operate to-night!"

## SELECTIONS.

**Cow's Milk, its Sterilization and the Nourishment of Children.**—

The article under this heading in the *Berliner klin. Wochenschrift* by Biedert is chiefly polemical and directed against Heubner. It contains no new facts of importance, but its essential drift is to show that in the depreciation of the fitness of milk as food for children, the chemic composition of the same from the bacteriologic standpoint must be regarded of prime importance. The superiority of mother's milk to cow's milk in this connection must never be forgotten. In conclusion, the writer calls special attention to the advantages of his cream mixture and its increasing recognition. —*Centralblatt für innere Medizin.*

**Two Cases of La Grippe of Pseudo-phthisical Form.**—(Chatin

and Collet in *Lyon Med.*, 1894, No. 41.) These writers observed two cases of influenza with pulmonary complications which they were forced to regard as phthisis from the physical examination. There existed dullness on percussion over the apices, sonorous râles, cavernous respiratory murmur, copious, purulent, nummular sputa. In one case the diagnosis of phthisis was given up, because there was no fever and no loss of weight and especially because no tubercle bacilli were found in the sputum. The other case proved fatal, and the autopsy showed edema of the lungs, splenization at the apices, no sign of tuberculosis, no broncho-pneumonia, no caseous foci. Similar observations have been made previously. —*Centralblatt für innere Medizin.*

**The Influence of Erysipelas on the Course and Termination of Asiatic Cholera.**—N. Blagowjeschtschenski (*Medicinskoje Obosrenje*, 1854, No. 15), during the cholera epidemic superintended the bacteriologico-clinical station opened in Merv

(in the trans-Caspian province), and observed here, among 300 cases of cholera in hospital, with a mortality of 52 per cent., the coincidence of this disease with erysipelas four times. In these cases, in all of which the diagnosis was confirmed bacteriologically, the erysipelas was first manifested during the algid stage on the third or fourth day of the disease. In every case the appearance of the eruption influenced favorably the course of the cholera. The low temperature yielded at once to the high temperature curve of erysipelas. Diarrhea and cramps ceased immediately and the general condition of the patient became markedly improved within twenty-four hours. The languor disappeared, urine was excreted, appetite and sleep returned. The course of the erysipelas was also relatively light and the eruption not extensive. In conclusion, he writes: "If one can assume that, under the influence of the toxin producing cholera, the heat center in the organism is paralyzed, in the same way it can be accepted that this center under the influence of the erysipelas toxin regains its irritability." —*Centralblatt für innere Medizin.*

**Retention of Water in Fever.**—Contribution to the Question

of the Importance of Ingestion of Water and Increase of Elimination in Infectious Diseases.—(Julius Glax at the celebration on the completion of the thirtieth year of the Professorship of A. Rollett). The writer formulates an opinion, based on fifty-three cases of typhus (abdominalis) on the question often answered contradictorily, whether the human body retains water in the tissues during fever, or on the contrary is deficient in water. The urine was collected and no case included in which diarrhea was too free. Treatment, cool bathing and galvanization at the neck. Amount of water ingested was noted. He concludes that there is a conservation of the water supply during fever, and in convalescence an increased elimination, frequently coincident with the decline of temperature and at times an indicator of speedy complete defervescence. On the other hand after the initial chill and subsequent rise of temperature, the elimination is usually increased for a short time. The explanation is that at the onset of fever, while the blood pressure is yet high, the diuresis occurs, but a diminution ensues as the pressure becomes lower and a still later increase as strength returns. If strength is not much impaired, the

elimination is only correspondingly decreased. An increase in ingestion of fluids increases the elimination in most cases only after defervescence has begun, while during the height of the fever, diuresis appears to be more favorable, the more limited the ingestion. The recommendation of Cantani and Sahli, that infectious diseases be treated by increased supply of fluids to cleanse the tissues is combated at some length as founded on false premises. In conclusion, the assertions of the writer are easily reconciled with the fact that by drinking cold water in health the temperature and pulse are lowered, and diuresis occurs, for this happens only when the heart and blood pressure are normal. —*Centralblatt für innere Medizin.*

**Influenza and Accompanying Pneumonia During the Last Epidemic, 1893-94.**—Gineiner (*Prager med. Wochenschrift*) had the

opportunity to observe 403 cases of influenza in Donawitz by Leoben between Dec. 10, 1893, and March 11, 1894; 6.9 per cent. of all the inhabitants were attacked, three times as many adults as children, and three times as many men as women; 27 per cent. of the cases occurred between the ages of 30 and 40, and no child under 1 year was included. The largest number lived on the ground floor (50.1 per cent.), while the third story held the fewest (5.5 per cent.). The most commonly observed group of symptoms was: sudden chill or chilliness with a temperature of 39 to 40 degrees C., aching, feeling as if one had been beaten, heaviness of the head, anorexia and constipation. These symptoms lasted on an average two or three days. It was never possible to recognize signs in the lungs in the first days; these, beginning later, belong rather to the complications. The nervous system was very seldom affected, but neuralgia was often seen as a sequela. Protracted dyspepsia was a frequent complication, and quite often enlargement of the spleen. Acute nephritis in 1 per cent. of cases. Ninety cases of influenza, also 22.3 per cent. of all forms of sickness, were complicated with pneumonia, and of these 64.4 per cent. were in men, 14.4 per cent. in women, and 21.2 per cent. in children (none below 10 years of age). Almost all the children were attacked with pneumonia as a complication, but those patients between 30 and 40 years of age were best able to withstand the severe attacks. The greatest percentage of cases complicated by pneumonia (56.6 per cent.) and also the greatest mortality (27.4 per cent.) occurred among those living on the ground floor. The influenza pneumonia was distinguished from croupous pneumonia by the heavy sweats which were present from the onset, but which did not influence the temperature. The type of fever was also different. The decline was more commonly by lysis than by crisis. Meningitis complicated ten pneumonias (11 per cent.) on the fifth to the eighth day, always with fatal termination, while Jürgensen states 5 per cent. as the ratio of meningitis in croupous pneumonia. While in croupous pneumonia generally after complete consolidation the condition remains stationary until the temperature falls, in influenza pneumonia the condition was always changing, one area beginning to clear, while another previously free, suddenly became infiltrated. The sputum was generally rusty. The mortality in influenza pneumonia amounted to 27 per cent., and was largest among the elderly patients; no child died. It is interesting to note, that during the influenza epidemic, no other infectious diseases prevailed except a few cases of typhus (abdominalis). Sickness increased with the lowering of air pressure and temperature; cloudy weather increased the disposition, but no influence could be ascribed to a precipitation of moisture. The direction of the wind, on the other hand, seemed not without influence, for in a valley lying south of Donawitz, which had hitherto been exempt, suddenly in the early part of February the residents of various houses were attacked, and records show that from the end of January the wind was constantly from the north. Surely the wind bore onward the specific cause, since a direct transfer by means of the existing active intercourse would have been accomplished much earlier.

The greater disposition to the sickness among those living on the ground floor, which is also the case, according to Buchmüller, in croupous pneumonia, and also the firm hold of influenza on certain houses, led the writer to the conclusion that the cause is developed in the earth, and thence reaches the dwellings. Since he was never able to find a direct transfer from person to person, he regards influenza as a miasmatic infectious disease. The chief complication, pneumonia, might also be induced by the same influence. —*Centralblatt für innere Medizin.*



THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:  
PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,  
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.  
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, MARCH 30, 1895.

THE BOARDING OUT SYSTEM FOR THE CHRONIC INSANE.

The January issue of the *American Journal of Insanity* contains an interesting article on the Scotch system of caring for the insane in private houses, a system that while not peculiar to Scotland, has probably there reached its best development. The observations therefore of a competent observer like Dr. Riggs, the author of the article, have a decided value as showing the success or otherwise of the plan, as it appeared to him under the most favorable conditions. The noted colony of Gheel which has been often described, with praise or condemnation according to the predilections of the observer, is probably no better, if indeed it is not much worse, in its management than the Scotch system of guardians under the constant and direct supervision of the Lunacy Board.

Dr. Riggs' conclusions are, on the whole, very favorable to the system as he saw it, and yet he does not feel ready to recommend it for adoption in this country under our present conditions. It is doubtful whether we can find here any communities like those of Gheel, Balcurvie or Kennoway, or if we could, it would be our best resource for the care of any large proportion of the chronic insane. There we find communities that have grown up with the care of the insane as their chief means of support, and which would probably cease to exist as communities without this. This in itself, indicates a state of affairs which we ought not to be anxious to bring about, though with the increase of density of population, and the consequent greatly augmented difficulties of making a livelihood, we may yet come to it in some parts of our country. In Scotland these aggregations, it must be said, are not favored by the

Lunacy Commissioners who prefer to see the insane a less predominating portion of the population than is the case in Gheel and some other localities.

Dr. Riggs shows further in his very clear *exposé* of the system and its method in Scotland, that in its inception it was only an obligated alternative to overcrowding asylums or multiplying them beyond the capacity or willingness of the taxpayers, and its success has been rather greater than was at first expected. Indeed, the Scotch commissioners and superintendents are mostly partisans of the system at the present time. That it has some disadvantages, however, can be readily seen from his account. The presence of the insane does not make the communities attractive to outsiders, and even with the almost ideal supervision of the Scotch Board of Commissioners he observed some defects of management that were undesirable and, had he had a chance to make more than a mere casual inspection, it is probable he would have seen many more. In a well managed asylum it is impossible but that some undesirable things should occasionally occur, and even with the best selected demented, the chances for their occurrence are almost infinitely multiplied in the necessarily laxer discipline of the boarding out system. It relieves asylums and it is therefore naturally to be expected that it should find favor with superintendents and as it is the creation, so to speak, of the Scotch Lunacy Commissioners and their success with it has been so great, it is not at all remarkable that they should see it in the most favorable light. It is probable, moreover, that, as already remarked, the system is at its best in Scotland. That it is not so faultless in other countries is shown by an article in the January number of the *Journal of Mental Science* by Dr. JOHN SIBBALD, one of the Scotch Commissioners in Lunacy, on "The Lunacy Administration in Berlin and Scotland with Special Reference to the Care of the Insane in Private Dwellings." This article is as yet incompletely published, and it would therefore be unfair to assume what are Dr. SIBBALD's conclusions, but he found that in eight years, out of an average number of apparently not over four hundred insane thus cared for, there had been three suicides, two accidental deaths and four cases of pregnancy,—the minor accidents, except one case of loss of an eye—not being reported. This would be a formidable record for an asylum of that size and is not a recommendation for any system.

One objection to the system, that is not mentioned by Dr. Riggs or others, but which seems a very important one, is that of the influence of the presence of the insane in families and communities. There is a certain contagion in insanity, not necessarily a microbic one, but rather a mental infection that has often a very extensive and serious influence. In an established community like Gheel, or one or two

Scotch villages where the residents are, we may say, acclimated and have become hereditary attendants to the insane this danger is perhaps at a minimum, but the scattering of the chronic insane throughout a farming section, for example, with the freedom and daily contact with individuals of all ages, susceptibilities and predispositions, has a very objectionable aspect in this special regard. There is a certain element of risk in it, not only to the intellects but also to the morals of those who from age or otherwise are in any way impressionable in these respects, and even the best selection of subjects can not altogether guard against this danger. It may not be a very apparent objection to the system, but it is a real one that ought not to be left altogether unconsidered.

Thus far the boarding out plan has been experimented with only to a very slight extent in this country, and in only one State, Massachusetts. It is, however, one of the plans frequently and ardently advocated, and will probably before long come to the fore in some form or other, in many other sections. It falls in with the sentimental tendency to demanding all possible freedom and lack of restraint for the insane, which seems to be growing rather than decreasing, but which has its bad as well as its good side, and should be tempered by good judgment with careful appreciation of all the actual conditions. It is safe to say that if adopted anywhere, it should only be considered as an experiment and an enforced alternative; not as really an improvement over other methods of public care. We certainly can not, in the existing state of affairs in many portions of the country, immediately expect any such success as has been attained in Scotland, where the best we can say is that the disadvantages are reduced probably to a minimum. Well managed county almshouses, such as are found in different parts of the country,—the so-called county asylums of Wisconsin, for example, with all their disadvantages, and they are often very serious ones, are, on the whole, probably a better method of caring for the overflow of the insane from the asylums in this country than would be the plan here discussed. At least this will be true until we can have systems of State care for all the insane, with supervision as competent and thorough and independent of political changes and control as that of Scotland.

#### "PRINT THE FORMULA ON THE LABEL."

The *New York Ledger* has had the name of being a safe family newspaper, and not a few medical men throughout the country have been among its regular patrons. In view of this fact it should be noted that that paper has, in its editorial columns, come out boldly in the defense of quack remedies, and has already opened its columns to the manufacturers of sarsaparillas, etc. The editor takes for his text the fact

that that grand old State, Alabama, has before its Legislature a bill that requires that no patent or proprietary medicine shall be sold unless the formula of the compound shall be printed on the label of the package containing the article.

The editor finds cause for blame against the conservative and preservative legislators of Alabama on the score that such bills are the outcome of the trades-unionism and selfishness of the medical profession. He alleges, while he can not prove, that the free use of quack medicines make a saving in the doctors' bills; giving little heed to the well-known fact that much of the money spent for patent compounds is money spent in the behalf of a speedier call for the physician or the undertaker than if the compounds were left alone. The editor unadvisedly maintains that quack remedies do enable our fellow-citizens to dispense with the services of the regular practitioner, and that this is the real incentive to legislation of that restrictive character that has been found most salutary in certain foreign communities.

The fact remains that the course taken by our Alabama fraternity is probably the one that cuts most deeply into the patent medicine business; therefore, let us urge on every suitable occasion that the manufacturers of these more or less dangerous articles be forced to *print the formula on the label*.

The following are two of the closing paragraphs in the *Ledger* editorial named above, going to show, first, that the quack medicine is convenient and therefore worthy of financial recompense; and second, that a little knowledge of medicine is not a dangerous thing. Nothing in the way of refutation of these arguments needs to be adduced before the readers of this JOURNAL, but we believe it to be well for our readers to know a little of the kinds of defenses that are being constructed for dangerous quack preparations:

"The firm that put on the market the gimlet-pointed screw and amassed a fortune by the means of it had, by reason of the low price and convenient shape in which this article was furnished, a claim on the public for suitable recompense for their efforts. Just so the individual who prepares and offers for sale in convenient form some simple medicine has every right to the monetary return that an excellent article is sure to bring.

"It is the sheerest nonsense to suppose that medical men can form a close corporation and absolutely control the dispensing of medicines. The world is full of people who have most excellent sense about the use of remedies, and are quite as capable of prescribing them as the ordinary doctor. Of course, this cuts into the business of the physician in a very emphatic fashion, and this fact, and not the affectionate solicitude of legislators, is the motive that underlies the introduction of bills of the sort described."

**The Forty-sixth Annual Session** of the AMERICAN MEDICAL ASSOCIATION will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9 and 10, commencing on Tuesday, at 10 A.M.

### TELEPHONE RATES' BILL IN THE NEW YORK LEGISLATURE.

The physicians of New York, to whom the use of the telephone has grown to the height of a necessity, have exhibited unwonted interest in this year's campaign against existing extortionate rates. The bill against the companies, as originally introduced, fixed the rates at \$78 and \$66 respectively. These rates have since been increased to \$125 and \$85 respectively. Moreover, a six months' continuance of the old high rates is permitted, and the companies can not be bound to follow the new schedule if they can show that they are not remunerative.

The companies are very powerful at Albany and have been able, year after year, to thwart the efforts of physicians and others to lower the tariff. Medical men in other States, besides New York, will be interested to follow the progress of this fight with this grasping monopoly.

### THE QUACKS ARE NOT SUPPRESSED.

It is quite as well to know that the advertising quack flourishes just as luxuriantly as of yore, notwithstanding boasts that are being made. He has never been entirely suppressed in our large cities, and at this time the daily newspapers give abundant evidence of the fact. Moreover, we are credibly informed that itinerants are still making periodical trips, and that even in the State where the anti-itinerant movement was so successfully carried out by the late DR. RAUCH they are still active. Boards of Health, in pursuit of other attractions, sometimes grow somnolent.

### THE JOURNAL TRAIN.

The itinerary of the JOURNAL train from Chicago to Baltimore has been issued. The Pennsylvania Railroad has done its utmost to provide the very best service known to modern travel, and all the world knows that when the Pennsylvania Railroad tries to do anything, that it is always done well. Our members from the Pacific coast, the interior valley and the great Northwest will meet many of their brethren and travel in luxurious fashion, by taking the JOURNAL SPECIAL THROUGH PULLMAN VESTIBULED TRAIN, from Chicago to Baltimore, Sunday, May 5, at 3:15 P.M. For space, address H. R. DERING, Ass't Gen'l Pass'r Ag't, 248 S. Clark Street, Chicago, or TRUAX, GREENE & Co., 75-77 Wabash Avenue, Chicago. The rates of fare will be one and one-third, making \$23.20 for the round trip and \$5 for sleeping car each way.

The JOURNAL train may be joined at the principal points between Chicago and Pittsburg, by notifying MR. DERING in advance, by letter or telegram.

### THE EXHIBITS AT THE MEETING.

As will be seen by the illustrations, the intending exhibitors will have finer accommodations than at

any previous meeting, and the arrangements for the exhibition of their wares leave but little to be desired. The Cyclorama Building has its main entrance directly opposite that of the Academy of Music, and every attending member will have little excuse and no reason for non-attendance on the large exhibit hall, where in these latter days, it has come to resemble a great fair where everything relating to medical pharmacy, optics, instruments, educational appliances, medical literature, sanitary goods and dietetic articles are shown by practiced hands. A good deal may be learned at the Hall of Exhibits, and the wise member will use his opportunity to good advantage, who devotes a reasonable proportion of his time to this feature of the annual gathering.

### THE FAULT OF THE CONTRACTOR.

We regret extremely the delay that has occurred in the mailing of the JOURNAL to our readers for the past two weeks.

When we leased the premises No. 86 Fifth Avenue, it was included in the contract that power to run our machinery should be furnished by the lessors, MESSRS. HARRISON BROTHERS, then the owners of the *Times*. When they sold the *Times* property to MESSRS. KRAUS and HAWLEY, they transferred the lease to that firm.

In a few weeks that firm ceased to exist; the *Times* newspaper gave up the ghost and was merged into the *Times-Herald*, the *Times* composing room and property being transferred to the *Herald* Building. Since that transfer the difficulties of managing the JOURNAL have been manifold, and by the breaking of a shaft, for three days last week our presses and other machinery were silent, and only by the hardest labor on the part of our employees were we able to issue the JOURNAL at all, and as this week commenced with another failure and breakdown of the power, we felt obliged to put the case before our readers so that the real cause of the delay in the issue of the JOURNAL may be placed on the shoulders where it belongs. We are, however, promised by the lessors, that every precaution to prevent accidents to the machinery will hereafter be taken.

The JOURNAL will be from time to time subject to such unavoidable annoyance until the ASSOCIATION owns its own building.

## CORRESPONDENCE.

### Retinal Images in Oblique Astigmatism.

CHICAGO, March 24, 1895.

To the Editor:—Dr. Savage's letter in the issue of March 16 reminds me very much of the comment on a book of which the reviewer has read only the title page and imagined the rest. Indeed, Dr. Savage would be a mind reader of extraordinary ability if he could have guessed correctly the full extent of my remarks before the Chicago Ophthalmological Society from the simple sentence of the report, "he proved

by demonstrations that oblique astigmatism does not cause obliquity of the retinal images." Since Dr. Savage did not know anything about my arguments it is not surprising that his criticism is so little to the point and consists simply in "threshing over old straw."

The object of my remarks was to demonstrate the fallacy of the proposition that in oblique astigmatism the retinal images of horizontal or vertical objects are not themselves horizontal or vertical; or in other words, as Dr. Savage formulated it in his paper on the harmonious symmetrical action of the oblique muscles, that the image of a horizontal arrow can not be in the horizontal meridian of the retina, but is made slanting by the prismatic action of the astigmatic cornea." This obliquity by a prismatic action of the astigmatic cornea was *assumed* also (but not *demonstrated* as Dr. Savage erroneously stated) by Dr. Lippincott to explain certain phenomena of distortion of images in astigmatic eyes. Now I have shown and I believe convinced by my demonstrations all the members present at that meeting, that the image of a horizontal (or vertical) line thrown upon a screen through a spherocylinder lens equivalent to an astigmatic cornea does not suffer any such prismatic deflection. As a full account of my arguments will appear in the April number of the *Annals of Ophthalmology and Otology* it is not necessary to argue this point here any further. It is sufficient to repeat what I have already once stated, viz., that inasmuch as Dr. Savage was not conversant with the nature of my arguments, he could not intelligently and successfully attack them.

In conclusion, I wish to call attention to the fact that in this letter Dr. Savage has used the words *obliquity* and *distortion* of the retinal images as if they were interchangeable terms. But they are not synonymous; they apply to radically different conditions; for the retinal image may well be distorted without necessarily being oblique. The image of a luminous point, for instance, is distorted by an astigmatic cornea into an oblong figure, because the rays passing through the astigmatic meridian are not brought to a focus in the retina. The elongation, therefore, always corresponds with the direction of the astigmatic meridian; if the latter is horizontal (or vertical) the oblong image will be horizontal (or vertical) and if the meridian is oblique the elongation will be in an oblique direction; but it is evident that this obliquity of the image is caused by imperfect focalization and must not be confounded with the obliquity caused by the prismatic deflection *assumed* by Drs. Savage, Lippincott and others. While I deny the existence of the latter *obliquity*, I am the last person to deny the *distortion* of the retinal images; for I regard the distortion of the image of a light point as the most valuable sign for detecting astigmatism, and have for many years made the best practical use of it in my astigmometer.

F. C. HORTZ, M.D.

### A Simple and Effective Method of Treatment in Purulent Conjunctivitis of Infants.

INDIANAPOLIS, IND., March 25, 1895.

To the Editor:—Twenty-five years of eye-practice, private, and in hospital, has given me abundant opportunity to test the relative merits of the different methods of treatment in suppurative conjunctivitis of infants.

Until about one year ago it was my belief that nitrate of silver, when properly applied, was the most reliable of all medicines in this dangerous disease. In my hands, as well as in those of my professional brethren with whom I am intimately acquainted, it has never failed to cure, if begun before ulceration of the cornea has taken place.

To properly apply it does not mean to drop it into the eye, one or more times daily, as it would by such a method be

too irritating, if used of sufficient strength to control the suppurative process. It must be applied with a camel's hair pencil to the thoroughly everted palpebral and reflected portion of the conjunctiva, and then washed off, without suffering it to come in contact with the cornea, as strong as 10 to 40 grains to the ounce of water, according to the gravity of the case, or the profuseness of the discharge.

How many physicians are there who can properly evert the lids of a newly born infant? This question can only be answered by those who have tried it. To carry out this method of treatment until the case is cured, it is necessary that the physician make the application himself, once in every twenty-four hours. It dare not be given over to a nurse or parent, and it has to be kept up from two to six weeks.

Let us compare the above difficult but almost certain method to a more simple and easily practiced one, which was introduced by Dr. X. C. Scott, of Cleveland, who presented it to the AMERICAN MEDICAL ASSOCIATION at its last annual meeting. It is as follows:

Hydrastia sulph.	}	. . . . . grs. v.
Acid boric		
Sodii bi-borat		
Tinct. opii deod.		
Aquæ dest.		3j.
Mix and filter.		

Dr. Scott has the eye cleansed every twenty minutes and cold compresses applied when required. He then has the above solution injected into the upper and lower conjunctival sacs, about six times a day, by means of a medicine dropper with a nozzle long, smooth, and strong enough to be easily introduced beneath the upper lid without breaking. Once a day he used, in addition to this, a 1 per cent. solution of silver nitrate to the inner surface of the lids. (He tells me that he does not use the silver now.)

It will be seen by those who have read the discussion which followed his paper, that nearly all of the gentlemen present gave all of the credit to the silver treatment. They seemed to ignore the fact that the cases got well in about one-fifth of the time usual to the silver treatment alone. It was my fortune to hear from Dr. Scott's own lips all about this method several months before he read the paper to the society. I tried it on a case a few days afterward. It was a very severe one occurring in both eyes, one of which had ulceration of the cornea. I gave a very grave prognosis. A 20 grain solution of silver was applied to the everted conjunctivæ and the yellow root solution was given to the nurse, to be dropped into the eyes every hour afterward. On visiting the hospital the next day I was surprised to find that the discharge of pus had nearly ceased. I therefore simply had the yellow collyrium used every hour, for a few days, and in ten days the child was cured, except the ulcer, which at this date is well and only a small opacity remains.

I have treated several very bad cases since then; all of them were cured inside of two weeks. All that seems to be necessary is to inject it under the lids every hour, cleanse the eyes still more often with tepid water, and use every night a little vaselin on the edges of the lids. They should be watched by the physician to see that nothing goes wrong, and he should be sure to see that ulceration of the cornea did not exist before the treatment was begun.

A greater boon never was given to the busy physician than this one of Dr. Scott. It will save many a child from blindness.

J. L. THOMPSON, M.D.

The Forty-sixth Annual Session of the AMERICAN MEDICAL ASSOCIATION will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9 and 10, commencing on Tuesday, at 10 A.M.



### A Wise and Able Governor.

LITTLE ROCK, ARK., March 23, 1895.

*To the Editor:*—I inclose herewith a cutting from the *Little Rock Daily Gazette* of this date. Up to two years ago a law had been in operation in this State, regulating the practice of medicine. It provided for a medical board in each county (about seventy-five of them) consisting of three "physicians," who were appointed by the county judges. They gave certificates of qualification to any and everybody who applied for them, and these "certificates," when once obtained, were good forever, and permitted the holder to practice medicine anywhere in the State. Two years ago this law was repealed and an Act was passed which required that all persons beginning practice after that date should be graduates of some reputable medical college, having not less than two full courses of lectures as a minimum requirement for graduation.

It was a bill repealing this Act and reestablishing the old county boards (with slight modifications) that the Governor vetoed and which the House of Representatives promptly passed over his veto.<sup>1</sup>

It is so unusual for an executive of a State, or any one else high in authority, to take such lofty grounds in favor of advanced medical education, that I believe it to be the duty of every intelligent physician to uphold and defend Governor Clark, and I thus pointedly call your attention to the matter, that you may give it such editorial notice as it merits.

Very respectfully,

J. A. DIBRELL JR.

### Pure Air for Cities.

MILTON, KY., March 23, 1895.

*To the Editor:*—I believe it is entirely practicable to supply cities with air from an altitude of five hundred to a thousand feet, by means of an upright conical cylinder, a force-and-suction air pump, and pipes leading to sleeping and other apartments in the city.

Will you kindly express your opinion upon this subject, and whether it would be of interest to our ASSOCIATION to have the plans and specifications published in our JOURNAL?

Respectfully, S. E. HAMPTON, M.A.M.

ANSWER:—The scheme is practicable. Let us have the plans.

## NECROLOGY.

DARWIN G. EATON, M.D., of Brooklyn, died March 17, in his seventy-third year. He was for many years the Professor of Chemistry in the Long Island College Hospital, for which services recognition was given in 1864, by an honorary degree in medicine in that school. He was for a time President of another Brooklyn institution, the well-known Packer Institute, and his standing among men of learning and educators was in the foremost rank. Many hundreds of physicians received their drill in chemistry at his hands. He was a man greatly respected by his pupils.

CHARLES L. HOGEBOOM, M.D., of Brooklyn, died March 12, aged 68 years. He was formerly and until a few years ago a resident of Lawrence, Long Island. He was a Hollander by descent and educated in New York City; the College of Physicians and Surgeons gave him his degree in 1851. He was well versed in surgery, and stronger yet in public medicine, but his great forte in recent years had been that branch of sculpture that finds expression in the bas-relief. His portraitures in plaster, clay and bronze of Irving, Bryant, Jefferson, Franklin and of certain living people of eminence, as well as bas-reliefs of imaginative creations, were a labor

of love. The following is a portion of an affectionate tribute to his worth that was penned by one of the editors of the *Brooklyn Eagle*:

"Dr. Hogeboom did not represent the proverb of 'effective in much, but eminent in nothing.' Effective in much he was, eminent in medicine, surgery, sculpture and engraving and in scientific authorship he also was. The worlds of art, of learning and of literature were more familiar to him and he was more at home in them than could be said of the world of affairs. His outlook on politics, parties and contests for political power was ingenuous to childlikeness, but was marked by candor, purity and faith. He will long be remembered and profoundly regretted by a large circle of professional and personal friends."

GUSTAV WEBER BRATENAH, M.D., of New York City, died March 18, at the early age of 28 years. He was a native of Cleveland, Ohio, a graduate at the College of Physicians and Surgeons, and an ex-interne of the Nursery and Children's Hospital, New York. He held a similar berth at the Sloane Maternity Hospital and at the Roosevelt. In 1891, he spent a year abroad in the foreign clinics, seeking the best masters and methods in order to fit himself for practice and for teaching. His death is ascribed to tuberculosis.

HENRY C. LICHTENTHALER, M.D., March 19, 1895, at Lock Haven, Pa., of typhoid pneumonia, aged 34 years. Dr. Lichtenthaler was born in Lock Haven in 1860 and was a son of the late Dr. H. A. Lichtenthaler. He graduated at the University of Pennsylvania in 1882 and three years later settled in Larned, Kan., where he practiced his profession until 1890 when he returned to Lock Haven. Dr. Lichtenthaler was Secretary of the Clinton County (Pa.) Medical Society and of the West Branch Medical Association. He was City Physician, Coroner of Clinton County and member of the Lock Haven Board of Health. He was a painstaking, honorable competent physician, respected and loved by his profession and patrons.

ELLA M. ANDERSON, M.D., lost her life March 8, in the *Longfellow* wreck on the Ohio River. She was formerly employed at the Ward's Island Insane Asylum, of New York County, as fifth assistant physician on the female side. She was on duty the 5th of the month, at which time she was given a two weeks leave of absence. She appears to have been in attendance upon an invalid, whose life was also lost in the collision.

STEPHEN WALLACE BOWLES, M.D., of Springfield, Mass. died Feb. 12, 1895, aged 59 years. He was a graduate in medicine of the College of Physicians and Surgeons, New York, of the class of 1859, and a member of his State Medical Society since 1876.

RICHARD BLACKWELL MERSHOM, M.D., of Newark, N. J., died March 22, 1895. He was one of the oldest and best-known of the physicians of his State, and had been in feeble health for several years. He was 83 years old, having been born in Lawrenceville, N. J., Jan. 12, 1812. He was graduated from Princeton College in 1834, and five years later from the Jefferson Medical College of Philadelphia. He removed to Newark in 1850 and took up the practice of medicine, having his office in the building where he died. He leaves four daughters, his wife having died about twenty years ago.

A. B. PITZER, M.D., of Tipton, Ind., March 22.—Ralph Harris, M.D., of Macomb, Ill., March 19, aged 82.—J. J. Martin, M.D., of Pittsburg, March 14.—P. A. Skiff, M.D., of Utica, N. Y., March 13, aged 68.—James Youmans, M.D., of Davenport, Iowa, March 16, aged 69.—S. D. Rodgers, of Oakdale, Tenn., March 14.—W. H. Lanoix, of Quincy, Ill., March 18, aged 51.—C. V. Barclay, M.D., Chattanooga, Tenn., March 21.—A. S. Grigsby, M.D., of Marion, Ark., March 16.—W. N. King, M.D., of Abilene, Kan., March 19, aged 69.—D. B. Allen, M.D., of Warsaw, Ky., March 26, aged 46.—Joseph Love, M.D., of Savanna, Ill., March 24, aged 52.—T. C. V. Barkley, M.D., Chattanooga, Tenn., March 21. The Chattanooga Medical Society held a meeting March 22 and passed appropriate resolutions.—S. T. Brooks, M.D., St. Johnsbury, Vt., March 20, aged 72.

<sup>1</sup> And was also passed by the Senate.

## ASSOCIATION NEWS.

**Section on Physiology.**—Dr. E. H. Woolsey, the President of the Section, requests that those having papers on electricity and its medical applications read them in this Section, if circumstances will permit. At the last meeting interesting papers on electricity were read in this Section, with illustrative demonstrations on animals. It is especially appropriate that the physiologic relations of electricity be discussed here. Several important and interesting papers have been promised for this Section.

Dr. Ephraim Cutter, of New York, will read a paper on Food and Thrombosis; Dr. J. Mount Bleyer, of New York, offers elaborate demonstrations of some novel applications of the kinetograph, to accompany a paper entitled, Researches in Rapid Photography by means of Edison's Kinetograph; and the animated Reproduction by the Kinetoscope; showing also by this method the present and future possibilities of taking and reproducing certain animated

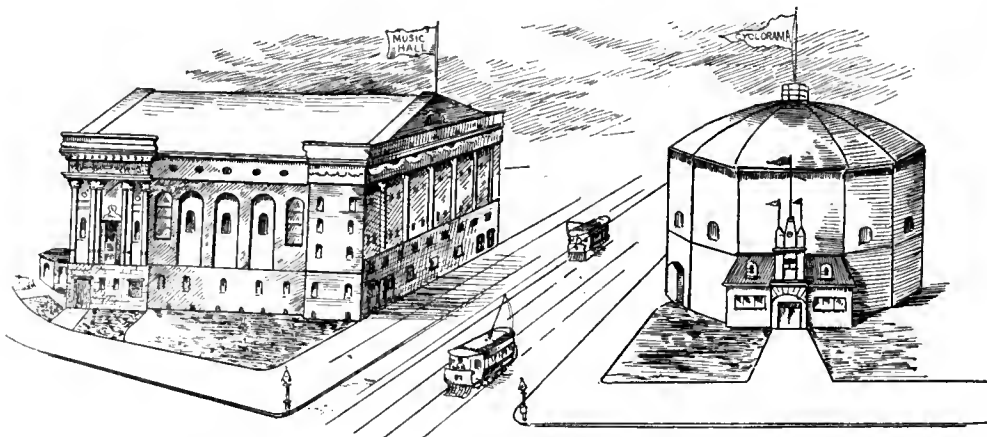
## PUBLIC HEALTH.

**Sanitation and Cholera.**—To the improvement of the sanitary conditions in India within the past few years is attributed a reduction in the annual average of deaths from Asiatic cholera from 43,000 to less than 19,000.

**A Growsome Connection.**—The prevalence of contagious diseases in the New York City schools has led to comment and investigations. As a result of one of these it has been developed that of 112 school trustees 23, or a little less than 20 per cent., are undertakers. The *New York Times* says: "The fact is suggestive; it would be amusing if it were not so tragical."

**Infectious Stage of Smallpox.**—It is understood to be a practical working axiom among medical officers of health, in this country at least, that smallpox is not infectious until the eruption appears. Dr. N. Von Arx, House Physician to the Olten Kantonspital, furnishes to the *Correspondenz-Blatt fuer Schweizer Aerzte* the details of a case in which it would

## AMERICAN MEDICAL ASSOCIATION FORTY-SIXTH ANNUAL MEETING.



Music Hall.

Museum of Exhibits.

BALTIMORE, MD., MAY 7, 8, 9 AND 10, 1895.

physiologic movements of the larynx, heart, intestines, etc., and certain diseases having visible symptoms, etc., with a historical review of fifty years of photography.

Dr. E. H. Woolsey will read a paper on the Physiologic and Pathologic Effects of Electricity, and also some notes on Practical Experience with Electricity.

Dr. Charles Gilbert Chaddock, of St. Louis, will read a paper on the Physiology of Instinct.

Those having papers to present in this Section will kindly forward titles immediately to Dr. C. G. Chaddock, Secretary 2900 Washington Avenue, St. Louis, Mo.

**Section on Ophthalmology.**—The officers of the Section will be unable to arrange for the reading of any more papers than have already been promised for the meeting at Baltimore.

EDWARD JACKSON, Chairman.

Denver, Colo., March 20, 1895.

**Proposed Botanical Garden for New York City.**—It is proposed to raise \$250,000 for a garden in one of the public parks of New York City. It is reported that more than \$200,000 have been privately subscribed for that purpose. When the other fifth shall have been raised the aid of the city will be demanded. Bronx River Park has been selected as the preferable place for the garden. Among those who are interested in the undertaking are Seth Low, Cornelius Vanderbilt and Bishop Potter.

appear that the disease was contracted from a patient during the febrile stage and fully forty-eight hours before the first traces of smallpox rash were discovered. The details are so full as to leave no room for doubt as to the infection of a second patient from the first, and that transmission of the contagion took place before any cutaneous manifestations of smallpox had developed.

**To Protect the Public Against Spurious Antitoxin.**—A bill has been introduced in the Connecticut Legislature for the protection of the public against inefficient and false diphtheria-antitoxins, some of which have already been offered for sale by unscrupulous dealers. The bill provides that some authoritative guarantee for quality must be supplied for all of the remedy that is put on the market in that State.

**Case of Leprosy at New York.**—Some considerable notoriety has arisen in connection with the case of the leper C. G., reported in this JOURNAL, on March 16, on account of the discovery by the New York City Board of Health that the case has not been reported, although under observation at intervals for six years. Dr. Ashmead is reported as taking the position that he had not been called in to treat the patient; that he had at no time prescribed for him, and that there was no law requiring him to report the case to the city authorities. He had reported the case to the Supervising

Surgeon-General of the Marine-Hospital Service in the hope that the patient might be provided for in some way so that his family would not suffer harm. In the course of the past six years he had been at intervals an inmate of a tenement house, wherein dwell twenty families, besides his own. He has been a steamship employee, serving as cook, waiter or storekeeper to some of the lines doing business with the South American ports.

**Scavengers of the Sea.**—Our British confrères continue to be agitated over the "typhoid oyster" and the columns of their lay and professional press are flooded with communications on the subject. The effect has been to injure the oyster trade very seriously and all manner of suggestions are made as to the future regulation of this industry. It is not quite clear, however, that what an Ann Arbor professor calls these "scavengers of the sea" are really responsible *per se* for the manifold ills attributed to them. That an oyster shell may hold typhoid-polluted water is probably true; so also may a glass vessel. Of themselves, oysters have been proved to be destructive of pathogenic bacteria. Mrs. Percy Frankland furnishes a note to *Nature* recalling some of the experiments of her husband, the Professor, as well as those of De Giaksa, on this subject. In the greater bulk of experiments made with oysters and some varieties of mussels replaced in sea water after inoculation through a hole in the shell, which was afterward sealed up, the pathogenic microbes entirely disappeared in six hours; in only two instances were they detected in small numbers at the end of twenty-four hours, and in no case were they identified after forty-eight hours. It is the transplanting of oysters to sewage-contaminated waters or their storage where such contamination ensues, which is responsible for the recent attacks on the good name and fame of these succulent morsels.

**Health Reports.**—Sanitary reports to the Supervising Surgeon-General of the Marine-Hospital Service:

#### CHOLERA—FOREIGN.

Austro-Hungary: No cholera cases or deaths. Totals from April 7, 1894 (beginning of epidemic) to Feb. 17, 1895, 15,318 cases, 8,393 deaths.

Russia: Radow Gov't, January 20 to 26, 1 death; Suwalki Gov't, January 20 to 26, 5 cases, 3 deaths; Koono Gov't, January 20 to 21, 1 case, 1 death; Kurland Gov't, January 13 to 26, 6 cases, 2 deaths; Volhynia Gov't, January 13 to 26, 25 cases, 12 deaths; Podolia Gov't, January 20 to February 2, 105 cases, 45 deaths; Taurien Gov't, January 13 to 26, 1 death; Kursk Gov't, January 13 to 19, 1 case.

Turkey: Constantinople, February 11 to 19, 75 cases, 38 deaths; Adalia, February 4 to 18, 17 cases, 11 deaths.

India: Calcutta, February 2 to 9, 34 cases; Madras, February 9 to 15, 4 cases.

#### YELLOW FEVER—FOREIGN.

Cuba: Havana, March 7 to 14, 3 cases.

#### SMALLPOX—UNITED STATES.

Connecticut: New Haven, March 16, 1 case varioloid.

Louisiana: New Orleans, March 9 to 21, 3 cases.

Michigan: March 9 to 16, smallpox reported at Detroit, Grand Rapids, Highland Park, Three Rivers and Ypsilanti.

New York: Brooklyn, March 16 to 23, 1 case.

Ohio: Cincinnati, March 15 to 22, 11 cases, 2 deaths.

Pennsylvania: Philadelphia, March 9 to 16, 8 cases, 2 deaths.

Texas: Fort Worth, March 9 to 16, 4 cases.

Wisconsin: Sparta, March 9 to 16, 5 cases (in county jail); Milwaukee, March 9 to 16, 2 cases, 1 death.

Virginia: Portsmouth, March 13, 1 case varioloid (at Naval Hospital).

#### SMALLPOX—FOREIGN.

Cuba: Havana, March 7 to 14, 2 deaths.

Ecuador: Guayaquil, February 21 to March 8, 3 deaths.

England: Leeds, March 2 to 9, 2 cases; Liverpool, March 2 to 9, 2 cases; Derby, March 2 to 9, 1 death.

Egypt: Alexandria, February 5 to 18, 4 deaths; Cairo, February 5 to 18, 2 deaths.

Gibraltar, February 25 to March 3, 1 case.

Holland: Rotterdam, March 2 to 9, 10 cases, 3 deaths.

India: Calcutta, February 2 to 9, 60 deaths.

Ireland: Dublin, February 23 to March 2, 4 deaths.

Italy: Bologna, March 2 to 9, 3 cases; Marsala, February 23 to March 2, 1 death.

Russia: Batoom, February 19 to 26, 2 deaths; Moscow, February 16 to March 2, 2 cases, 2 deaths; Odessa, February 16 to 23, 2 cases; St. Petersburg, February 16 to 23, 6 cases, 2 deaths.

Scotland: Edinburgh, March 2 to 9, 2 deaths; Glasgow, March 2 to 9, 1 death.

Switzerland: Basel, February 16 to March 2, 17 cases.

Uruguay: Montevideo, February 9 to 16, 4 cases.

## MISCELLANY.

**Montefiore Home for Chronic Invalids.**—This charitable retreat of New York City has received gifts amounting to not less than \$50,000 toward a fund for the establishment of a country home, chiefly for persons in the early stages of tuberculosis, to be situated in the Adirondacks or at Vineland.

**Another "Faith-Cure" Victim.**—The 10-year-old granddaughter of the late Congressman Geo. W. Houck, of Ohio, died on the 18th inst. under the care of a Christian scientist and his wife. She was suffering from typhoid fever and received no medical or other attention save that furnished by the "faith cure."

**Boston Hospitals Receive Bequests.**—The late Moses Kimball, the founder of the Boston Museum, leaves to the New England Hospital for Women and Children the sum of \$21,000; \$5,000 to the Massachusetts Charitable Eye and Ear Infirmary, and a like sum to the Boston Dispensary, as well as to a number of homes and charitable societies.

**An Old Joke in New Guise.**—The New York *Herald* is responsible for reviving this hard saying:

"Druggist—What the dickens have you rung me up for at 1 o'clock in the morning?"

"The Tattooed Man—Don't git hot, boss. I only want a little morphin for the ossified woman. She's dyin' terrible hard."

**Sanitarium for Consumptives.**—At Liberty, N. Y., there will soon be built a new rural retreat for consumptives, for which purpose \$20,000 has been contributed by Mr. J. Pierpont Morgan. The location has a high reputation for salubrity and attractiveness. Its easy accessibility to a large population, needing a sanitary retreat less remote from the metropolitan district than are the Adirondacks, will tend to build it up even more rapidly than that on the Saranac.

**New York Medical Missionary Training Institute.**—This school, conducted by Dr. George D. Dowkontt, in East Forty-fifth Street, New York, has been able to purchase a valuable property of twenty acres, formerly the home of the noted car-builder, the late John Stephenson. His house or castle is located at New Rochelle and overlooks the Long Island Sound. The building, 115 by 60 feet, will serve for the housing of seventy students with their teachers. In the near future, if the work prospers as in the past, there will be erected other halls. The price paid was not far from \$90,000.

**The Bill for Corporal Punishment in Criminal Assault Cases (New York Legislature).**—In the New York Senate, the so-called "whipping-post law" has been adopted, almost without dissent, under the urgent advocacy of the Society for the Prevention of Cruelty to Children. There is little doubt that it will quickly pass the Assembly and receive the signature of the Governor. In order to make the bill go through quickly, it was found necessary to omit wife-beating as an offense punishable by the lash. The ground that was taken, in this particular, was that if this crime was included it would make reconciliation between the wife-beater and his wife impossible. The result will doubtless be seen in an

increase of brutality toward wives by drunken husbands, while at the same time the crime of assault on little girls will be repressed.

**Another Jubilee Hospital.**—The medical profession of Vienna proposes to commemorate the fiftieth year of the reign of the Emperor, Francis Joseph of Austria, by the foundation of a hospital for children with a capacity of 1,000 beds. The Emperor succeeded to the throne in 1848; it is doubtful, therefore, whether this gigantic monument may be realized to mark the fiftieth year of his reign; but there is much enthusiasm for the project and its completion is confidently anticipated.

**"Let the Inebriate Smile Again." A Hint from Norway.**—A valuable hint comes to us from Norway. The way seems to be opening up for a form of moderate excise legislation that will in the long run be in the best interests of the lovers of alcohol. In Christiania, the capital of that land, no sale of beer or spirits is now permitted from Saturday afternoon to Monday morning, except to permanent guests residing at respectable cafés. This regulation has led to such a great diminution in the consumption of drinkables that the publicans have begun to complain that the liquor trade is no longer profitable. One day's break in the week is enough to show a great many imbibers the advantages of abstinence, even if it be limited in duration.

**Necessity of Frequent Visits.**—The Supreme Court of California (Todd v. Myers, 40 Cal., 355) in an action brought by a physician for professional services—the defense being that the visits were too frequent and not necessary—rules that "the defendant having admitted the employment of the plaintiff as a physician to treat his wife and children, the plaintiff was the proper judge of the necessity of frequent visits, and in the absence of proof to the contrary, the court will presume that all the professional visits made were deemed necessary and were properly made. It would be a dangerous doctrine for the sick to require a physician to be able to prove the necessity of each visit before he can recover for his services. This is necessarily a matter of judgment and one concerning which no one save the attending physician can decide. It depends not only upon the condition of the patient, but in some degree upon the course of treatment adopted."

**An Attempt at Discipline Fails.**—In the Kings County Medical Society, N. Y., an attempt was made in March to bring to book a certain member who had been charged with having transcended the by-laws of that society, in the matter and manner of his publications on the opium habit and similar topics. The council of the society consisted of the following officers: Drs. George McNaughton, President; Joseph H. Hart, Vice-President; David Myerle, Secretary; William C. Braislín, Assistant Secretary; Charles N. Cox, Treasurer; O. A. Gordon, Assistant Treasurer; William Browning, Librarian; Joel W. Hyde, George E. Law, W. W. Browning, J. M. Warfield and Glen R. Butler, Censors; W. B. Chase, Frank E. West, Charles Jewett, Z. Taylor Emery and Isaac H. Barber, Trustees, brought in the charges and a recommendation for suspension of one year. The matter was debated and brought to a vote, whereby the council suffered defeat. In order to sustain the charges a two-thirds vote was required; this number was not quite reached. The council lacked two votes. This society at its last anniversary meeting re-enacted its fealty to the Code of the AMERICAN MEDICAL ASSOCIATION, while retaining its delegate relations to the State Medical Society, which has abrogated the AMERICAN and all other codes.

**New York Commission in Lunacy.**—The Governor of New York has re-nominated, as Commissioner of Lunacy for the State, Dr. Carlos F. MacDonald, formerly the Superintendent of

the State Asylum for Insane Criminals at Auburn. The Commission contains two lay members and one physician. These members have been, in the main, working together harmoniously and to the manifest improvement in the lot and condition of the pauper lunatics that have hitherto been at the mercy of the so-called "county care." Dr. MacDonald is, if we mistake not, the originator of the term "State care," and the practical developer of the idea itself. An editorial writer has said of him and his colleagues that "the delicate, important and comprehensive work under their charge has been so well done by them that the thought of undoing it has become incredible, and the demand for its continuance and full completion has become irresistible. Governor Morton has done nothing better than this appointment and he will do nothing better than it." Dr. MacDonald was graduated by Bellevue Hospital Medical College in 1869. He has written comparatively little, but the neurologic journals have contained his views on malingering, traumatic insanity and surgery of the head in epilepsy.

**The New York Orthopedic Hospital.**—The twenty-seventh annual report of this charity is a well illustrated pamphlet. The Surgeon-in-Charge speaks of new and enlarged quarters that have contributed to an increased volume of charitable treatments. The total of visits were 17,500, comprising patients having almost every deformity to which childhood is heir. Dr. Shaffer regrets that the institution is restricted to children of an age between 4 and 14 years. In other words, the adolescents who apply for relief can not be accommodated. Scarcely a week goes by that he does not have to turn away youths and misses between 14 and 20 years old, whose actual need for hospital treatment is quite as great as in the case of those of lesser age, whom his rules allow him to admit. The expense account for instruments and plant and mechanical labor is very heavy, not less than \$9,300; a repayment of \$2,800 for braces, etc., leaves yet unpaid one of the most costly branches of Dr. Shaffer's work; salaries alone to machinists are nearly \$6,000. The report states that the sum of \$4,000 has recently been donated to the Hospital for the erection of a modern operating room, the want of which has been grievously felt a long time.

**Facitious Buchu.**—The *Medical Age* states that a certain patient Buchu nostrum at one time afforded a business of \$3,000,000 a year. The writer states further that he has in his possession the formula of that nostrum, in Helmbold's own handwriting. Its directions are to make a weak infusion of buchu and barberry leaves, sweetened with New Orleans molasses, colored with burnt sugar, and preserved by adding 16 per cent. tincture of cubebs to the mixture. To this was also added a small proportion of essence of peppermint to give the compound "that peculiar characteristic odor and taste of mint which distinguished genuine buchu preparations." The latter idea was derived from the description, in the United States Dispensatory, of buchu leaves, which states that "the odor is strong, diffusive, and somewhat aromatic, their taste bitterish, and analogous to mint." The fact that such a compound as this could be exploited successfully and its sale acquire such enormous proportions shows plainly the power of newspaper advertising. Helmbold had the ability, however, of securing a great deal of gratuitous advertising. His lavish style of living—his coach and four—his establishment at Long Branch—his so-called liberality by which he gave away pictures costing \$20 apiece—all of these were used with consummate shrewdness for advertising purposes until the mention of Helmbold's eccentric doings became as much a part of the daily news as the accounts of base ball and yacht races.

**Nitrate of Silver in the Treatment of Burns.**—In cases of burns in the second degree, von Bardeleben (*La Semaine Médicale*) uses a 1 per cent. solution of nitrate of silver in connection with sub-nitrate of bismuth. After excising the blisters, the denuded surface is washed with a salt solution, 0.06 per cent., then with the nitrate; the surface is next dusted with bismuth and covered with cotton. Each time that the dressing is changed the wounds from which the eschars have separated should be treated anew with the nitrate of silver



This method is preferable to the ordinary dressing of bismuth, for it considerably diminishes the secretion, favors the formation of the eschars and thus facilitates recovery. It must, however, be cautiously employed. Von Bardeleben has observed a fatal case of argyria in a woman with enormous burns which had been treated with nitrate of silver and bismuth. In the course of the treatment the patient was attacked with a grave form of stomatitis which improved somewhat but did not entirely disappear. In nine weeks more, during which time the silver was used as a dressing, there was an acute exacerbation of the stomatitis; the buccal mucous membrane presented patches with bluish reflections; the patient had diarrhea, vertigo and convulsions and succumbed in eight days. At the necropsy, black deposits were found in the *cul-de-sac* of Douglas and in the large intestine, which deposits, as well as those in the mouth, gave the usual reactions for silver.

**"Look Your Best."**—The *Medical Examiner* gives place to the following paragraph as a short sermon on the dress of physicians. The admonition was originally addressed to a meeting of life insurance men, held at Little Rock, Ark., by Professor Stewart, of the Mutual Life Company. The modern requirements of city life, at least, confirm the statement that the best invites the best:

"In the progress of to-day two conditions are essential to the highest community success, and these are community activity and community dress. As the individual must appear in the garb of good society if he would enter it, so must the city. The universal deference is to clothes, and there is no condition of physical life, save that of man, that does not perennially put on a new garb; and the larger divisions of the family do so with great toil and pain. The birds molt their feathers, the animals shed their hair, and even the snake pulls off his earth-worn skin. Flowers and trees, and even the solemn pine are no exceptions to nature's law of embellishment, but dress in the fashions of their season's change. The behoof to dress your best is set on the surface of all present life; cities or individuals, the wisdom is the same. To look your best is to invite the best, and the best is life's only ultimate, let man deny it as he will."

**The Ordeal Poison of Central Africa.**—An English missionary stationed in Central Africa, sends home an account of an exciting adventure which he had in securing a large amount of "mwavé" or ordeal poison. He took possession of four packages in defiance of quite a number of natives armed with spears and shields, and conveyed it to his station. The poison, in the form of the bark of a tree, was packed in two flat baskets and two baboon skins, weighing seven to ten pounds each. Of his examination of these parcels he writes as follows: "We opened up the two baboon skins (mwavé bark is generally carried in these) and found a lot of mwavé bark, a little toy mortar, a hippo-tooth pestle for pulverizing the bark, the two drinking cups, and the medicine stick for marking off the line which divides those who have to drink the mwavé from those who have not. There was also a thin strip of cloth, which my boys told me had been taken from a person who died from the effects of the poison. I weighed the bark, and found there were thirty-four pounds—no small quantity, sufficient to kill many people. It is a deadly poison, and kills people within an hour and a half after drinking it. Birds die if they eat the leaves, and insects if they suck the flower. The Angoni pay large prices in cattle or slaves to those who bring them the mwavé. It is said to come from the Blantyre district, but few natives know the tree."

The local references in the latter part of the above paragraph apply to the tribes and country west and south of Lake Nyassa. The term "mwavé," is probably identical with the better known "mboundon," which is another ordeal bark, derived from a tree or trees of the *Strychnos* group. This source may be allied to the scarcely less notable plants,

from which the South American Indians prepare their woorara poison. Du Chaillu has stated that certain of the tribes of west equatorial Africa use the *root* for the preparation of the mboundon potion, prizing it as an ordeal and for the purposes of divination. Death is often produced by it within five minutes; the blood gushing from the mouth, eyes and nose. Where vomiting is promptly produced the accused person probably recovers and is considered to have been acquitted.

**On Malaria as a Waterborne Disease.**—The *New Orleans Medical and Surgical Journal*, June, 1892, contained an article by Dr. Richard Waggoner, of Pensacola, that illustrates very plainly the affirmative side of the question, "Is Malaria a Waterborne Disease?" The following is an extract therefrom:

"The writer has resided, during the past five years on the Naval Reservation near Pensacola, Fla., serving as Apothecary at the Pensacola Naval Hospital. The Naval and Army Reservations are situated on the north side of Pensacola Bay, about seven miles southwest of the city of Pensacola, and about one and one-half miles from the Gulf. The Navy Yard, the villages of Warrington and Woolsey lying just without its walls, and the Naval Hospital, three-quarters of a mile west, are situated on the Naval Reservation, and Fort Barrancasis, situated on the Army Reservation, one mile west of the Navy Yard."

"The villages of Warrington and Woolsey are at the present day extremely unhealthy places, being strongly malarious throughout the whole year, and especially so during the summer and autumn. This condition of affairs has existed during the whole period of my residence there, but the older inhabitants all unite in declaring that previous to about the year 1872 the place was considered very healthful, that chills and fever were unknown, and that people from the interior would locate there to recuperate from malarial troubles. After carefully investigating the matter, I have concluded that the water supply of the villages in question is the source of the greater part of the malarial poison, because the only change of a sanitary nature which has occurred to them consists in their water supply, and in this they have made a very decided change. The villages are the offspring of the Navy Yard, upon the location of which potable water was sought and evidently found, consisting of two springs at the foot of the rise alluded to above, which boiled up out of the pure white sand, clear and cool even during the hottest part of the summer. The authorities in the Yard, having at that time no reservoirs for collecting rain water, caused these two springs to be curbed in with brick for their own supply. These springs are still in existence, and are known as the 'Commodore's Springs.' This source supplied most of the drinking water to families residing in the villages, a small portion of them possessing cisterns, but preferring this water in summer on account of its coolness, until about the year 1872. About that time *driven wells* were introduced to them, and these being cheap, quickly put in operation and convenient, it was not long before almost every household had one or more of them in the back yard. The wells are driven, as a rule, only about twelve feet deep, some of them half that depth.

"Another fact: in January, 1886, a Marine Guard, numbering about forty men, arrived at the Pensacola Navy Yard for duty at that station. These men came directly from the North, and were in fine physical condition. During their first year on the station they began to have frank attacks of remittent and intermittent fever; during their second year there was a much larger proportion of them on the sick list, and between July 1 and August 15 of their third year (1888) every man in the Guard had an attack of either intermittent or remittent fever, twenty-five of the forty being in the hospital at one time.

"The annual report to the Surgeon-General for the year 1888, says: 'The health of the Marine Guard grew worse almost steadily during their stay here until in the early part of August, 1888, before the sickly season had reached its height, they broke down completely, and had to be carried away bag and baggage.'

"The water supply of the Navy Yard consists in a brick cistern for each of the officers' quarters, and three large cisterns, with a combined capacity of 500,000 gallons, affording the general supply. The Marines were supposed to get their drinking water from one of the large cisterns, the nearest of which is about 200 yards from the barracks, but

unfortunately for them there was a driven well very near their barracks, from which they derived the greater part of their drinking water. On the other hand, the officers and their families residing in the Yard used cistern water only, and they were entirely exempt from malarial diseases, sickness of any kind among them being little or none. At Fort Barrancas, only a mile from the Navy Yard, the enlisted men, more than double the number of the Marine Guard, used cistern water exclusively, and their health during the period of so much sickness among the Marines was excellent.

"The third fact is as follows: the present Naval Hospital buildings were constructed in 1875, on the foundations of the old hospital destroyed by fire during the civil war. The water supply consisted until the early spring of 1890, of two driven wells, eighteen feet deep. During the whole time this water was used the place was very unhealthful, the attendants having attacks of malarial fever every year, and patients admitted with other diseases would often develop malarial manifestations while at the hospital. During my first year at the hospital I apparently escaped the poison, but during the two succeeding years, 1888 and 1889, I had several attacks of malarial fever, my wife suffered from it even more than I, and our little girl, during her first and second summers, had typical paroxysms of intermittent fever. In the spring of 1890 an old brick cistern, a relic of the old hospital, was repaired and put in use, since which time we have used cistern water only at the hospital for drinking purposes, and there has not been the slightest evidence of malarial trouble of any kind in my family."

**A Court's Opinion of Insane Delusions.**—Until human nature radically changes, there will probably always be those who will seek some scapegoat for their crimes. At one time it may be one thing, and on another occasion something quite different. This explains much of the talk about irresistible impulse, hypnotism, insane delusions, and the like. In this connection, one of the most interesting of recent legal decisions is that of the Supreme Court of Tennessee in the case of *Wilcox v. State*, rendered Nov. 12, 1894. This was an appeal from a conviction of murder in the second degree. The defense relied on was the insanity of the defendant at the time of the homicide, it being insisted that the act was the result of an insane delusion upon his part, rather than a general derangement of his entire mental faculties upon matters generally. It was contended that when he did the killing he was suffering from the insane delusion that the deceased had been on too intimate terms with his wife. He had been addicted to the excessive use of morphin and cocaine, taking the drugs in doses sufficient to kill twenty men not addicted to their use, at a single dose; and he had carried on this habit for years, and had grown rapidly more and more addicted to their use, and come more and more under their influence. Many witnesses were examined, both experts and non-experts, in regard to his mental condition. It appeared that he was at one time a man of good mental capacity, described by many of the witnesses as an exceptionally bright man, that he was an active business man, had studied and practiced medicine with success, and was regarded universally as a man competent to attend to his business affairs. He was also shown to have been an arbitrary dictatorial man, of strong will power, and from his boyhood of quick, active, irritable temper. It was strongly pressed upon the court that many of his arbitrary and dictatorial acts were evidences, and the result, of his mental unsoundness and the strong hold which the drugs had obtained over his actions, and that the evidence presented a case of insane delusion, on account of which the verdict should not be upheld. But the court holds otherwise. Its answer is that in criminal cases the correct issue is not that of sanity, but of responsibility. The delusions of a sane man do not make him irresponsible. The question is in such cases, is the delusion set up as a defense the delusion of an insane person? Many men of strong minds, continues the court, have delusions. Remarkable instances are given in the works on medical jurisprudence of delusions in men of prominence in all the walks of life. Lord Kenyon had an un-

reasoning fear of poverty, and so did Lord Stowell, although he was a man of immense fortune, his home being absolutely destitute of the necessities and comforts of life. Lord Erskine would never sit at a table or remain in a company as one of thirteen persons. Lord Eldon, after he had made up his mind and expressed his opinion lucidly and conclusively, was at all times a prey to grave doubts of his correctness. Lord Brougham, upon more than one occasion, was placed in seclusion, his mind being clearly off balance. Judge Breckenridge, of Pennsylvania, is reported to have on a hot day, while holding court at Sunbury, gradually taken off his clothes, until he sat naked on the bench. Judge Baldwin, of the United States Supreme Court, was a hypochondriac. A distinguished New England judge imagined that a dropsical affection under which he labored was a sort of pregnancy. And yet none of these men were insane, because they had reason and sanity enough to conquer and overcome these delusions. A familiar illustration is that of the Mormon elders, who claimed that they had a direct revelation from heaven permitting them to practice and teach polygamy. The world generally regards this as a rank heresy, and the claim to be the evidence of an unreasonable delusion. It has, however, been held that they can not defend on the ground of such delusion, inasmuch as otherwise they are sane, shrewd, active, successful, and unusually practical men in their business and social relations, and they have been held responsible for such delusions. Nor can it be that the jealous suspicions which so many men entertain without any foundation can be magnified into insane delusions, which will exempt them from punishment for crimes originating in such jealousy. In a sense, all unfounded suspicions are delusions, but they do not for that reason excuse crime.

The rule is tersely stated in Archbold's "Criminal Practice and Pleading" as follows: "The insanity must have been of such a kind as entirely to deprive the prisoner of the use of reason, as applied to the act in question, and the knowledge that he was doing wrong in committing it. If, though somewhat deranged, he is able to distinguish right from wrong in his own case, and to know that he was doing wrong in the act which he committed, he is liable to the full punishment of his criminal acts."

Moreover, the court makes the point that the insanity set up as a defense in this case was not hereditary or natural, but voluntary, in the sense of having originated from the use of drugs. While this is an unfortunate and unhappy condition, the law, it says, does not and can not regard it with the same leniency that it does cases of adventitious insanity, not caused by the act of the party himself. Parties who persist in subjecting themselves to the persistent use and habit of taking alcoholic drink or other poisonous compounds and drugs can not expect the same forbearance and immunity from punishment as those bereft of reason by the act of God. Still it is admissible and proper to show the immoderate use of drugs or whisky, not to excuse crime, but to illustrate the mental condition, with a view to fixing the degree of the crime as it depends upon deliberation and cool malicious purpose.

### Society Notes.

**ILLINOIS STATE MEDICAL SOCIETY.**—Members of the Illinois State Medical Society desiring to attend the annual meeting of the AMERICAN MEDICAL ASSOCIATION as delegates, are requested to send their names at once to the Permanent Secretary.

THE seventh annual meeting of the Shelby County Medical Society will be held in Shelbyville, Ind., Monday, April 8, 1895.—The next meeting of the Washington State Medical Society will be held in Seattle, May 21, 22, and 23, 1895.

### College Commencements.

THE Western Pennsylvania Medical College, Pittsburg, March 21, sixty-three graduates.—Chattanooga Medical College, (Tenn.) March 14, fifteen graduates.—Ensworth Medical College, St. Joseph, Mo., March 14, fourteen graduates.—Beaumont Hospital Medical College, St. Louis, March 14, seventeen graduates.—Toledo, Ohio, Medical College, March 19, six graduates.—College of Physicians and Surgeons, Kansas City, Kan., March 19, seven graduates.—Ohio Medical University, Columbus, March 19, thirty-six graduates.—Cleveland, Ohio, Medical College March 20, thirty-nine graduates.—Wooster Medical College, Cleve-

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, APRIL 6, 1895.

No. 14.

## LECTURES.

### LECTURES ON INTRACRANIAL SURGERY.

#### III—REMOVAL OF THE GASSERIAN GANGLION.

BY EMORY LANPHEAR, M.D., PH.D.

ST. LOUIS, MO.

Tic douloureux (prosopalgia, epileptiform neuralgia or Fothergill's neuralgia) usually is due to some disease of the trigeminal nerve in front of the ganglion of Gasser—frequently a low grade of neuritis, sometimes an atrophic process dependent upon an obliterative endarteritis of the vessels supplying the nerves. Occasionally the disease may be traced to trouble in the alveolus, when it can be easily remedied; but commonly no local cause can be discovered, internal medication proves useless and life becomes a burden to the sufferer. Under such circumstances, removal of the ganglion is justifiable.

Three methods of reaching the ganglion have been proposed:

1. Opening the middle fossa through the temporal region;

2. Ablation of the superior maxilla and trephining the base of the skull;

3. Entering the cranium through the pterygoid region.

Before discussing these methods it is well to recall the anatomic relations of the ganglion. The fifth or trifacial nerve arises by two roots: a small anterior or motor nerve for the muscles of mastication and a large posterior root which constitutes the great sensory nerve of the face, giving origin to the ophthalmic and superior maxillary nerves (both nerves of sensation only), and supplying the inferior maxillary with its sensory fibers; these two roots do not join immediately after leaving the pons Varolii, but pass side by side, forward to an oval opening in the dura on the upper border of the petrous bone and thence between the bone and dura to the apex of the petrous where is formed the semilunar or Gasserian ganglion upon the sensory root, the motor fibers passing beneath the ganglion to join the third (inferior maxillary) division just outside the skull. In its passage under the ganglion this motor root is accompanied by the superficial petrosal nerve. The ganglion itself is intimately adherent upon its upper surface to the dura, which is here divided into two layers to cover the ganglion; and hence is difficult of removal. From its anterior border there proceed:

1. The ophthalmic division which continues forward along the outer wall of the cavernous sinus, making its exit through the sphenoidal fissure as three distinct nerves to supply the orbit and upper part of the face; just after leaving the ganglion it receives its communicating filaments from the cavernous plexus of the sympathetic—a most important surgical point, as otherwise there would be inevitable

destruction of the eyeball after removal or destruction of the ganglion.

2. The superior maxillary division which passes out of the cranium through the foramen rotundum to be distributed to the middle portion of the face in numerous branches.

3. From the lower angle the sensory part of the inferior maxillary which leaves the cranium by the foramen ovale and joins the motor root; immediately afterward it divides into two large trunks (anterior and posterior) the various divisions of which give sensation to the lower part of the face and the mouth; the posterior or larger trunk gives rise to the auriculo-temporal, the lingual and the inferior dental—the latter especially of interest, as it must be the guide to the foramen ovale—hence it must be remembered as lying beneath the external pterygoid in its upper relations, but later between the internal lateral ligament and the ramus of the jaw, finally entering the dental foramen.

It may thus be seen that the ganglion lies in an almost inaccessible location, surrounded by vital structures and contiguous to the great vessels at the base of the brain. What is the best route to follow?

Victor Horsley practiced the first mentioned method in a case that died seven hours after operation, presumably from shock. He opened the skull in the temporal region, low down; incised the dura and lifted up the temporo-sphenoidal lobe so as to see the base of the skull in the middle fossa, illumination being secured by means of a small incandescent light; he then cut the root of the nerve near where it emerged from the pons, followed it through the dura and removed the ganglion from above. From a number of experiments upon the cadaver I am convinced that this is an operation of great difficulty as well as severity. Unless a large portion of bone be removed it is impossible to reach the root of the nerve behind the ganglion, or even the ganglion itself. In every attempt made there was so much compression of the brain in exposing the point of attack that I believed much harm might result in the living subject—at least in hands less skilled than Mr. Horsley's. And it appears to me that there is great danger of hemorrhage from the contiguous sinus or artery; to which point I will refer later.

The second method has been followed by Mr. Rose, of London, with success in one case. But while by excision of the superior maxilla upon one side the foramen ovale may be quite readily reached, the disk of bone removed and the ganglion destroyed, the mutilation is too great to justify the procedure provided any other route can be utilized.

The third plan—known as the Rose operation—has proved, experimentally, to be decidedly the best. And the results in actual work have thus far been entirely satisfactory. Rose of London, Andrews of Chicago, myself, Park of Buffalo, and Parkhill of

Denver have, in the order named, operated successfully; and lately a number of other operators have recorded brilliant results, bringing the cases up to the neighborhood of twenty with only one failure.

In this operation two things must be especially remembered: the ganglion lying just above and external to the internal carotid artery, by the slipping of an instrument fatal hemorrhage may occur; an assistant should therefore stand ready to tie the common carotid upon the same side in case of accident while the operator prevents bleeding by gauze pressure. Second, since division of the fifth nerve (or its branches) *just in front of the ganglion* is said to give rise to destruction of the parts supplied by it and subsequent death, the ganglion must be totally extirpated without traction from the front, or the nerve must be cut *behind* the ganglion.

#### THE ROSE OPERATION.

The instruments required are: one scalpel of medium size; two scissors, one large, one small; half inch trephine with a long handle; one periosteal elevator; Hey's saw; bone drill and silver wire; dissecting forceps; one small curette (Volkmann's sharp spoon); two hooks to catch the nerve-blunt; one Liston bone forceps; twelve hemostatics. All should be metal so as to permit boiling. Last: needles and sterilized catgut.

After the usual preparation by bath, catharsis, etc., the head and face are carefully shaved; the parts thoroughly scrubbed with soap and water, dried and washed with sulphuric ether. The eye upon the affected side is irrigated with bichlorid solution, 1 to 3000, and the lids stitched together with fine catgut; the ear is cleansed and packed with a little gauze. At this point the hands of the operator and his two assistants must be again thoroughly scrubbed, the nails cleaned, and sterilization effected by washing the hands and forearms in saturated solution of potassium permanganate until a deep brown, decolorizing with strong solution of oxalic acid and final rinsing in sublimate solution 1 to 1000. The field of operation is again washed with antiseptic soap and water and then with the bichlorid solution; and the surrounding parts covered with towels wrung out of hot bichlorid solution.

Beginning just below the outer angular process of the frontal bone, an incision is made along the upper border of the zygoma to its posterior extremity, and curving sharply downward, descends just in front of the ear and over the parotid to the angle of the jaw, thence along the horizontal ramus to the vicinity of the facial vessels. This flap of skin is dissected up, care being taken not to injure Steno's duct and the facial nerve. By making the incision in this manner there is gained a maximum of space with a minimum of disfigurement and no paralysis of the portio dura. A long silk ligature is passed through the flap and held by an assistant, the retracted flap being wrapped in bichlorid gauze for protection. The periosteum is now stripped from the zygoma and four holes drilled through the bone; two through the zygomatic process of the malar, and two close to the root of the zygoma; these drill holes should be about one-third of an inch apart and are to provide passage for silver wires to hold the parts in place after trephining. With the Hey's saw the zygoma is divided between the holes at either end, the anterior saw cut being directed obliquely downward and forward, the posterior one as far back as possible. The bone is turned

down with the masseter muscle attached, care being taken not to injure the muscular attachment on the inner surface, as future nutrition of the bone must for a time come through the muscle. The coronoid process of the inferior maxilla being thus exposed it may be cut away with the Liston bone forceps or the saw; the bone removed should be thrown away after separating from the temporal muscle, as no attempt is made to restore it to its position because atrophy and cicatricial contraction would interfere with movements of mastication. The temporal muscle is now turned up out of the way, exposing the pterygoids. The external pterygoid muscle is separated from the skull by the periosteal elevator and drawn downward. Search is made for the third division of the fifth nerve (the inferior maxillary) as it is the guide to the foramen ovale through which it makes its exit. When this can not be found dependence must be placed upon the bony landmarks; an assistant wholly unconnected with the operation should be at hand with a skull which can be carefully observed and corresponding points located upon the patient. It should be remembered that the foramen ovale lies about one-fourth of an inch anterior to and the same distance internal to the foramen spinosum through which passes the middle meningeal artery, and a little more than a half inch behind and a trifle external to the foramen rotundum; so that any of these foramina is a guide to the others; further, the fossa for the ganglion lies about five-sixteenths of an inch internal to and slightly behind the foramen ovale, the carotid canal being the same distance from the foramen, directly toward the median line.

The situation of the foramen ovale having been determined, a half inch trephine with a long handle is introduced with the center-pin a little behind and external to the foramen. When the disk of bone is removed the hemorrhage must be checked by pressure for a moment, and the cavity cleaned from all blood, when the dura can be cut with scissors. A small incandescent light is now almost indispensable; by its aid a part of the ganglion can be seen. A small blunt hook is introduced, the nerve caught just where it *enters* the ganglion and strong traction made; when well in the opening it may be divided with small scissors and the ganglion torn out with dissecting forceps or a small curette. Hemorrhage is now quite severe but must not agitate the operator; it can be controlled by pressure or the application of a bichlorid gauze compress wrung from water of a temperature of 120 degrees. Bleeding having been arrested the wound is irrigated with hot sterilized water (or carbolic solution 1 to 40), the temporal muscle is tucked into the fossa and the zygoma replaced and wired. As no drainage can be employed the wound is now made as dry as possible, iodoform dusted in very freely, the incision rapidly closed with a continuous catgut suture, the face washed, the wound hidden in iodoform and much sublimate gauze applied. The head and affected side of the face must be covered with several layers of bichlorid gauze (1 to 2000), enveloped in cotton and bandaged tightly.

The most strict attention to even the minutest detail of asepsis is necessary at every step of the operation. There must be no break in the chain of ideal surgical cleanliness, regardless of any exciting incident which may arise.

Both eyes must be bandaged for four days and the



one on the affected side for two weeks. The catgut stitch in the lids is removed at the completion of the operation.

#### AFTER TREATMENT.

When put in bed the usual methods to combat shock must be instituted. Whenever much restlessness appears with the reaction, the hypodermatic injection of morphin (gr. .02) is indicated. Absolute quiet must be enjoined and vomiting prevented if possible. After the subsidence of nausea—probably in twenty-four to thirty-six hours—a liquid diet should be ordered and kept up for at least two weeks, at the end of which time articles easily masticated may be substituted.

About the sixth day the patient may be allowed to sit up, and on the twelfth or fourteenth to go about the house.

If (as is frequently the case) the subject has acquired the morphin habit it is best to stop the drug at the time of operation; surprisingly little discomfort will result, the disappearance of the pain giving partial relief from the craving. The hypodermatic injection of .005 doses of strychnin, three or four times daily, for a few days will greatly lessen the desire for the drug.

#### CASES.

That removal of the ganglion of Gasser does give permanent relief from the terrible pain is proved by the following case:

James S., of Chanute, Kan., age 54, came to me for examination in March, 1892. The family history and previous health were good; he was of strong constitution and non-syphilitic. Eighteen years ago he began to have paroxysms of pain in the right side of his face; the pain was thought to be neuralgic, and one by one all his teeth were extracted; morphin was used for the pain but gave no relief even in doses of a grain and was finally discontinued. During the two years preceding examination the local spasms had increased in frequency and severity until existence seemed unbearable and the patient had contemplated suicide to end his misery. All the coal-tar derivatives and other anodynes had been tried in vain. His appetite had been poor for some months, and as attempts at chewing caused recurrence of pain, he had for a long time been confined to his bed, principally on account of weakness. He was admitted to All Saints Hospital, of Kansas City, March 18, 1892. At that time the following entry was made: "Status præsens—Patient pale and anemic; emaciated; lines of pain upon face; heart, lungs and abdominal organs normal; no disease of ear, eye, nose or throat; no trouble in antrum (examination by electric light in mouth) nor alveolus to account for pain; while talking paroxysms came on—typical trigeminal tic. Put to bed and ordered forced feeding and

R Quinina hydrobromat . . . . . 1.5

Ferri sulphat. exsiccata . . . . . 1.

Hyoscyamina sulphat . . . . . .01

"Misce et ft. capsul No. xvi. Sig.: One every four hours."

There was no improvement under this, so far as concerned pain, but the general condition was slightly better on March 28. On March 29 I made Rose's operation, being assisted by Drs. J. D. Griffith and J. F. Binnie, of Kansas City. The third division of the nerve could not be found on cutting away the pterygoids, so the location of the foramen ovale was determined by comparison with the dry skull. The trephine was applied a little too far behind the foramen so that it cut into the foramen spinosum, wounding the middle meningeal artery; the bleeding was very severe for a moment, and it seemed as if the carotid would have to be tied, as has been advised for such an accident, but by persistence the vessel was secured; no further difficulty was experienced except that the patient seemed ready to die from a combination of weakness, anesthetic and shock; so the operation was hurried and completed in fifty-five minutes. An ideal convalescence followed. The shock was easily overcome; the temperature rose to 100.5 degrees on the day following operation, but rapidly declined—pure surgical fever; freedom from pain was complete; there was little nausea, and the appetite speedily improved. There was a gain of

ten pounds in weight in two weeks. The wound healed by primary union. He was discharged from the hospital April 12, 1892.

Here was a typical case for operation. And the result has justified the apparent severity of the remedy. For nearly three years have now passed since the operation, and there has been no return of the pain. The severe conjunctivitis which followed and which at one time I feared might destroy the eye finally disappeared, though for several months the eye had to be protected. Considerable difficulty in mastication was at first experienced from the stiffness of the jaw and from accumulation of food upon the insensitive side of the mouth, but the man finally learned to overcome this and at the present time has no trouble whatever.

Was the ganglion destroyed in this case, or was the good result due simply to cutting the nerve outside the skull? Senn and others have insisted that it is impossible to remove the ganglion by this route and that the benefits arise simply from division of the second and third branches of the fifth nerve during the attempts at removal. Whether it is taken away in its entirety or only partially destroyed, or whether it is not even touched during this operation, are questions of more theoretical than practical interest, so long as the results are as satisfactory as in this case: relief from pain which renders life a burden. But that cure depends not upon section of the nerve instead of removal of the ganglion is certainly to be inferred from comparison of the history just given with that of the following case:

Mrs. Jacob M., of Hope, Kan., I saw in consultation with Dr. J. N. Ketchersid on July 21, 1893, at her home. She was 48 years of age. Her general health and family history good. For four or five years there has been persistent severe neuralgia of unknown cause, which affected the third division of the fifth nerve. Several sections had given temporary relief—the last being of the nerve just as it enters the dental canal. For the past six weeks prior to my first visit almost intolerable pain had continued, morphin, etc., affording little relief. For five days she had not tasted food as every movement caused a return of the paroxysmal agonizing pain. With the assistance of Drs. Ketchersid and Miles, I began the Rose operation, but upon reaching the point of trephining the base of the skull my courage failed, for the operation was in a private house and the light not good. I therefore simply cut the nerve at its exit from the foramen and removed much of it, completing the operation in the usual manner. July 22 she was resting nicely without pain, and had slept all night for the first time in many months. July 25, Dr. K. wrote: "Patient's temperature this morning normal, pulse 85. She is doing well and gaining rapidly in strength." Convalescence was satisfactory in every detail. For a little more than one year there was complete relief from pain, but at the end of that time little twinges began to be noticed and these have gradually increased in severity until recently the paroxysms have assumed great intensity and the doctor has been in correspondence with me about removing the ganglion from above.

Dr. Frank Hartley, of New York, has described a modification of Horsley's operation, the steps consisting in reflecting the tissues (including the bone) over the temple, the base of the initial curved incision being over the zygoma and the flap reflected downward; the dura is gently pushed away from the bone by means of a spatula until the foramen rotundum and foramen ovale are exposed, without opening the dura except where it divides to inclose the ganglion. The nerve is then cut behind the ganglion and the latter torn from its depression with dissecting forceps from above. Theoretically and experimentally upon the cadaver this operation is a good one, and Dr. McLane Tiffany of Baltimore has operated successfully four times with good results; but I have the

same objections as to the Horsley method: too much brain compression and danger of hemorrhage. That these objections are not based upon visionary reasons is proved by the following case:

Mrs. W., 65 years of age, married, was operated on Oct. 23, 1893, by Dr. J. D. Griffith, of Kansas City, assisted by Dr. J. F. Binnie and myself. All went well until the attempt to raise the dura to expose the ganglion. Serious symptoms: depressed heart's action and irregular respiration then arose—necessitating repeated interruptions. Finally the petrous bone was well uncovered, but the bleeding was so excessive by the time the region of the ganglion was reached as to compel cessation of operation and the application of gauze pressure. After repeated efforts we were compelled to desist, tamponing the wound with iodoform gauze to prevent death from hemorrhage. Four days later the wound was unpacked and a second unsuccessful attempt made to remove the ganglion, during which the dura was penetrated. Again recourse to the gauze tampon was necessary to save life temporarily. The patient died three days later as a result of meningitis.

Now Dr. Griffith is one of the most careful surgeons in this country and I am sure no other operator could have accomplished what he failed to do in this particular case; and I feel equally certain that had the Rose method been adopted the ending might have been more favorable.

As a result of observation, therefore, as well as experimentation, I am compelled to say that the Rose operation for removal of the Gasserian ganglion appears to me to be the one easiest of execution and safest in practice.

## ORIGINAL ARTICLES.

### A REPORT OF FOUR ILLUSTRATIVE ABDOMINAL SECTIONS.

Read by title before the Southern Surgical and Gynecological Association, November, 1894.

BY L. S. McMURTRY, M.D.

PROFESSOR OF GYNECOLOGY IN THE HOSPITAL COLLEGE OF MEDICINE LOUISVILLE.

Clinical reports possess a peculiar value to practitioners of medicine as attesting the absolute results of treatment. The four cases here reported illustrate as many distinct and separate conditions of disease, in which none other than radical surgical treatment can avail. These cases occurred in my practice during one week; the four operations having been performed within six days. In all the cases the indications for operation were absolute and urgent; they passed into easy convalescence without untoward symptoms of any kind, and have made complete and perfect recovery. In Case 4 the operation was followed by pronounced shock, from which the patient rallied in a few hours. All are now in the enjoyment of perfect health three months after operation.

The object of this report is to illustrate the indications for operation in grave conditions of disease formerly imperfectly understood, and to demonstrate the safety of operative treatment, promptly and thoroughly applied. The profession has been slow to accept the practical truth that the risk of operating in such cases as I will report is incomparably less than that of temporizing by treating symptoms. Among the increased risks to life from delay, the feeble condition of the patient and the complications resulting from rapid tissue changes demand recognition. For convenience I will report the cases in reverse order, beginning with the last case of the group:

*Case 1.—Extra-Uterine Pregnancy; Rupture, Hemorrhage and Shock.* Mrs. D., aged 25, on the evening of September 23, while undressing to retire, was attacked by sudden pain in the left iliac region. It did not last long and was relieved by rest and warm applications. This lady had been married six years, and about two years since suffered a miscarriage with considerable hemorrhage; since that time she had complained of pelvic pain and menstrual irregularity. At the time mentioned she had missed two menstrual periods. On the Wednesday night following she was attacked with violent pain in the same region, much more violent than before, and was given a full dose of morphia hypodermically which gave her some relief. On the following morning she got up to empty the bladder and while doing so fainted, became deathly pale and cold and was seized with nausea and vomiting. The pain was intense and for several hours she exhibited the symptoms of profound shock and internal hemorrhage—pallor, bloodless lips, surface cold, and pulse rapid, small and feeble. Under the influence of stimulants freely administered, hot applications to extremities, mustard to epigastrium, and atropia hypodermically, she gradually rallied late in the afternoon. On the following day her abdomen was swollen and tympanitic, and very sensitive to the touch. Three days afterward she passed a perfect cast of the uterine cavity. Her pulse ranged about 120, and she had an evening temperature of 101.

This description of her symptoms is a literal extract from a letter written me at the time by her father, himself an experienced practitioner of medicine. Three days later her father wrote that her symptoms were materially improved. The pulse had fallen to about 100, the temperature had come down to normal and her condition was better in every respect. Still the abdomen was considerably swollen and quite tender in the left iliac region. There was a slight bloody flow from the uterus. These symptoms it will be observed, correspond with the shutting off of the area of rupture and hemorrhage from the general peritoneum, with arrest of bleeding temporarily by blood clot. On Thursday, October 11, she was transported in a carriage to the railroad station, placed in a sleeping car, and brought to the Jennie Casseday Infirmary for Women in Louisville. She bore the journey well, and reached the infirmary without aggravation of symptoms. She was accompanied by her father and husband, both of whom are physicians. An examination of the pelvis demonstrated that the cavity was choked with effusion. The uterus was pushed to the right, and Douglas' pouch and the left lateral space packed.

Saturday morning, October 13, I opened the abdomen and found the pelvic peritoneum filled with blood clot, which was breaking down; peritonitis was active and progressive. After removing two or three pints of blood clot, I brought up into the incision the left uterine appendage, and tied it off close to the uterus. The point where the tube ruptured is very plainly seen. An examination of the uterine appendage on the opposite side demonstrated the existence of chronic salpingitis with adhesions and occlusion of the tube, evidently the result of long standing chronic inflammation. It was removed. The peritoneal cavity was flushed with several gallons of warm distilled water, a drainage tube placed, the incision closed, and the patient returned to bed. Her convalescence was uninterrupted. Her pulse remained under 100; she suffered no pain; the abdomen remained flat; the bowels were moved on the third day in response to an enema; the drainage ceased by the third day; the tube was removed, and convalescence was established without any interruption whatever. She returned home quite well at the end of the fourth week. Drs. Coleman Rogers, Mandeville Thum; and Robert Stuart were present at the operation.

*Case 2.—Chole-Lithiasis; Impaction of Cystic Duct; Cholecystotomy.* Mrs. B., of Uniontown, Ky., was brought to me by Dr. Norman, a well-known physician of that place, on Wednesday, Oct. 10, 1894. She is 52 years of age, of vigorous constitution, and until three years ago enjoyed uniformly good health. For three years past she has suffered with frequent violent paroxysms of abdominal pain, only imperfectly relieved by large doses of opiates. Her digestion was impaired, she was several times jaundiced, and for several months past her suffering was almost constant. She had been treated by different physicians for various supposed conditions of disease. Dr. Norman some months ago detected a globular tumor in the right hypochondrium which had enlarged steadily. An examination of the tumor gave conclusive evidence that it was an enlarged gall bladder, and with associated history justified a diagnosis of gall stones, most probably impacted in the cystic or common duct.

Thursday morning, October 11, the day after the patient's arrival at the infirmary, I did cholecystotomy. A vertical incision about three and a half inches long was made immediately over the tumor; firm adhesions were encountered all about the distended gall bladder. These were carefully separated and the gall bladder brought up into the incision. A flat sponge was packed underneath so as to protect the



peritoneum and the gall bladder instead. The gall bladder was filled by a perfectly clear fluid, a mucoid secretion characterizing this form of biliary obstruction. After emptying this, my finger detected a large stone firmly impacted deep in the cystic duct. I experienced considerable difficulty in removing it. It is well known that the walls of the gall bladder and its ducts are thin and friable, and hence the utmost delicacy of manipulation must be observed when the duct is stretched by an impacted stone. It is very easy to push it through the thin tissue of the duct. Various forceps have been invented for the removal of stones under these circumstances, some with padded blades for crushing the stone from the outside of the duct. With two fingers introduced within the abdomen and the index finger of the other hand within the gall bladder, I succeeded in dislodging this large stone without injury to the duct, and removed it.

The further steps of the operation consisted in sewing the incised gall bladder to the parietal peritoneum of the incision, introducing a rubber tube into the gall bladder, and closing the incision, (except at the central point where the tube was placed) in the usual manner. In this way the gall bladder is drained through the abdominal wall. Before the operation was concluded bile began pouring out through the gall bladder. The patient's convalescence was smooth and uninterrupted, being entirely afebrile and requiring no opium or other anodyne. The tube remained in the gall bladder until the discharge ceased and the bile followed the normal channel. The opening closed altogether during the fifth week. The patient was entirely and immediately relieved of pain and is now quite restored to vigorous health.

*Case 3.—Suppurative Salpingitis and Peritonitis.*—L. J., age 25, referred by Dr. P. F. Barbour, had suffered for several months from pelvic inflammation. The history and symptoms leave no doubt as to the infection being due to gonorrhea. For seven weeks prior to admission to the infirmary she was very ill with peritonitis. The abdomen was tender and tympanitic, pulse rapid and temperature ranging from 101 to 104 degrees F. The suppurative stage was marked by rigors and profuse sweating. Pain was paroxysmal and so severe that morphia was daily and freely used.

An examination revealed the characteristic symptoms of suppurative salpingitis and pelvic peritonitis. After free purgation, abdominal section was done October 9. The pelvic viscera were matted down with adhesive exudate, which being separated allowed pus to flow out of the incision. The Fallopian tubes were distended with pus, the left having ruptured. The tubes were glued to the ovary on each side and both ovaries had been converted into abscess sacs. The specimens illustrate the extreme ravages of specific suppurative salpingitis and ovariitis. After thorough enucleation the rotten appendages were tied off close to the uterus. The peritoneum was flushed freely with warm water, a glass drainage tube placed, and the incision closed. The progress of the case was uninterrupted, and convalescence was prompt. Neither morphia or other opiates were given during convalescence. At the expiration of the third week the patient went to the country and writes that she is quite well. Drs. Barbour and Rogers, of this city, and Drs. Stuart and Dunn of Henderson, were present at the operation.

*Case 4.—Post-puerperal Pelvic Inflammation, with Suppuration.*—Age of patient 21 years; confined July 26, 1894, and during convalescence developed peritonitis. After an acute illness of several weeks, during which time she exhibited the symptoms of puerperal peritonitis, the inflammatory process seemed to abate and her condition was hopeful. During the latter part of August her condition was complicated by abscess of the breast, which required incision and gave much distress, at the same time adding to the exhaustion of an already enfeebled condition. I saw the patient in the latter part of September in consultation with the family physician, Dr. Coleman Rogers. For several weeks preceding the condition was one of seeming improvement with recurrent attacks of violent pain necessitating repeated doses of morphia, accompanied with fever and sweats. These exacerbations undoubtedly marked the invasion of additional areas of peritoneum by the inflammatory process. Dr. Rogers had utilized purgatives, as well as all other non-surgical resources in the treatment, and requested a consultation with a view to operative interference. An examination disclosed the most extreme and advanced lesions of post-puerperal pelvic inflammation. The uterus was bound down upon the floor of the pelvis, the fundus in Douglas' pouch, and the rectum almost occluded by its pressure. All the pelvic viscera were fixed, being bound by extensive deposits of organized exudate. There was an indistinct sense of fluctuation in the lateral pelvic spaces when the bimanual touch was applied. The patient was pale, feeble and emacia-

ted, racked with daily exacerbations of pain and constant fever.

On Oct. 6, 1894, during the eleventh week of illness, the patient was removed to the infirmary and on the following morning abdominal section was made. Ether was very cautiously given, and the operation performed as quickly as thorough and careful work would permit. On opening the abdomen (suprapubic) the omentum was found agglutinated to the intestines, roofing in the pelvic viscera. Releasing this and working a track of cleavage with two fingers through the coils of intestines the pus freely poured out of the incision. In separating the adhesions at the floor of the pelvis, and enucleating the disintegrated tubes and ovaries (applying only gentle force cautiously), my index finger penetrated the uterus. Recognizing this, I forcibly released that organ (observing the utmost care not to open the rectum to which it was adherent), and brought it up with the suppurating appendages. The body of the uterus was friable, breaking down under slight force; the appendages were mere abscess sacs. Having separated adhesions so as to release the intestines, I threw a small wire attached to Kœberle's nœud around the cervix uteri, and removed the uterus and appendages. The peritoneum was thoroughly doused with several gallons of warm water, a drainage tube placed, and the incision rapidly closed. The operation was completed in thirty-two minutes. Dr. Guest, the anæsthetist, had already administered stimulants hypodermically. The patient was put to bed without any pulse that we could detect in the wrist, though the heart was acting with great rapidity. The usual stimulants subcutaneously, with dry heat to the surface and extremities, were persistently applied, and the patient gradually rallied. The pulse was rapid and small for three days, then gradually improved. The drainage tube was removed on third day, the nœud came away on the eleventh day, and healing was prompt and complete. The patient rapidly gained strength and flesh, and is now a perfect picture of health. Dr. Coleman Rogers and Dr. T. P. Satterwhite were present at the operation.

### THE OPEN AIR TREATMENT OF CONSUMPTIVES WHO CAN NOT SEEK CHANGE OF CLIMATE.

Read at the meeting of the "Tri-State" Medical Society at St. Louis.  
April 2, 1895.

BY ROBERT H. BABCOCK, A.M., M.D.

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The importance of climatotherapy in the treatment of consumption was recognized even by the ancients. As long ago as the time of Hippocrates and his immediate successors it was held that consumptives should be removed to a distance from the locality in which they had contracted their disease. From that day to this, physicians have been in the habit of ordering change of climate for their phthisical patients in the belief that in a judicious and early employment of climatotherapy lies the consumptive's best hope of recovery. Much thought and investigation have been given to the determination of those qualities of climate to which its remedial virtues may be attributed. These would seem to be dryness, high altitude, equability and purity. Yet that dryness and high elevation are not fundamental requirements for

all cases, is shown by the fact that some patients do well in sea stations such as the Island of Madeira. Equability of temperature can not always be relied on at resorts of greatest repute, such as those of mountain climates. The one quality common to all well known and justly celebrated resorts is purity of the atmosphere, and when combined with dryness and low atmospheric pressure, of mountain resorts, we have those qualities most conducive to recovery from pulmonary tuberculosis. Nevertheless, some patients recover who never seek a high altitude; others, who never leave home. And those who seek the most favorable climate possible receive little or no benefit unless they remain out of doors a large proportion of the time. Furthermore, Dettweiler, from his Sanitarium at Falkenstein, Germany, reports from 24.5 to 27 per cent. of recoveries of patients in all stages. And yet his institution is located in the cool, damp, changeable climate of Germany in the Rhine country. Similar results are achieved at Bremer's Sanitarium in the equally unfavorable climate of Görbersdorf, North Germany. Surely then, there must be something more than mere removal to a favorable climate if the consumptive would recover, and on the other hand there may be some hope for the consumptive who can not seek change of climate. This condition upon which depends the welfare of the phthisical patient, whether at home or at a health resort, is life in the open air.

Consumption may be said to be the disease of indoor life. Its victims are those forced by occupation or circumstances to spend their days within four walls. It rarely attacks persons who work in the open air, unless their health be undermined by vicious habits or conditions of environment that antagonize the beneficial effect of their outdoor life. While penning the foregoing sentences I was consulted by a lady of tubercular family history, who had developed pulmonary disease within a few weeks previous, largely I believe in consequence of having exchanged residence in South Dakota with much time spent out of doors, for the opposite conditions of life in Chicago. Such facts are so numerous as to point unmistakably to the disastrous consequences of indoor confinement. Why then should this, Nature's remedy, fresh air, be withheld from individuals already suffering from pulmonary tuberculosis? And yet this is precisely what is done in only too many instances.

Last fall I was consulted by a young lady with pronounced pulmonary tuberculosis, whose physician had warned her against going out doors, lest she should take cold. It is not at all uncommon to find the consumptive in an advanced stage with all the phenomena of sepsis, lying in an overheated, ill-ventilated apartment from which he is never moved.

Therefore I desire to lay down two following propositions: 1, a consumptive who can not seek change of climate should pass his days in the open air, no matter what the stage of his disease; 2, under proper precautions this may be done in all weathers, excepting the severe cold of winter, when the thermometer registers below 15 degrees above zero.

And now I propose to devote the remainder of this paper to the description of how and why this should be done.

In the summer of 1893 it was my good fortune to be able to visit Dettweiler's famous Sanitarium at Falkenstein, where the open air treatment of consumptives is carried out in its perfection and with truly brilliant



results. The institution is situated at the altitude of about one thousand three hundred and fifty feet above the sea, and is protected from cold northerly winds by the low Taurus Mountains, among which it lies. It is constructed around three sides of a square, so that its galleries face the southeast, and obtain all the sunshine possible. In these open galleries, protected from the elements only by canvas curtains, the patients spend the entire day from eight to ten hours, reclining in easy chairs or on couches and covered by sufficient rugs to withstand the cold. This open air treatment is so generally employed, that according to Dettweiler's figures all but  $8\frac{1}{2}$  to  $9\frac{1}{3}$  per cent. of the patients were submitted to it, winter and summer, during the year in which his statistics were collected. The patients are taken into the fresh air about 11 o'clock A.M., after they have had their breakfast and as a rule are not brought in again until 9 or 10 o'clock in the evening. Their meals are served out of doors and they while away their time by conversation, reading, playing games, etc. The range of winter temperature during which Dettweiler reports this treatment as carried out was between 12 and 41 degrees above zero, F., and it was not deviated from because of rain, wind or snow, since the patients could be sufficiently protected by the canvas curtains. Very feeble patients are taken out and kept in their beds, those suffering from high fever are kept in the open air until daily defervescence sets in, when they are returned to their rooms. The small percentage of those not subjected to this treatment are invalids suffering temporarily from complications.

Marked benefit is said to be observed, such as diminution of fever, cough and expectoration, cessation of sweating, lessened nervousness, return of appetite and digestion, and gain in strength and weight. Physical rest in the open air in the manner described is insisted upon so long as patients have marked fever and wasting. When sufficiently improved, they are allowed to take exercise cautiously, walking at first but five minutes at a time; the amount of exercise permitted being gauged by the effects. If rise of temperature result, no matter how brief the exercise, they are again subjected to rest. The most careful attention is paid to diet, and in all respects they are managed in accordance with the most approved principles of clinical and symptomatic treatment and individual peculiarities.

Certain precautions are necessary in subjecting a consumptive patient to a mode of treatment not only vigorous but at the same time wholly at variance with what he has been accustomed to. He is notoriously sensitive to cold, partly in consequence of anemia, perhaps, but largely because of exaggerated reflex sensibility on the part of the nervous system. The moment a breath of cold air strikes his body, reflex contraction of the cutaneous vessels takes place and he complains of chilliness. This is intensified by his fear of cold air, which makes him shun exposure and prefer a temperature of enervating warmth. Indeed, his sensitiveness to drafts is so exaggerated, that as Dettweiler observes, he may be said "to have a disease of the skin as well as of the lungs." Nevertheless, inasmuch as the *pars minoris resistentiæ* is the pulmonary mucous membrane, a chill may at any time result in congestion if not actual inflammation of the lower respiratory tract. Consequently if a patient is to be subjected to this open air

treatment, he must undergo a hardening process to deprive him of his abnormal sensitiveness; that is, he must be gradually accustomed to cool air and drafts without feeling cold. This may be done by friction of the surface, movements of the body and the adjustment of additional clothing. The patient must be exposed to cool air until he begins to experience a sense of slight chilliness, when an attendant must at once begin to rub him briskly to anticipate and prevent its intensification into a pronounced rigor. Sometimes it may suffice to shift about on the couch and move the extremities, or for the attendant to cover him up more warmly with additional wraps. Furthermore, such a sensitive patient should not be taken out of doors in the early morning hours at a time when chills are most easily induced, but toward noon, say 11 o'clock, after he has had his breakfast and the body temperature has begun its diurnal rise. If in spite of these measures a chill and consequent bronchial congestion or inflammation result, the patient must be at once taken to his room and there subjected to a reactionary or revulsive treatment. This consists of dry friction underneath the clothing in such a way as not to subject the patient to still further exposure. Hot drinks should be given, counter irritation applied to the chest and the rubbing continued until the surface is in a vigorous glow. Then if fever comes on with other symptoms pointing to the patient's having taken cold, in spite of the measures to ward it off, he should be confined to his room until all active symptoms abate. He may then again be taken into the open air and be put through the former régime. As a consumptive improves in strength and endurance he may be subjected to morning sponge baths with cool water or diluted alcohol, followed by vigorous friction, and thus gradually become prepared for even so energetic a measure as the cold douche or shower bath. His sleeping apartment should be kept thoroughly aired while the invalid is out of doors, and fresh air in abundance should be admitted, even at night, through an open window either in the same or an adjoining chamber.

Such is the outline of the treatment advocated for consumptives not permitted by circumstances to seek a change of climate. It only remains to describe briefly a practicable method which the general practitioner can carry out in the case of a private patient. In the country or in a town, the air of which is not contaminated by dust and smoke as in a large city, a piazza, so situated as to get the sun, can be utilized for the purpose. By means of canvas curtains or screens the invalid's couch can be sheltered from rough winds and storms. If there be not a convenient veranda, a tent can be pitched or a rough shed built at the side of the house, least exposed to assaults from the weather. In case the consumptive be too feeble to be actually taken out of doors he may occupy a sunny room, whose windows are kept wide open. During the coldest days of winter the temperature of the apartment may be moderated by artificial heat. An open grate fire is the best, but even furnace or stove heat will answer if free from coal gas. A patient in the early stage may be permitted as much exercise in the carriage, in saddle or on foot as he can take without fatigue or rise of temperature. This latter is a most important point and his temperature should be carefully taken and registered both before and after exercise. If even slight fever result, the consumptive should be compelled to

rest in the open air so long as physical effort is found to induce rise of the body heat. An attendant should be provided and instructed to carefully guard her charge against chilling in the manner previously described. A trained nurse would be perhaps the best, but an intelligent member of the family can be instructed in the duties of the position. But this is not all; the patient himself will generally require mental as well as physical treatment. He must be made to understand the necessity of the baths, frictions and douches calculated to harden his skin, also why rest, instead of exercise may be required, and he must be taught not to expect striking results at first. The consumptive is either apt to be easily discouraged if he does not perceive immediate results, or on the other hand to fail of appreciating the importance of, to him, trifling details in the carrying out of a prescribed régime. If the precautions are well observed, the treatment should be carried out rigorously to the extent of even the meals being taken out of doors. In many instances no doubt the prejudice of relatives and friends will have to be overcome, requiring intelligent explanation of the advantages and benefits to be expected. Even in large cities, where a suitable piazza or yard space is not available a measure of the treatment can be carried out in some room selected for the purpose. "Half a loaf is better than no loaf," and if the physician can not secure everything desirable in this mode of climato-therapy, he may yet improve on the overheated, ill-ventilated atmosphere in which so many hectic patients are consumed. There is nothing in this plan that militates against other rational means of treatment. In fact, everything medicinal, dietetic and hygienic, conducive to recovery, should be utilized. Symptoms will not disappear at once or even rapidly, but most of them particularly the fever will be favorably influenced. If the invalid continues to perspire freely his nurse should dry him by prolonged friction under the clothing. His appetite should be encouraged and his dietary carefully supervised each day. Consumption is a mixed process; destruction of pulmonary tissue on the one hand with the phenomena of septic infection on the other. There is consequently abnormal metabolism of tissue, calling for greater intake of oxygen, yet there is deficient lung capacity to meet the demand for increased oxydation and hematosi. Is it not rational therefore that the consumptive be placed in such an environment, as will best fulfill the needs of his organism? The statistics at Falkenstein and Görbersdorf furnish the answer.

Venetian Building.

# A CASE OF OBSTRUCTION OF THE BOWEL FOUR DAYS AFTER ABDOMINAL SEC- TION—SECONDARY OPERATION— RECOVERY.

REMARKS ON PERITONEAL ADHESIONS.

BY FRANK C. FERGUSON, M.D.

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INDIANAPOLIS, IND.

Mrs. G., age 37, living in Huntington, Ind., was brought to my Sanatorium by her physician, Dr. Charles W. Wright, Feb. 15, 1895. She was the mother of two children, aged re-

spectively 13 and 6 years. Had been an invalid since the birth of the younger child. She complained of backache, headache, pelvic pain, indigestion, leucorrhea, dysmenorrhea and insomnia. Her appetite was good, but on account of gastric irritability she could rarely consume a good meal. She was emaciated and extremely nervous. Bowels constipated, vesical irritability.

Pelvic examination discovered a sharply retroflexed uterus bound down by adhesions; and an enlarged prolapsed ovary, pressure upon which elicited exquisite pain. Measurement of the uterus showed a longitudinal diameter of three and one-half inches. After one week's preparatory treatment, abdominal section, with the assistance of Drs. F. B. Wynn, Martha J. Smith and S. E. Crose, was made Feb. 22, 1895. The right ovary was adherent to a coil of intestine, three times its normal size, chronically inflamed, and a number of cysts were scattered over its surface. The corresponding tube enlarged and inflamed. Left ovary and tube healthy in appearance.

The adhesion between the ovary and intestine was carefully separated, a ligature of chromicized catgut adjusted as closely as possible to the cornu of the uterus, and ovary and tube severed with the thermocautery. The stump was thoroughly charred with the cautery and dropped. The uterus was then brought forward, after separating the adhesions, and sutured to the abdominal wall, after Pozzi's method. The incision was closed by six silkworm gut sutures. The operation was completed within a half-hour and the patient put to bed in good condition.

The progress of the case was satisfactory in all respects until the following Sunday evening, (four days after the operation) when symptoms of intestinal obstruction made their appearance. The patient vomited several times and had paroxysmal pain in the right ovarian region. Several efforts which failed, were made during the night to procure an evacuation from the bowels by rectal injections. On Monday morning the patient expressed herself as feeling better and took some nourishment which she retained; pulse 120; temperature 99.5 degrees F. There was tenderness upon pressure over the right ovarian region, but no tympanites or tenderness of the abdomen. During the day a saline cathartic was given, followed by rectal injection, but no movement was secured. In the evening, nausea and vomiting again supervened, paroxysmal pain increased, which was relieved with morphia hypodermatically; the pulse mounted to 140, temperature 103 degrees F., and the abdomen became rapidly tympanitic. During the night she was given 10 grains of calomel in divided doses and three doses of Rochelle salts which she retained. This was followed in the early morning with high rectal injections, but the bowels obstinately refused to respond.

Condition Tuesday morning at 10 o'clock. Temperature 99.5, pulse 140; abdomen greatly distended and interfering with breathing. She is very weak but has not that haggard expression of countenance invariably noticed in peritonitis; still complains of colicky pain in the right ovarian region. Inspection of the abdomen revealed several coils of the small intestine in active vermicular motion, which convinced me that I had been in error in attributing the obstruction to paresis of the bowel. It evidently arose from adhesion, most probably between the stump and intestine.

During the day she was given, hypodermatically, every three hours, 1-30 grain strychnin and 1-100 gr. digitalin. A rectal tube was passed several times as far as the hepatic flexure of the colon, and injections given of turpentine emulsion, hot water

and milk of assafetida, with no result, except a passage of flatus when the fluid was expelled. In the afternoon I called Dr Dunning in consultation. Her condition had been steadily growing worse during the day. We agreed that peritonitis did not exist, that the bowel was obstructed from adhesions and that a secondary operation afforded the only hope of saving her life. I had telegraphed for the husband on the previous night and was anxiously expecting him in the early afternoon, as I did not like to reopen the abdomen without his consent, and yet time was precious. He was late in his arrival, but after explaining matters to him he consented that I might do anything that in our judgment was necessary. At 7 P.M., assisted by Drs. L. H. Dunning, Martha J. Smith and Frank B. Wynn, who kindly gave the anesthetic, I reopened the abdomen by rapidly severing the sutures with scissors and pressing the wound apart with my fingers. A coil of intestine was found adherent to the ovarian stump, bending it to a sharp angle, thus completely obstructing the bowel. The peritoneum was normal; the fundus uteri well up against the abdominal wall. After liberating the intestine and flushing the peritoneal cavity with hot aseptic water, a quantity of which was allowed to remain, a strip of iodoform gauze drainage was passed down and made to cover the stump, in order to prevent a recurrence of the accident. The fundus uteri was again sutured to the abdominal wall and the wound closed with silkworm gut sutures. A pad of iodoform gauze covered with a thick layer of absorbent cotton and a bandage completed the peritoneal toilet, and the patient was placed in bed. Pulse 150; temperature 100 degrees F. In the course of an hour she rallied from the anesthetic, but was so exhausted that she could not speak above a whisper. Nausea, vomiting and pain, however, had disappeared. During the night she received three rectal injections of milk and whisky, which she retained, and three hypodermic injections of 1-30 gr. of strychnin and 1-50 digitalin and several hypodermics of 1-100 gr. nitro-glycerin, when unusual depression was noticed.

At 8 A.M. Wednesday morning she suddenly went into collapse; pulse disappeared, and respiration declined to four or five per minute. I thought she was dying and called the husband. An injection of 1-50 grain nitro-glycerin, however, soon brought up the pulse and she again became conscious. Pulse 180. Throughout the day and during the night, these periods of extreme depression reappeared every hour or two, requiring the utmost vigilance upon the part of both nurse and physician.

It is unnecessary to go further into the details of symptoms and treatment; suffice it to say that twenty-four hours after the operation her bowels moved copiously; very slowly she came out of the awful depression which every moment threatened her life, and at this writing, one week after the secondary operation, she has passed the danger line, and I am sure will make a rapid convalescence.<sup>1</sup>

How to prevent peritoneal adhesions after abdominal section is, perhaps, the most important problem that now confronts the abdominal surgeon. The technique of intra-abdominal surgery, so far as the removal of abdominal growths, diseased organs and tissues is concerned, has been brought to such perfection that little remains to be done; and it is doubt-

ful if any further improvements in this direction will be of much utility. But no safe and expeditious method has yet been devised for the prevention of peritoneal adhesions—the constant dread of the surgeon and a standing menace to the life, health and comfort of the patient.

\*While it is true that plastic surgery will contribute much, in some cases, to the prevention of post-operative adhesions, yet it is oftentimes practically impossible to cover all injured surfaces with healthy peritoneum, both on account of the difficulty in finding them, and because the length of time consumed in plastic work is more dangerous to the life of the patient than the risk of adhesions. The Trendelenburg position enables the operator to discover peritoneal traumata which, otherwise, would not be found; nevertheless the greatly increased dangers to the patient from prolonged anesthesia and long continued exposure of the peritoneum, will, in many cases, overbalance any advantages that accrue from plastic work.

I think it is generally admitted by abdominal surgeons that, other things being equal, the sooner an operation can be completed and the abdomen closed the less danger there is to the life of the patient. Dr. Alex. J. C. Skene, in an able article contributed to the *Brooklyn Medical Journal* (February, 1895) entitled, "Defects in Surgery as taught and practiced at the present Time," calls especial attention to prolonged anesthesia and slow operating as fruitful causes of death after surgical operations. "Rapid operating," he says, "is essential and imperative. Every moment wasted in an operation is a detriment to the patient as well as the surgeon. Operations that are quite well done are done quickly, as a rule. Slow operating is generally imperfect. It is often said that a quarter of an hour, more or less, in the duration of an operation makes very little difference. This I conceive to be a very great error. . . . Rapidity of operation is especially necessary in order to avoid prolonged anesthesia. All anesthetics are injurious, and tend to retard recovery from operations and impair the health of patients subsequently. The longer one is kept in a state of anesthesia, the more harm is done. . . . Again, time is precious, because the longer the tissues are exposed and the more they are handled, the more slowly and imperfectly they heal. Tissues exposed to the air for an hour or more, begin preparation for healing by granulation and are, therefore, less capable of uniting by immediate union. . . . Especially are non-union, supuration and sepsis likely to follow if the patient has been intoxicated for a long time by the use of the anesthetic; and unfortunately, prolonged anesthesia and unnecessary injury of tissues usually come together."

I do not quote the above as an argument against plastic surgery of the peritoneum whenever it can be done quickly and with safety to the patient. But in all cases where we have reason to believe that the time consumed in such work will endanger life, some other means should be adopted to minimize the danger of post-operative adhesions, and the abdomen closed as quickly as possible. A living patient with intra-peritoneal adhesions is much more to be admired and is a far better advertisement for the surgeon than a dead or dying one whose interior has been ever so artistically decorated with plastic surgery.

Are there any expeditious and efficient measures

<sup>1</sup> March 30, 1895. The patient has completely recovered. The uterus is in normal position and all symptoms of pelvic disease have disappeared.

which can be used to prevent post-operative adhesions? Several plans have been proposed by authors, but the limits of this paper will not permit their enumeration. I shall, therefore, speak of but two; those which from personal experience I believe will give the best results, viz., flushing the abdominal cavity with aseptic water, and frequent changes in the posture of the patient.

Malcolm, of London, in 1891 first directed attention to a mode in which washing out the peritoneal cavity might act beneficially in the prevention of adhesions. (*Annual of the Universal Medical Sciences*, 1891, vol. III): "It affords," he says, "an important means for promoting a natural adjustment of the intestines. If in completing the process of washing, the abdominal cavity be distended with fluid, the intestines must be floated up toward the highest circle of the cavity, thus facilitating changes in the relative positions of the various coils and straightening out the mesentery, undoing acute twists and throwing it and the bowels into natural folds. If the fluid is then permitted to flow out or carefully sucked out of the pelvis by means of a tube, the intestines will tend to settle down in a natural position. Adhesions, when the intestines are in normal position, do not produce obstruction."

My own personal experience has convinced me of the great utility of this method. I do not, however, permit the fluid to escape from the abdominal cavity, but leave it there to be slowly absorbed. It can do no possible harm and I believe that it contributes no little to the prevention of adhesions by permitting the intestines to glide freely upon each other so long as the fluid remains in the cavity, thus forestalling adhesions in their incipency.

The next measure for preventing adhesions, which admirably supplements the preceding, is a frequent change of the posture of the patient. I was led to adopt this plan from the observations of Dr. Malcolm, that patients who suffer much after abdominal section from vomiting caused by the anesthetic, not infrequently recover more satisfactorily and more promptly than those who are not so affected. His explanation is, that the retching and straining in the efforts at vomiting have a tendency to restore to a natural position the displaced intestines before adhesions form or become firm. This explanation, in my opinion, does not go far enough, for it is quite probable that the churning of the intestines by the diaphragm and abdominal muscles, during the act of vomiting, is a potent factor in the actual prevention of adhesions, as well as tending to restore the intestines to normal position.

During the last three years I have adopted these methods in several cases of abdominal section for pyosalpinx in which the adhesions were of such nature that a differentiation of tube, ovary and intestine was wellnigh impossible. The adhesions were broken up and ovaries and tubes removed with much difficulty. The patients recovered promptly and have been, up to date, free from pelvic pain, neither have they had at any time other symptoms of adhesions. I can not say that adhesions do not exist in these cases, but if they do they are so benign in character that they produce no inconvenience.

I did not flush the pelvic cavity with aseptic water in the case reported, because there seemed no necessity for doing so. The operation was done aseptically; it was almost bloodless, and but a few drops

of blood, if any, escaped into the peritoneal cavity; the traumatism inflicted upon the peritoneum was very slight, indeed, and yet within four days it became necessary to reopen the abdomen to save the life of the patient. I am firmly of the opinion that had I flushed the pelvic cavity with aseptic water and closed it while full of the fluid the accident would not have occurred.

There are two other points in the case of great interest, viz., the extreme rapidity of the pulse for four or five days succeeding the second operation, and the large amount of strychnia given hypodermatically. During the first twenty-four hours succeeding the operation the pulse did not fall below 160, and frequently ran to 180. During the second day it ran from 150 to 160; third day from 140 to 160; fourth day from 130 to 150; fifth day from 120 to 140; sixth day from 110 to 120. On the seventh day it declined to 100. The temperature ran from 99.5 to 103 F. During the twenty-four hours preceding the operation, the patient was given hypodermatically, every four hours, 1-30 gr. strychnia and 1-100 gr. digitalin. The first twenty-four hours succeeding the operation she received every four hours the same quantity of strychnia and digitalin, and some six hypodermics of 1-100 to 1-50 gr. nitro-glycerin. The third day she received, every four hours, the same quantity of strychnia and digitalin; the fourth day the same doses every six hours; the fifth day three doses. It was not until the fourth day that I perceived any distinct symptoms of the physiologic action of the drug.

The case is a very instructive one and teaches two or three valuable lessons, viz:

1. That serious obstruction of the bowel may arise from an insignificant wound of the peritoneum.

2. That perseverance in judicious therapy may sometimes save life, even when the case seems absolutely hopeless.

3. It emphasizes the necessity, in such cases, for prompt surgical interference. Had we deferred the operation in the case reported, a few hours longer, a valuable life would have been sacrificed.

In conclusion, I wish to express my grateful acknowledgments to Drs. L. H. Dunning, Frank B. Wynn and Martha J. Smith, to whose wise counsel and efficient assistance I am indebted in a great measure for the successful issue of the case.

208 N. Alabama Street.

## VAGINAL OÖPHORECTOMY.

BY C. P. THOMAS, M.D.

EVERETT, WASHINGTON.

It has been very evident to the writer, for the past two years, that celiotomy for the removal of small, cystic, prolapsed, painful or adherent ovaries, or small tubal cysts or pus tubes, even by those who have done the greatest number of these operations, is fast falling into disrepute.

Many of our leading gynecologists are curetting, or packing the uterus, or attempting to catheterize the Fallopian tubes, with the vain hope of avoiding the necessity of opening the abdominal cavity for their removal in the usual way.

At least two of our latest works on gynecology recommend that curettage be tried for pus tubes, and if that fails, give rest and expectant treatment, with



general tonics, and the pus will often disappear by absorption, or through inspissation.

The same writer admits, however, that single pus tubes are more dangerous than double ones, owing to the liability to accident should the woman become pregnant, and it is in such cases that the operation I here advocate will be especially applicable.

The accidents incident to making and closing the abdominal incision are so well known to every operator that I will not dwell upon them, also the unfavorable sequelæ, such as hernia, stitch abscess, and last but not least adhesions, not alone of the omentum but also of the intestine, producing colic, pain, and even strangulation.

These and many more are the reasons why the abdominal method of removing small cystic, prolapsed or adherent tubes or ovaries should be abandoned for the vaginal method. By removing them through a small incision in the posterior cul-de-sac, where ample room is provided for the operation, in the hands of any one competent to do major gynecologic surgery, it is a safe, simple procedure, free from the dangers just enumerated. Should the operation be undertaken and a tumor found to be too large or adherent to be completely removed in this way, the operator can then resort to the abdominal method, and the opening in the vagina will do no harm and may perchance do good by affording perfect drainage.

I also believe that this is a valuable form of drainage and should be resorted to often, when a drain is required following abdominal section.

The steps of the operation are as follows: With the patient in the extreme dorsal position, held by a Clover's crutch, the vagina and external genitals are thoroughly cleansed with soap and water, bichlorid and alcohol. The posterior vaginal retractor being introduced (the self-retaining one of Dr. Beach, of Chicago, being the best I have used), the posterior lip of the cervix is caught by a vulsellum forceps, the uterus curetted, and irrigated if necessary. The cervix is then drawn forward and upward, and with a flat curved pair of scissors the posterior vaginal mucous membrane where it joins the cervix is clipped and with closed scissors or the finger it is stripped back from the cervix to the peritoneum, which is caught with a catch-tooth forcep, and an opening made large enough to admit a finger. The incision may then be enlarged laterally at will, provided you do not cut up, on either side to the uterine arteries or down to the rectum.

There is no bleeding of importance and with two fingers of one hand, then the other, the ovaries and tubes can be examined and adhesions, if not too strong, broken. They are then easily drawn down into the vagina, caught with a strong pair of forceps, the pedicle ligated, severed, and stump returned.

In one instance where I was required to operate quickly, I clamped the stump with pressure forceps, removed both tubes and ovaries, leaving the forceps in position for thirty-six hours. The vaginal opening was left for nature to close, which it did, in a few days, the patient leaving the hospital well in three weeks.

If there have been many adhesions broken, or a pus cavity opened, the vaginal wound should be packed with a strip of iodoform gauze; if not, it should be closed with one or two stitches of silkworm gut, passed through the mucous membrane and peritoneum, and fastened with the shot and coil.

The time required for the operation should not

exceed twenty minutes and the cervix may be repaired, and any of the vaginal operations done, at the same time.

When there is extreme retro-displacement of the uterus, with prolapsed adherent ovaries, their removal will generally allow the uterus to regain its normal position, and the depletion incident to the curettement, repair of cervix, etc., will often permanently cure the patient.

If the retroversion is extreme, the uterus may be anteverted and stitched to the anterior vaginal wall after the method of Mackenrodt which is so highly indorsed by Martin, of Berlin; or in the hands of an expert the so-called Alexander's operation might be done after the finger had passed well around the uterus making sure there were no adhesions left.

I have performed vaginal oöphorectomy twenty times for the different conditions described above, including two for large gonorrheal pus tubes, and all have recovered from the operation, nor has there been any unfavorable complication, and I am sure that the after results have been much better than the same kind of cases for which abdominal section has been done. The difference in the amount of shock and the time required for recovery between the two methods can be compared with the same between vaginal and abdominal hysterectomy. I have searched in vain through my limited library to find the vaginal removal of ovaries recommended, and although my experience with the operation has not been extensive, I feel that the success which I have met may stimulate others to adopt it and write further on the subject.

The advantages I claim for the operation are as follows:

1. Rapidity of operation—twelve to twenty minutes.
2. Freedom from hernia.
3. Freedom from shock and vomiting.
4. Freedom from adhesions or intestinal injury.
5. Freedom from stitch abscess, causing long and tedious convalescence.
6. Natural drainage, preventing peritonitis.
7. The ease with which other operations upon the cervix and vagina may be done at the same time, which so greatly aid in restoring the patient to health.

## ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Continued from page 482.)

### CHAPTER VII.

#### EXAMINATION OF FLUID BLOOD FROM CAVITIES OF HEART THREE HOURS AFTER DEATH.

The blood after its abstraction coagulated, forming a loose clot; the fibrin, however, dissolved and no serum was separated. Under the microscope the blood corpuscles presented no special alterations; when spread upon the glass slide, and also during the coagulation of the blood, they rapidly agglomerated together, forming rouleaux, as in inflammation in the blood of the horse. The running together of the colored corpuscles was as rapid and as complete as in cases of well marked inflammation.

It was impossible to determine the weight of the

fibrin, or to collect pure serum, free from colored blood corpuscles and the coloring matter of the red corpuscles, as the fibrin rapidly dissolved after its partial separation. The fibrin was in very small amount, and apparently not one-thirtieth of the usual proportion. Specific gravity of blood from cavities of heart, 1047.

1,000 parts of blood from cavities of heart contained:	
Water . . . . .	821.57
Solid residue 178.43 {	
Organic matters, colored corpuscles, albumin, urea, extractive and fatty matters, etc. . . . .	170.59
Fixed saline constituents. . . . .	7.84
Fibrin. . . . .	Traces

Three hours after death, specific gravity of blood from vena cava 1062. Blood fluid and warm when drawn; coagulated, forming a very loose coagulum, which did not inclose the whole amount of colored corpuscles. This coagulum gradually dissolved, and it was impossible to determine the amount of fibrin or to obtain clear serum free from colored corpuscles. Reaction of blood slightly acid.

1,000 parts of blood contained:	
Water . . . . .	775.00
Solid residue 225.00 {	
Organic matters, colored blood corpuscles, albumin, urea and ammonia. . . . .	217.31
Fibrin . . . . .	Traces
Saline constituents. . . . .	7.69

It will be observed that the blood in the vena cava contained more solid matter than that in the cavities of the heart; it would appear that the returning current of blood from the capillaries and venous system, owing to the tendency to coagulation and congestion, contained more solid matters than the blood of the heart.

No vegetable or animal forms were discovered in the blood.

Yellow fever blood exposed upon my table, in capsules and bottles for days and weeks, and examined microscopically from time to time, developed no special forms which could be referred exclusively to yellow fever. Only the simpler forms of animal and vegetable life made their appearance, which might be developed in any other similarly constituted albuminous fluid.

In a fatal case of yellow fever, occurring in one of my wards in the Charity Hospital during the month of October, 1871, in a stout young man, aged 25, who from the results of the post-mortem examination, had evidently suffered with malarial fever, incipient cirrhosis of the liver and granular degeneration of the kidney, before the supervention of yellow fever; death occurred after an illness of ten days; the disease was complicated during its progress by the supervention of pericarditis, pleuritis and pneumonia. The urinary secretion was abundant until near the close of life, and the urine contained blood corpuscles and the coloring matters of the blood. The cavities of the heart were filled with loosely coagulated blood. Portions of the lungs were infiltrated with blood, as if hemorrhage had taken place in and around the textures of the lung. Louis, in his "Anatomical, Pathological and Therapeutic Researches on the Yellow Fever of Gibraltar" of 1828, has shown that the exudation of blood into the pulmonary tissue was frequent, while the inflammation of that tissue was rare in subjects who had died of yellow fever. He found the lungs entirely natural in three subjects only.

Black spots, and masses of the same color, more or less impermeable to the air, were found in these

subjects usually of a brownish black, rarely of a crimson hue; they were more or less concentrated, and occupied a variable space at the exterior or in the interior of the lung, and in some cases they were found only in the lower lobe. The black or blackish masses which existed in the lungs of six individuals contained no air, had no granular aspects as in the hepatized lung of pneumonia and presented no traces of organization; usually they could be easily broken down, in some cases yielding by pressure; the blood of which they were almost entirely composed, and the pulmonary parenchyma remained apparently of its natural consistency. In this case complicated by the suppuration of inflammatory disease, the fibrin of the blood was not diminished to the extent usual in yellow fever. The pre-existing effects of malarial fever were evident in the masses of black pigmentary matter, derived from the hematin of the blood, scattered through the lobuli of the liver, but chiefly accumulated in the peripheral portions, in and around the portal veins and portal capillaries.

In uncomplicated yellow fever these altered masses of hematin are uniformly absent from the structures of the liver, their place is supplied by oil globules; and it would appear that in this disease the albuminous constituent of the blood and tissues is chiefly altered, the altered albumin appearing in abundance in the urine, while in malarial fever the colored blood corpuscles are chiefly attacked, the coloring matter being deposited in various organs, but in the acute stages of uncomplicated malarial fever, albumin rarely, if ever, appears in the urine.

The results of my investigations upon the occurrence of pigment in the blood and in certain organs, as the liver, spleen and kidneys, in the capillaries of the brain, in persistent intermittent and remittent malarial fevers, in chronic malarial poisoning, correspond with those of Meckel, Virchow, Heschl and Platner, and more especially with the researches of Frerichs. Not only is the spleen enlarged and the color of the liver altered to a steel gray, blackish slate and chocolate or bronze color, in individuals who die from the effects of marsh poison, but this change of color may extend to other organs as the kidneys and brain. Careful microscopic examinations of sections of the various organs have shown that these changes of color are clearly referable to the formation and accumulation of pigment matter resulting from destructive and abnormal changes of the colored blood corpuscles. While from the anatomic structure of the spleen, as well as from the great congestion which it undergoes during the cold stage of malarial fever, it is without doubt true that a large portion of this pigment is formed in the sinuses of the spleen and passes from this organ into the portal veins, and that part of it remains impacted in the capillaries of the liver, while the rest passes through these capillaries, and is carried into the general circulation; at the same time it must be admitted that under the action of the malarial poison, the transformation of the red matter of the blood into black pigment may take place everywhere throughout the vascular system, and also external to it, but more especially in the liver and kidneys. If fine sections of the malarial liver be made with Valentine's knife, and examined under comparatively low magnifying powers (one and a half to one inch), as I have done in a large number of subjects, accumulations of pigment will be observed in the capillary network of the portal

and hepatic veins, either uniformly distributed or limited to certain regions, sometimes deposited chiefly in the interlobular veins, forming black margins to the lobules of the liver; or more uniformly, extending from the circumference of the lobules halfway to their center, or penetrating as far as the beginning of the hepatic veins. The hepatic cells, as in the case under consideration, remain exempt from the deposits of black coloring matter.

That portion of the pigment originating in the spleen and passing through the capillaries of the liver, enters the general circulation and may be deposited in various organs as the brain, kidneys and lungs, inducing morbid symptoms varying in character and degree with the organ whose capillary circulation may be especially retarded by the arrest of the pigment particles. The larger particles remain impacted in the capillaries of the portal vein and obstruct the circulation of the blood through these vessels, causing various derangements in the secretion of the liver, and in some cases extensive capillary stagnation of the blood in the roots of the portal vein, attended with exhausting hemorrhages from the gastro-intestinal mucous membrane, of an intermittent character, profuse diarrhea, vomiting, serous effusions into the peritoneal sac and, finally, from the obstruction of many of the smaller branches of the portal vein, chronic atrophy of the liver, with its distressing and fatal consequences.

Even by simple inspection of the brain we may form some idea, not only as to the cause of the alteration from the color of health, but also of the amount of pigment which has passed unarrested through the vessels of the liver and lungs. The mechanical interruption to the circulation of the brain thus induced, not only gives rise to a peculiar train of symptoms, but may also cause the rupture of the small vessels and the formation of numerous capillary apoplexies, as has been shown so clearly by Meckel, Platner and Frerichs.

Frerichs has shown, and I have upon many occasions confirmed the accuracy of his investigations, that the large pigment granules and cells which enter the kidneys along with the arterial blood, not unfrequently become impacted in the capillary coils of the Malpighian bodies, and by altering the pressure of the blood give rise to derangements in the secretion of urine, which exercise a powerful influence over the further progress of the disease. Albuminuria, fibrinous casts, pigment masses and granules, blood corpuscles characteristic of the urine in malarial hematuria should to a large extent be referred to the effects of the pigment particles arrested in the capillaries of the kidneys. Hemorrhage, congestion, exfoliation of the excretory cells of the tubuli uriniferi, fibrinous exudation into the excretory tubes, and even complete suppression of the urinary secretion may occur in such cases. Destruction of the colored blood corpuscles may in like manner occur directly in the capillaries of the kidneys in malarial fever, and the pigment thus formed may give rise to a similar train of symptoms.

As far as my observations have extended, no such changes take place in the colored blood corpuscles and various organs in yellow fever—they are not destroyed in the various organs, neither is there a special diminution of these important elements, and all the organs and tissues are free from the presence of pigment granules in uncomplicated yellow fever.

If, however, as in the preceding case, the yellow fever occurs in one who has previously suffered with malarial fever, or if the disease supervenes upon yellow fever, then the pigment matter may be present to a greater or less extent, especially in the liver and spleen.

The result obtained by actual chemic analysis and careful microscopic research, viz.: that the colored blood corpuscles are not specially destroyed in yellow fever, as is the case in malarial fever, is still further sustained, by the well-established fact that, in general, convalescence is rapid and complete, and attended with a speedy restoration of all the healthy functions. Such a rapid and complete restoration would be impossible if the colored blood corpuscles were destroyed to any great extent in yellow fever.

During the latter months of 1870, when 587 deaths from yellow fever, were officially reported by the authorities of New Orleans, although the number was probably greater, as 445 deaths were during the same period (August, September, October, November and December), referred to the various forms of malarial fever, I instituted in like manner careful chemic and microscopic examinations of the urine, blood and black vomit of the various organs in yellow fever, and the results were similar in all respects to those recorded at length in the preceding pages; we shall for the sake of brevity simply allude to some of the more general results.

The type of the disease was severe and I saw cases in which the defibrinated blood oozed from leech bites, from the ears and from the gums and mouth; some cases suffered with profuse hemorrhage from the bowels before death. The bodies underwent putrefaction a very short time after death, having emitted during life a most disagreeable, foul yellow fever odor. The black vomit contained uniformly colored blood corpuscles variously altered; also mucous epithelium from the gastric mucous membrane; sometimes various matters, as medicine, food and drink taken by the patient; oftener numerous vibrios and plants resembling the torula and sarcinæ were present, but I was unable to detect any specific vegetable forms characteristic of yellow fever. The urine contained albumin and in the fatal cases was almost uniformly suppressed. In the worst cases the urine consisted only of a yellowish albuminoid fluid discolored by bile, containing little or no urea, but loaded with excretory cells and granular fibroid casts of the tubuli uriniferi. The lightest colored urine was frequently characteristic of the severest cases.

As a general rule, the blood changed to the arterial hue upon exposure to the atmosphere, and the cut and exposed muscles presented a beautiful scarlet color.

In some cases golden-colored heart clots of small size and slight consistency, composed of yellow laminated fibrin were observed in the cavities of the heart, and in those cases which had suffered with black vomit. Blood drawn from the cavities of the heart, after death from yellow fever, and carefully examined under the microscope presented swollen and stellate blood corpuscles. This stellate condition of the blood corpuscles appears to be very common in the blood of yellow fever, and even in that drawn from the veins during life. When a drop of yellow fever blood is allowed to fall upon white bibulous paper, the red corpuscles occupy the original area of the drop, and are surrounded by a golden circle of

the serum colored by bile. In any fatal case occurring during the fall of 1870, which fell under my observation, the serum was of a bright golden color from the presence of bile.

The nervous symptoms characteristic of this disease were referred, in great measure at least to the retention of the biliary matters in the blood, to the suppression of the function of the kidneys and the retention in the blood of the urinary constituents, especially of the urea in the blood.

The chief causes of death in these cases of yellow fever appeared to be the direct action of the febrile poison upon the nervous system and blood, depressing and deranging the one and rendering the other unfit for the proper nutrition of the tissues; the suppression of the functions of certain organs, as the kidneys and liver and the retention in the blood of the excretions normally eliminated by these organs. Blood loaded with bile and urea is evidently unfit for the maintenance of healthy nutrition and of the vital acts.

The hemorrhage from the gastric mucous membrane appeared to have been due to several causes, as the direct irritant effect of the poison upon the gastric mucous membrane, the destruction of the fibrin of the blood, the physical and chemical alterations of the albumin, and the irritant and dissolvent and *excoriating* effect of the carbonate of ammonia, resulting from the decomposition of the urea.

The black vomit in yellow fever, as shown by the observations upon numerous specimens obtained during life, and taken from the stomach after death, consists of altered blood corpuscles, the epithelial cells of the stomach, mucus corpuscles, various matters received into the stomach, as food, medicine, water, etc., serous exudations, acids of the gastric juice (acetic, hydrochloric and phosphoric), urea, carbonate of ammonia, and various forms of animal and vegetable life of simple organization.

After careful examinations of numerous specimens of black vomit, we failed to detect any forms which could be considered as characteristic of this fluid; which may not be developed in albuminous fluids exposed to the action of the atmosphere, at all times, whether yellow fever be present or absent.

The careful microscopic examination of the blood with the highest powers, was equally fruitless in disclosing any forms of animal or vegetable life which could be considered as active in the production of yellow fever, or as invariably accompanying its manifestations.

We have established by the preceding observations:

1. The blood in yellow fever often if not always contains abnormal amounts of *urea* and *bile*.

2. The presence of the urea and bile in the blood is attended with certain nervous disturbances.

3. It is probable that the extreme slowness of the pulse which characterizes many cases of yellow fever, after the subsidence of the first stage of febrile excitement, is due to the presence of the bile and urinary constituents in the blood, as well as to the anatomic lesions of the heart.

4. The fibrin is greatly diminished in the blood of yellow fever.

5. The passive hemorrhages and capillary congestion in yellow fever are without doubt largely dependent upon the diminution of the fibrin.

6. The colored blood corpuscles are not specially

diminished in yellow fever; and in this respect the disease differs widely from malarial fever.

Case of yellow fever engrafted on malarial fever; suppression of urine; black vomit; hemorrhage into gall bladder. Francis Dubucé; harness maker, age 32, native of France. Admitted Oct. 4, 1874, to Charity Hospital with intermittent fever; discharged October 9. After his discharge moved across the river to Gretna and followed the occupation of milkman. Some time, however, in the month of November, returned to the city and resided in Chartres Street in a neighborhood in which cases of yellow fever had occurred.

Entered Charity Hospital December 4. Had been sick with pain in the head, back and extremities for six days and had thrown up black vomit before entering Charity Hospital. Condition on entrance: deep yellow (jaundiced) color of skin and conjunctiva of eyes; sluggish capillary circulation; slow pulse; nausea; vomiting black vomit; temperature but slightly elevated above the normal standard. Urine of yellow color, turbid from the presence of urinary casts and cells from the urinary tubes and granular matter. Urinary casts as soon as the albumin coagulated by heat, presented a golden color. Diagnosis: yellow fever. The urinary excretion progressively diminished in amount, and toward the close of life, during the last thirty hours, was entirely suppressed. Died December 9, on the ninth day of the disease.

Post-mortem six hours after death. Exterior, head, trunk and extremities pale; surface of entire body of a golden color; the dependent portions being mottled of a purplish color. Black vomit issuing from corners of mouth. Head: blood vessels of brain congested with dark blood. Thorax: lungs normal; lower portions of darker color than upper portions, from settling of blood. Heart: yellow, flabby, softened muscular textures readily crushed between the fingers, and under the microscope the fibers of the heart presented the changes characteristic of yellow fever, the transverse striæ being indistinct, and numerous oil globules and yellow granular matter being deposited within and around the muscular fibers.

Abdominal cavity: mucous membrane of the stomach, of a deep purple color; with deep ecchymoses. Under a low magnifying power the ruptured mouths of the small blood vessels were clearly seen. The stomach contained several ounces of thick black vomit resembling putrid blood. Reaction of black vomit neutral. Specific gravity of black vomit, 1.032. Upon analysis, 1,000 grains of black vomit yielded 70 grains of coagulable albuminoid matters. After the removal of the albuminoid and coloring matters of the blood from the black vomit, the remaining liquid contained in addition to phosphates, sulphates and chlorids of the alkalies and alkaline earths, urea and salts of ammonia. Under the microscope, the morphologic elements of the black vomit were found to be colored blood corpuscles, mucus, corpuscles and cells from the mucous membrane of the stomach. No spores or vegetable organisms were observed. Upon standing, vibrios made their appearance in considerable numbers; but no fungoid growths were developed even at the end of forty-eight hours. The temperature appeared to be too low for the rapid development of the fungi. It is, however, worthy of note that the yellow fever had attacked this patient in the winter, December 1.

Liver: This organ presented on the surface a dark purplish mottled color; and upon a superficial examination presented nothing abnormal in color, except an increase in the depth of the normal shade. When sections of the liver were made, carefully washed and examined they presented a distinct and characteris-



tic mottled color, many of the lobuli being of the peculiar yellow color of yellow fever, and others presenting a variegated yellow and deep bronze color. Careful microscopic examination revealed the fact that the yellow portions were loaded with oil globules and yellow granular matter as in yellow fever, and that the more deeply colored portions contained numerous pigment particles as in malarial fever. The mottling of the usual yellow fever deposits, was due to the deposit of pigment particles in and around the portal capillaries during the preceding attack of malarial fever. Under the microscope the liver cells were found to be loaded with oil globules as in yellow fever; dark pigment particles were also scattered through the structures of the liver, but existed in greatest numbers within and around the peripheral or portal capillaries of the lobuli. The peculiar appearance of the liver in this case, was clearly the results of the combined effects of yellow fever and malarial fever; the latter having preceded the former.

**Gall bladder:** the gall bladder was distended with a dark fluid of a brownish and reddish black color, and upon a superficial examination resembled this viscus in malarial fever. When the bile was poured out it resembled in appearance dark liquid blood. Specific gravity of the fluid from the gall bladder 1021.5; reaction neutral. Amount of fluid in the gall bladder 1,600 grains. Heat and nitric acid caused coagulation; coagulum of a dark mahogany color like that always formed in liquid blood under the action of heat and nitric acid.

Under the microscope, the fluid from the gall bladder was found to contain numerous altered colored blood corpuscles and epithelial cells of the mucous membrane of the gall bladder. The mucous membrane of the gall bladder was of a deep purple congested color, resembling in all respects the deeply congested and purple mucous membrane of the stomach. Amount of coagulable albuminoid matter in 1,600 grains of bloody liquid from the gall bladder, grains 44.70. Nitric acid produced no change of color, similar to that caused by the coloring matter of the bile; numerous tests also repeatedly and carefully applied failed to show the presence of the biliary acids. The reagents simply caused coagulation of the albumin, as in ordinary liquid and diluted blood. The filtrate obtained after the coagulation and removal of the albuminoid elements of the blood was found to be loaded with urea. The liquid therefore found in the gall bladder was not *bile* but *altered liquid blood*, similar to that poured into the stomach and called black vomit.

We have in this case and in the preceding facts, a striking and important illustration of the sources of error in the investigation of the pathologic anatomy of yellow fever. Superficial observers here and elsewhere have proclaimed that yellow fever had no distinctive pathology. Such assertions possess no value unless based upon the most careful and thorough microscopic and chemic investigations.

**Kidneys:** these organs presented a yellow color resembling that of the heart. When sections of these organs were made with Valentin's knife and carefully examined under the microscope, the Malpighian corpuscles and tubuli uriniferi were found to be loaded and impacted with desquamated cells, oil globules and yellow granular matter.

Yellow fever engrafted on intermittent fever, suppression

of urine; black vomit; death; hemorrhage into gall bladder. E. Johnson, age 27, native of New York, laborer. Came to New Orleans in January, 1874. Went from this city to work on jetties at the mouth of Mississippi River. Entered Charity Hospital Nov. 20, 1875. Patient stated that he had been suffering with intermittent fever for one month. Walked about the ward until the evening. I saw him the next morning, November 21. Has rapid pulse and high fever. Quinin was administered freely but without any effect upon the fever. November 22, fever continues; patient very restless; eyes injected; tenderness over region of liver, epigastrium and small of back over the kidneys. Has been vomiting. Quinin repeated, but without any beneficial effects. November 23, fever declining; great capillary congestion of face, neck and extremities; yellow tinge of surface; very restless and delirious; injected eyes; urinary excretion greatly diminished. November 24, heat of body almost normal, but capillary congestion intense and jaundice increasing. Urinary excretion greatly diminished and in fact almost wholly suppressed; delirium; has vomited dark "coffee ground" matter. November 25, restless and delirious; pulse 68; respiration 25; temperature of axilla 95 degrees. Head, trunk and extremities feel cool. Great capillary congestion of surface which presents a purplish and mottled appearance, with a distinct golden color; complete suppression of urine. Upon careful examination the bladder is found to be entirely empty; great prostration of muscular and nervous systems; patient delirious and restless. During the past two days it has been impossible to arouse the patient or to obtain from him any coherent answer; 6 p.m., pulse 68; respiration 28; temperature of axilla 95.5 degrees. The patient died one hour after this observation.

**Necropsy** thirteen hours after death: Exterior, trunk and limbs full, round and plump; skin yellow; dependent portions of head, neck, trunk and extremities present a purplish mottled appearance. Thorax: heart, yellow and softened; weight nine and five-eighths ounces. Transverse muscular striæ indistinct; oil globules and yellow granular matter deposited in large amount, within and around the muscular fibrillæ of the heart. Lungs normal; dependent portions congested. Abdominal cavity: liver yellow and enlarged. Under the microscope, sections of the liver, with Valentin's knife, presented the characteristics of the yellow fever liver; immense numbers of oil globules of various sizes, and yellow granular matter deposited within and around the cells and capillary networks of the liver. The liver also contained pigment particles, resulting from the preceding attack of malarial fever.

**Gall bladder:** The gall bladder contained 421.4 grains of thick, deep green, almost black, tenacious bile, which poured with difficulty and could be drawn out into long strings. When heated the whole mass coagulated firmly, resembling in this respect albumin or liquid blood, colored by biliary matter. Under the microscope the bile was found to contain an immense number of desquamated cells from the mucous membrane of the gall bladder, also colored blood corpuscles and masses of hematin. Mucous membrane of gall bladder greatly injected and discolored, of a deep purplish and greenish color. When held up to the light a dense network of deep purple and black congested capillaries and blood vessels were everywhere discoverable. Solid coagulable matters in 421.4 grains of bile, grains 77.4; solid matters in 1,000 parts of bile, 183.67. The contents of the gall bladder were so thick and tenacious that it was impossible to introduce them into the ordinary specific gravity bottle.

It is evident that hemorrhage had taken place into the gall bladder. Stomach distended with black vomit, resembling dark fluid blood; the intestines also contained much black vomit, of a character similar to that found in the stomach. The great de-

pression of temperature, about 4 degrees F. below the normal standard, which characterized the last twenty-four hours of life may have been due to the profuse hemorrhage into the stomach and bowels. Under the microscope the black vomit from the stomach presented nothing more than mucus corpuscles, desquamated cells from the gastric mucous membrane, broken capillaries, and immense numbers of colored blood corpuscles. I observed no vegetable nor animal organisms. Their absence appeared to be due chiefly to the depressed temperature of the surrounding atmosphere. Kidneys engorged with blood; when divided and washed, they presented a yellow color like that of the liver. Weight, seven and one-eighth ounces. Chemic analysis showed a great increase of oil in the structures of the kidneys, as well as of the heart and liver. When sections of the kidneys were made with Valentin's knife and carefully examined under the microscope, the Malpighian corpuscles and tubuli uriniferi were found to be impacted (literally-stuffed) with detached cells, oil globules and yellow granular matter. The urinary bladder contained only two fluid drachms of urine, which represented the whole amount of urine excreted by the patient, during the last twenty-four hours of life. The urine contained albumin and numerous casts of the tubuli uriniferi, filled with yellow granular matter and oil globules, also cells from the pelvis and ureter, and from the mucous membrane of the bladder. The urine contained, also, little or no bile and presented a yellowish red color.

In this case the disease was contracted at the jetties near the mouth of the Mississippi River, where fever prevailed to a limited extent among the laborers, late in the season. One or more barges upon which the workmen slept at night became infected, and it was found necessary to destroy them by fire.

(To be continued.)

## SOCIETY PROCEEDINGS.

### American Electro-Therapeutic Association.

*Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26, and 27, 1894.*

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 491.)

PROF. A. E. DOLBEAR, of Tuft's College, Boston, read a paper on

#### PHYSIOLOGIC EFFECT OF THE CURRENT.

In the early days of electrical applications to therapeutics no one knew what to expect. At best it was thought that electricity was a very mysterious something with limitless possibilities, but unless the patient could feel its effects it was thought nothing happened. Again, it was held that electricity was electricity, and induction coil discharges which could be felt were proper for all sorts of diseases when it could be applied. As there were no units, no one knew what or how much he was giving or taking.

The cautious physician very properly would not venture to employ an agent he knew little or nothing about, while the quack with his mysterious machine and wise look, often succeeded in inspiring his patients with confidence in himself and a high degree of expectancy which, as every physician knows, are of high therapeutic value for the larger number of ailments he is called upon to treat. He therefore sometimes surprises himself and others by his success where they had failed, and electricity got all the glory for success while the failures were never counted.

Now that one may know exactly the nature of the current he uses as well as its quantity, the successful application to physiologic purposes has begun in an intelligent way.

At the outset one has to make the inquiry whether electrical action in the body and out of it are or not radically

different. Are there physiologic conditions which dominate, or is electricity in the body as well as out of it, subject only to its own laws?

The physiologists and biologists have quite given up what was called "vital force," and stoutly maintain that in the last analysis all physiologic processes are physical and chemical. If that be granted then one may start with the assumption that the only difference in the action of electricity in a living body and out of it, are differences in the degrees of complication. I believe that it is conceded among physicians who have studied the physiologic effects of electricity that the immediate effects are altogether physical and chemical.

Assuming this to be true, one may inquire what are the physical and chemical effects of electricity, in order that he may look for them in physiologic processes.

1. A current of electricity always heats the conductor through which it goes, and this quite independent of how much work of other sorts may be done in the same circuit. Whether it be turning a motor or lighting an arc or incandescent lamp, or decomposing a chemic compound, or any other, these simply cut down the current in their circuit, and the heating power is proportional to the square of the current. So one may conclude that when an electrical current is sent through any part of the body, that part is more or less heated. With such currents as are employed in everything except perhaps in electrocution, the heating effect is so small as to be wellnigh ignorable. A current of 1 ampere in a resistance of 1 ohm will raise the temperature of a pound of water only one-hundredth of a degree in a second, but the resistance of the body is to be reckoned by thousands of ohms and the currents employed in thousands of an ampere. A current of 10 milliamperes or the hundredth of an ampere through 1 ohm would heat it only one ten-thousandth of one hundredth, or the millionth of a degree in a second, or, to state it in another way, would require nearly two weeks to heat a pound of water 1 degree.

2. A current will produce light, as is evidenced in the arc and incandescent lamps, but the light is the effect of the higher temperature, for it is the carbon raised to incandescence which is the cause of the light and as the heating effects are so minute no luminous results due to incandescence can be expected in physiologic applications. There is another kind of luminousness observed in rarified gases when alternating currents of high voltage are sent through them, but they are not observable in solids and liquids and there is no evidence that there is any corresponding physiologic effect.

3. A current may bring about chemic decomposition. A typical case of this is the decomposition of water. To effect this an electro-motive force of as much as  $1\frac{1}{2}$  volts is necessary, as the electro-motive reaction of water composition is  $1\frac{1}{2}$  volts. When a single cell such as any of the ammonium chlorid cells is employed directly for physiologic purposes, water decomposition can not be expected, but where the same cell is used with an induction coil the voltage which comes from the secondary cell with hundreds or thousands of turns may be reckoned by the hundred. In this case water would be fully decomposed at both electrodes, both oxygen and hydrogen being set free. If there were no other substance than water present, these elements would at once be re-combined so that no collection of gas would be observable, nevertheless there is every reason to believe that even here the same hydrogen and oxygen would not be combined into a given molecule, but the decomposed molecules would have changed partners. In the presence of other substances than water there is every reason to expect other combinations at both poles and what the product would be would depend upon what substances were present at the places, also their looseness of chemic structure. The substances of the electrodes themselves might be attacked as, for instance, copper or silver might be slightly oxidized and hydrogen freed or not, depending upon the quality and conditions of the adjacent molecules. The point here is that one must not assume that chemic decomposition of water does not take place because he can detect no evidence of free oxygen or hydrogen. Whenever a current can enter the body it enters it through its fluid conductors, chiefly water; dried tissues of all sorts being non-conductors.

4. An electric current will make a magnet, or rather it is a magnet itself. The current in a conductor of any kind endows the substance of the conductor for the time with all the qualities of magnetism. It possesses a so-called magnetic field with either tension concentric with it, and a magnetic needle tends to set itself at right angles to it, and this is as true for the body or part of the body through which a cur-

rent goes as it is true for a piece of copper or iron wire. If the current be a continuous one, such as one gets from a battery, the needle will indicate it by swerving from the meridian. If it be an interrupted or alternating current the needle may show no sign of movement because it takes time for it to move, and if it be solicited to move in one direction and before it has had time to turn it be solicited to move in the opposite direction, it will stand apparently still, but it would be wrong to infer that the needle was unaffected. With such small currents as are used for physiologic purposes such magnetic effects would only be observed by working with delicate needles.

The magnetic field, whatever its source, reacts in some degree upon all kinds of matter within it. Upon what we call magnetic substances such as iron, nickel and cobalt it acts to set them in positions in its own lines. All other substances are set in positions at right angles to these. These phenomena are known as para magnetic and dia magnetic phenomena. Excepting iron and nickel, these effects are weak with ordinary currents and at ordinary temperatures, but they are exalted at low temperatures. What I would emphasize is, that in a magnetic field, all kinds of molecules are acted upon by a pressure tending to twist them into new positions, and this must be true in the body of a living thing as it is for things external to it. If on account of opposite pressures a given body does not move at all, then is it subject to what in mechanics is called a strain. Its form has been more or less distorted. As I am not now concerned with amounts of distortion or changes in position, it does not matter whether the actual quantity be of one value or another. By coiling a wire through which an electric current flows, the magnetic field of a greater length is concentrated within it and the effects are correspondingly increased, but they differ only in degree from that shown by any part of the circuit. With a constant current from any source to provide a magnetic field, with or without coiling the conductor, or with a permanent magnet of any form, the field is a constant stress and acts upon all bodies in it in some degree. As doubtless you are all aware, there have been many attempts to discover this field by sensation. Lord Kelvin tried it years ago and expressed some surprise that there did not appear to be a magnetic sense.

Peterson and Kennelly have more recently tried it with exceedingly strong fields and they have concluded that "the human organism is in no wise appreciably affected by the most powerful magnets known to science."

As to such conclusions, I would suggest that the explanation of the failures to perceive any effects might be attributable to two causes:

1. A magnetic field acts upon molecules, not upon physiologic organs as such. There is no tendency to twist, warp or strain a muscle as such, and hence sensory nerves for muscular movement would have nothing to report.

2. A constant stress of light value does not give rise to sensation for ordinary mechanical causes. Lay the arm carelessly and without looking at it, on the table where it can be comfortable and for a short time turn the attention to other matters. Then without looking at the arm or moving it in any way, see if you can tell how the fingers are crooked, or which ones touch the surface of the table. Not until some muscles be moved can one tell what shape his hand is in and yet it has been subject to constant pressure all the time. For this reason then, that a constant pressure producing no movement ought not to be expected to give a perception, I am not surprised at the results reached.

3. A magnetic field, whether constant or varied, has no chemic effect. It does not bring atomic changes. Such changes require energy of a different sort, and any nerves whose function it was to respond to chemic changes would not find anything to report from a magnetic field.

As for the brain itself which has been exposed to the strongest available magnetic field for considerable lengths of time with no results noted, I would ask why one should expect sensory results from an organ which is itself not sensitive? Can not the brain itself be dipped out with a spoon without sensation? Sensation implies nerves, and particular sensations particular nerves, and there are no substitutions. Neither the white nor the gray matter possesses nerve cells. If the brain were affected by a magnetic field, I should expect it would need to be detected by other means than by the direct sensation. I therefore conclude that the experiments alluded to, prove that magnetic effects do not produce the mechanical and chemical changes necessary for sensation, rather than they are absolutely without any effect. This latter conclusion, if adopted, would at once demand the acceptance of the proposition that electrical

effects are not the same within the body as they are without, and that would necessitate in physiology the revival of a vital force or something like it.

4. An electric current in a given conductor induces another electric current in an adjacent conductor. It does this by virtue of the magnetic field which it forms about itself and a moving magnetic field, however originated, acts in the same way, to set up an electric current in neighboring conductors. The so-called induced current lasts no longer than the field, is changing in strength, and quite stops when the field no longer changes, no matter how strong the latter may be. Hence it is possible to set up electric currents in any conducting body without having any electrical conductor between it and a primary source of electricity. This is the principle employed in telegraphing without wires between two points. Whether such a method has any physiologic importance I do not know, but I should think it might sometimes, where currents of particular frequencies or character are desirable and not so easily to be had with an electro-magnetic breaker as in the ordinary induction coil. In another way it has some theoretical interest. It has been reported that anesthesia may be brought about by subjecting a part of the body, a finger for instance, to an alternating magnetic field. This, observe, is not sensation but the absence of it; there is nothing in the reports of the experiments with magnetic fields to show that tests of sensitivity were tried; they were probably not tried in any.

Now, I believe it has been demonstrated that alternating electrical currents at some unsettled but very high rate of alternations can for the time being destroy sensation, so that I say a tooth may be pulled without pain. If there be nerves of sensation in an alternating magnetic field, and they be made a part of an electric circuit as they very well may be made, then changes of magnetic polarity may bring about current changes in the organism and these may have any of the results that belong to currents, and if currents under any conditions will produce insensibility then the effects between magnetic poles will be due, not to the magnetism itself, but to the currents of electricity which the magnetism induces.

I have heard it objected to the view that magnetic fields could produce any physiologic effects that, if so, those who work with alternating currents of electricity and especially such as are near dynamos and motors would have noticed it, yet none have ever reported it. If, however, the real effect was one to lessen their sensitivity in general, one would hardly expect one to know anything about what had happened without comparisons. Experiments need to be made for all the nerves. Can one see or hear or taste or smell or touch as acutely in such a varying magnetic field or with alternating currents as he can without them?

If there is anything at all in this anesthesia by currents without bringing on tetanus, I should suppose it would have a wonderful field. For instance, in seasickness there could be found a current of some degree and frequency that would be quite insensible to the feelings, which would prevent at once the nervous condition, and an electrical device could be worn continuously on shipboard without discommoding one. The chief difficulty, I should suppose, would be to find the proper route for the provided current. If, for instance, the immediate cause of seasickness be, as I have somewhere read, the movements of the fluid in the semi-circular canals, then electrodes might need to be fixed in the ears.

Then again, it is now well known that electric currents are generated in the body by the contraction of muscles as well as well as by chemic action wherever these may take place. These currents are exceedingly weak, too weak to be able to do any of the wonderful things that are alleged to be due to them by so-called "magnetic" healers. It requires the most delicate apparatus we have to detect them at all, nevertheless, an electric current always has direction and a conducting circuit. The query is, Which are the conductors in the body? The nerves have often been compared to conductors and some have thought that the impulses in them called "nervous transmission" were electric currents; on the other hand, the measure of the rate of impulse has been found to be so low—less than a hundred feet a second—that some have concluded that such nervous current could not possibly be electrical, inasmuch as the velocity of electricity is reckoned to be so great. This has never seemed to me to be conclusive. The old experiments on the velocity of electricity did not measure that at all. They at best indicated the rate of flow of a certain amount of electrical energy, which is a different problem. If a conductor be a poor one it may take a good while to get enough electricity through it to produce any observable result, and that I think, is the

case with the electric conductivity of a nerve. Aside from the nerves, there are the blood vessels filled with good conducting materials, muscular tissue of various kinds not so good, and fatty tissue almost non-conducting, so that what will be the route of an electric current between two points in the body, may not be the same in different persons. I should expect that a given current would be much the densest in a lean or muscular person and much scattered by adipose tissue; even a large surface electrode of a square foot which will carry a current of 22 milliampères without injury to the surface itself might, on account of the slight conductivity of the underlying tissues, be made destructively dense in some portion of its course. I can not give an example but think it probable.

And last, but not least, what may be said of electricity as a curative agent? If one can not give a technically correct description of electricity itself yet this we do know, that an electric current is the bearer of energy in such a form as to be readily available for mechanical, chemical or magnetic effects, and which of these will be the result depends altogether upon what kind of mechanism is provided for it. Inherently, electricity has neither curative nor destructive qualities. I do not think there is any evidence that it attacks life or that in any sense it is life, as some have thought. One might as well say that heat is life or chemism is life. Electricity has directly to do with molecules and atoms. It can shake molecules apart and permit new molecular arrangements. If these new products chance to be useful or harmful to the organism it will be benefited or injured. The particular advantage, which is a very great one, is these products may be produced where they are wanted. This is now practically applied in electrolytic and catalytic adaptations. Its electro-tonic action may be due more to the electrolytic products at nerve terminals than to their direct excitation. Considering a nerve as a conductor, its quality does not depend upon its conductivity but its conductivity depends upon its quality. It is not quite as probable that if for any reason nerve action is judged to be slothful it is due to the fact there is nothing to conduct, that is, the metabolic changes at the nerve terminals are not rapid enough, as that the trouble is due to the nerve itself? This supposes the nerve to be intact.

I can not forbear to allude to a matter of high theoretical interest directly related to electro-therapeutics. Since it has been practically demonstrated that what we call light is a set of ether waves of electro-magnetic origin, it has been apparent to some, though others have not seen the significance of the work, that we are compelled to postulate that all atoms are magnets, seeing that all can and do give electro-magnetic waves. There was a good deal of reason for thinking so before. This new evidence seems to compel one to assume it. Hence, on this assumption, it follows that the living body is but a combination of an enormous number of atomic magnets. I use the term atomic advisedly, for molecules are but combinations of atoms, and their properties are only the resultant properties of the atoms that make them up. Every movement of every molecule and atom in the body is, then, a magnetic movement in magnetic fields and must induce magnetic and electric changes all about it. It was long ago shown by Faraday that electric and chemic changes were quantitatively related. Now it is seen that electro-magnetism underlies all chemic action. The significance of it here lies in the fact that in working with electricity to effect physiologic changes one is really at work with the fundamental factor in physiologic energy. Not in a roundabout but in the most direct way.

Functions of all sorts are electro-magnetic in the last analysis, and he who understands these and the art of properly applying electro-magnetic energy to languishing or diseased organs will be able to do all for humanity that skill can do. The more I study the relation of life to the things upon which it depends, the more I am persuaded that though death may be for the benefit of the race, it is not necessary for the individual.

#### DISCUSSION.

DR. J. H. KELLOGG said that the paper was very suggestive for future research, but as the ideas presented were largely theoretical, we should, before accepting them as facts, supplement them with physiologic and other experiments. Some experiments that had been made showed that muscles were electrical accumulators—they could be charged by contact and discharged by contact or induction. If these experiments were confirmed they would go far toward corroborating the statements made in the paper.

DR. MORTON said he would like some further light in regard to the electro-magnetic molecule. Did the author mean by that the chemic affinities which were taking place and which constituted the sum total of life, or did he mean that we should consider each molecule as showing a certain amount of polarity, and yet not necessarily associated with chemic affinity?

PROFESSOR DOLBEAR said that in his paper he had asserted that we had been compelled to assume that atoms and molecules were magnets, and that there was a good reason for thinking so before the experiments by Maxwell and others had forced this conclusion upon us. All were probably familiar with the experiments that had been made recently regarding the conductivity and magnetic changes. At absolute zero the conductivity was an infinite quantity—there was no resistance—and the graphic representation of the conductivity of the body was a straight line. At zero, the chemic affinity was at zero, hence chemic affinity would seem to be a necessary outcome of temperature. He did not understand that magnetism had necessarily anything to do with chemic affinity—he would entirely disassociate the two.

THE PRESIDENT remarked that though many of the statements in the paper had been characterized as theoretical, they were largely founded on physiologic facts.

(To be continued.)

## SELECTIONS.

**Non-Surgical Treatment of Hemorrhoids.**—The *Gazette des Hôpitaux* lays down the following indications of hemorrhoids which should not be operated on: 1. Symptomatic hemorrhoids, sometimes due to stricture or cancer of the rectum, to affections of the prostate, bladder or urethra; sometimes they are caused by a gravid uterus, a fibro-myoma or an ovarian cyst pressing on the pelvic veins; again, they may result from cirrhosis of the liver. In all these cases the primary cause should be treated; an operation is at least useless if not dangerous; 2. Hemorrhoids without any important symptom. Some patients experience neither uneasiness, pain nor hemorrhage. They are obliged to watch the condition of their bowels, but are not otherwise incommoded; 3. The most important class for non interference with the knife is the prolapsed, strangulated or prolapsed. These are really cases of infectious phlebitis and an operation is not without danger. In all cases the patient should adopt certain prophylactic measures. All irritation of the anal region should be avoided; constipation, with a large hard stool, should be controlled by appropriate diet, the use of laxatives, etc.; the bowels should be moved as nearly as possible at a certain hour so as to induce regularity and should be followed by ablutions of warm water, either plain or borated. Injections of boric acid are recommended as controlling congestion as well as facilitating defecation. If small bleedings occur it will be useful to give large injections of water at 40 to 45 degrees and local applications of sponges or tampons of water at 50 degrees. If the congestion is prolonged, if there is inflammation and danger of gangrene, hot applications are indicated, but it will be found well to employ certain topical agents—either calomel or tampons saturated with glycerin 35 grams, iodine 20 centigrams to 1 gram, iodide of potassium 2.5 grams. The applications are slightly painful and it is best to begin with the smaller proportion of iodine. The use of soothing ointments is often indispensable—the old-fashioned poplar ointment answers very well. It can be associated advantageously with belladonna and antipyrin—*e. g.*, poplar ointment 30 grams, antipyrin 2 grams, extract of belladonna 1 gram. Irrigations with laudanum or antipyrin also give excellent results. The oozing and irritation which often complicate external hemorrhoids usually cease with cleanliness and the use of boric acid solutions. It may be well to use between the irrigations a pad of cotton impregnated with borated vaselin or to powder the part with some inert absorbent powder, such as subnitrate of bismuth.



THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

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PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

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THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,  
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.  
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## MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Henry P. Newman, Venetian Building, Chicago, Ill., sending him a certificate or statement that the applicant is in good standing in his own Society, signed by the President and Secretary of said Society. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership.

On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the Editor, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 86 Fifth Avenue, Chicago.

SATURDAY, APRIL 6, 1895.

## DAMAGED BY FIRE.

March 31, being Sunday, the employees of this office were enjoying that rest which all good people enjoy on that day. It so happened that in the afternoon Mr. R. A. HAMILTON went to the JOURNAL office on an errand for the Editor. He was in the office a few minutes, found the papers of which he was in search, closed the iron door, and started home; going down the stairway he smelled smoke, and he looked carefully on each landing as he passed, finding the smoke grow thicker, and on reaching the first floor found the stairs themselves on fire. He ran to the basement, called the engineer of the building and had the alarm sounded. In four or five minutes the entire hallway and stairs were wrapped in flames, and sheets of fire rushed out of the windows.

The insurance patrol responded quickly, and in less than six minutes from the time of sounding the alarm, the JOURNAL presses, the machinery and type were covered with tarpaulins. The fire engines were playing on the fire in the hallway in about ten or twelve minutes.

Two of the Trustees and the Editor arrived in about an hour to find the fire practically extinguished but the office was flooded with water; the desks and movable furniture about six to eight inches deep in water, much type "pied" and manuscripts water-soaked.

The JOURNAL, nevertheless, appears on time, the

loss is nearly covered by insurance, and our members may well be thankful that the situation is no worse. Our employees have been obliged to work in a room without heat, and in much discomfort. But for the timely discovery of the fire the loss would have been complete.

This is the second time the JOURNAL has suffered by fire. The printing firm of BLAKELY & ROGERS had in 1888 the contract for press work, and a fire broke out which caused serious damage. On that occasion the forms were destroyed and only a portion of the paper could be made ready in time for the weekly issue.

## THE NEW YORK COUNTY INSANE AND EPILEPTICS.

The pauper insane of any locality would seem to have a poor outlook, when those whose duty it is to advocate their interests sneer at others who volunteer on behalf of those interests. The State Charities Aid Association, now in its twenty-third year of proposed support of the charitable operations of the State of New York, has apparently adopted the rôle of apologists to those who run the institutions of the metropolitan city. In its last annual report the "whitewash" is applied as follows: "It would be useless to repeat *facts* which have been dinned into the ears of the public for several months past with regard to the many deficiencies of our city asylum." The fact that the charitable and correctional institutions are under one commission is adduced as one of the reasons why these facts exist, when the truth is that in years gone by the one commission, when in the hands of other men, conducted wellnigh faultlessly the affairs of both the sick and the criminal. The inference is that the men who get appointed to the commission are not large enough for their work, or are giving their time to less important matters; they should be divorced from ward politics and be required to personally visit the institutions under their charge. The Annual Report, from which the above is quoted, adverts to the progress that has been made toward the establishment of a colony for epileptics. It thus refers to the philanthropist, after whom the colony will be named:

"The late President, of your Board, MR. OSCAR CRAIG, died on Jan. 2, 1894. MR. CRAIG was not a member of this Association, he was not a resident of this city, but he used his high and honored official position to strengthen the hands of all who are striving to raise the down-trodden and succor the helpless. For this is what he did himself. The insane, the prisoner, the poor epileptic found in him a friend, ready at all times to do battle in their behalf with voice and pen. Strong in his singleness of purpose, his great moral courage and extraordinary industry; gentle, because so strong; just, because so true; these qualities made MR. CRAIG a power for

good. He was the firm friend of this Association, using his great influence to promote our reform measures, however unpopular, when once satisfied they were beneficent of purpose and sound in principle. Nor did he ever lose an opportunity of bearing public testimony to the value of organized volunteer aid united with official service, illustrating it by the work of this Association in connection with that of his own Board. The last occasion on which MR. CRAIG addressed a public audience was in Chicago, at a Congress of the World's Fair, and the last words uttered by him there were to urge the formation of State Charities Aid Associations in every large State in the Union.

MR. CRAIG did not live to see established the State Colony for Epileptics, to which he had given so much time and thought. As Chairman of the Committee of your Board which selected the site, as author of the bill of the Association, introduced in 1893, and as one of its most earnest supporters in the Legislature, he was so identified with this great reform that when our bill to establish the Colony was introduced a second time, in 1894, a few weeks only after MR. CRAIG'S death, we gratefully paid him the highest honor in our gift by naming after him the State Colony for Epileptics. That the original suggestion should have come from the Governor of the State is an additional tribute to MR. CRAIG."

#### THE CRIMINAL USE OF CHLORAL.

This JOURNAL has from time to time adverted on the necessity for some general legislation to prevent criminals from purchasing deadly drugs, and recently the use of chloral by criminals for criminal ends has been made the subject of an investigation by the captain of that notorious New York precinct called "the Tenderloin." Having been informed that the so-called "knockout drops," that have the name of completing the work of alcohol in the operations of thieves who desire to stupefy and afterward clean out their partially intoxicated victims, contain chloral, CAPTAIN PICKETT has sent out a detective to investigate the sale of chloral and other stupefying drugs. He has found that it is altogether too easy to purchase chloral at the drug stores. He is inclined to regard the law relating to the purchase and possession of poisons, as weak and not up to date, for the reason that it does not provide for the detention or punishment of persons having the "knockout drops" in their possession, who may have been arrested on suspicion. He states that the offense is grave enough to make it a felony to the person on whom is found the drug for any unlawful purpose. The druggists who sold chloral indiscriminately to the detective will be prosecuted. A case of death has recently been held to be referable to these "knockout drops."

#### TO CHAIRMEN AND SECRETARIES OF SECTIONS.

Section officers are respectfully requested to send their completed program to the JOURNAL at the earliest practicable date, and no later than April 17. The

program will hereafter be printed in the JOURNAL office, and it will appear in full in the JOURNAL of April 20.

#### PHOTOGRAPHS OF MEMBERS.

We have received a great many photographs of the members of the ASSOCIATION, but nevertheless a very small percentage of the whole membership. We wish to have the collection as complete as possible, and therefore respectfully request those who have not done so to send their picture by return mail.

Do not forget the JOURNAL SPECIAL TRAIN leaving Chicago Sunday, May 5, from Pennsylvania depot, 3:15 A.M. Write for space desired.

P.

#### BOOK NOTICES.

**A Course of Elementary Practical Bacteriology, including Bacteriologic Analysis and Chemistry.** By A. A. KANTHACK, M.D., M.R.C.P. and J. H. DRYSDALE, M.B. M.R.C.P. Pp. 181. London and New York: Macmillan & Co. 1895.

This manual is a hand-book for the bacteriologic laboratory written by practical workers. The matter is logically arranged, and carefully pruned of unnecessary words. Each subject is made easy by every detail being explained; no step of any ordinary procedure is left in the dark. There are three parts: Part I is on General Bacteriology (16 lessons); Part II, Bacteriologic Analysis (12 lessons); Part III, Bacteriologic Chemistry.

We commend this laboratory guide to practical students in the highest terms.

**E. Brissaud, Leçons sur les Nerveuses (Salpêtrière 1893-1894) recueillies et publiées.** Par HENRY MIEGS, avec 240 figures (schémas et photographies). Paris: G. Masson, 1895. Pp. 644.

On the death of the lamented Charcot, M. Brissaud was called to occupy provisionally the Chair made famous by the great master.

There are thirty lectures in this volume, of the seventy lectures of the course, which are carefully prepared, and very interesting. Of these lectures the first is devoted to a eulogy of Charcot, touching in its tenderness, and broad in its understanding. The other chapters are I to II, Charcot's Disease. (Lateral amyotrophic sclerosis); III, to IV, Friedreich's Disease (cerebellar hereditary ataxia); V, Paraplegia Ataxo-spasmodic and Tabes Combined; VI, Little's Disease and Dorsal Spasmodic Tabes; VII, Paraplegias of Potts' Disease. Prognosis and Surgical Treatment; VIII, Hematomyelia and Sudden Paraplegias; IX, The Reciprocal Relations of Hypertrophic Cervical Pachymeningitis and Syringomyelia; X, Syringomyelia, Histology, Metamerism of the Sensory Centers; XI, Spinal Syphilis; XII, Spinal Hemiparaplegia with crossed Hemianesthesia, Syndrome of Brown-Séquard; XIII, On the Abolition of the Muscular Sense and on the Sign of Romberg; XIV, Tabetie Arthropathies and Sensory Troubles; XV, Trophic and Sensory Disturbances; XVI, Exterior forms of Myopathy; XVII, Ophthalmoplegia in General; XVIII, Orbital and Subpeduncular Ophthalmoplegia; XIX, Intrapuduncular and Nuclear Ophthalmoplegia; XX, Neuritic Ophthalmoplegia and Neuritic Muscular Atrophy; XXI, Spasmodic Laughing and Crying; XXII and XXIII, Pathology and Symptoms of Parkinson's Disease; XXIV, Tics and Clonic Spasms of the Face; XXV, On Aphasia of Articulation and of Intonation, in connection with a Case of Cortical Motor Aphasia without Agraphia;

xxvi, Sensory Disturbances in Hemiplegia of Cortical Origin; xxvii, Syndrome Cerebellar; xxviii and xxix, Basedow's Disease—Exothyropey; xxx, Myxœdema, Cretinism and Infantilism.

The profound scholarship and vast experience displayed in these lectures not only prove that M. Brissaud is not unworthy to succeed Charcot, but that he is able, eloquent and conscientious. No more interesting lectures have ever been written on this subject, than those in the volume of M. Brissaud. We have to thank him for one of the most instructive and entertaining books of the year.

## PUBLIC HEALTH.

**Obligatory Vaccination Abolished.**—Obligatory vaccination is to cease in the Canton of Berne, Switzerland. An election just held showed that the anti-vaccinists cast 26,238 votes against 24,543 by their opponents.

**Vanillism.**—M. Guerin, Officer of Health for the Colonies, reports—*Rev. Int. Med. Prat.*—that since the researches of Layet, two sorts of vanillism are recognized—the alimentary, with choleric symptoms produced by eating vanilla ices; and the professional. The latter is due to the odoriferous principle of vanilla, or vanillin, and may give rise to cutaneous symptoms—pruriginous exanthemata, with coryza and blepharitis,—or to nervous symptoms—cephalgia, vertigo, muscular pains, genic excitation, etc. The author thinks that the vanilla factories should be under governmental supervision, both as to the hygiene of the factories and as to the selection of the workmen.

**State Supply of Diphtheria-Antitoxin.**—Under date of March 25, the Massachusetts State Board of Health announces that it has prepared a supply of antitoxin for the benefit, primarily, of such communities in the State as find it difficult or impracticable for any reason to supply themselves with the new agent from reliable sources. The Board does not propose to offer it for sale, but its gratuitous distribution will be under strict surveillance, designed to prevent waste and produce the most beneficial results. There is also pending a bill in the Illinois State Legislature providing for an appropriation of \$25,000 to enable the State Board of Health to engage in the production of the antitoxin. Until each State is prepared to supply guaranteed vaccine—an agent whose value has been proved by almost a century's experience—it is doubtful how far this new departure may wisely be carried. The *JOURNAL* is quite clear, however, as to the propriety and wisdom of State supervision over the production and distribution of both these agents.

**High February Death Rate.**—There was a phenomenal increase in mortality from acute lung diseases in many sections of the country during the month of February, 1895, as compared with the mortality from the same diseases for the corresponding month of 1894. In Chicago there were 444 deaths from pneumonia, 226 from bronchitis and 61 from influenza as against 118, 74 and 7 for the previous year; the totals for the group were 731 and 199 respectively—an increase of more than 267 per cent. February, 1895. The *Bulletin* of the New York State Board of Health also shows an increase, but not so marked, for that State. There were 10,751 deaths reported during the month, which is about 1,400 more deaths than occurred in the same month in 1894; an increase of about 15 per cent. The *Bulletin* shows that the febrile or zymotic diseases have lower death rates except whooping cough and typhoid fever; the increase of the latter disease being confined to the Hudson Valley districts, where there was an unseasonable prevalence, especially in Albany. Smallpox

caused 5 deaths—52 in February, 1894—4 in New York and 1 in Brooklyn; it does not exist in the State outside of the metropolis. Consumption caused 1,150 deaths, which is excessive for the month and is due to the influenza epidemic which has increased its mortality.

**Morbidity in Austro-Hungary.**—From official figures just published, the *Bulletin Medical* is able to give details of the infectious diseases in Austro-Hungary in 1892 and 1893. Variola has become rarer; the number of cases is 60 per cent. less than in 1889, when they numbered more than 50,000; the deaths decreased from 8,385 to 3,735—or more than 50 per cent. This good result is due to more frequent vaccinations and re-vaccinations. The mortality for vaccinated patients with variola was one-half of 1 per cent. per 1000 of the population; for non-vaccinated one-third. Scarlatina has since then increased and the same is true of diphtheritic croup. Measles is a little less common and seems more benign. Typhoid fever is more common, or perhaps it is reported more often; it causes about 15 per cent. of the morbidity. Typhus and dysentery have become rare. Puerperal fever is more frequent and has been fatal in more than half the cases reported. The same official report shows that at the end of 1893 there were in the Empire 6,728 physicians, 1,421 surgeons and 8,149 other persons engaged in the healing art. The number of physicians increased 163 and the number of surgeons decreased 111 from the figures of the preceding year. The number of midwives is increasing. At the end of the year mentioned there were 17,810 engaged in practice.

**Condensed Milk.**—It is decidedly refreshing in these days of sanitary scares and sensations to meet with such a common-sense and encouraging utterance as that of Prof. Albert Leeds, chemist of the Stevens Institute of Technology, on the subject of condensed milk. In consequence of sundry sensational newspaper items on the subject, published last summer, the Professor was requested by the New Jersey State Board of Health, and by some local boards, to investigate the various brands—some fifteen in all—of condensed milk in the market, and his report is now made public in the current number of the *American Journal of the Medical Sciences*. As was to be expected, some of the specimens were condemned—more particularly those which had undergone changes due to specific bacterial ferments getting into the milk before the process of condensation. But instead of making these the theme of a general hysterical condemnation of all condensed milk, the analyst sensibly points out that the interests of the public coincide with those of the manufacturers in most respects, and that, apart from the propriety of its use for infant nutrition, much can be said in praise of the great value of condensed milk as a manufactured product. He says that it would be a great loss to the canners were they to use or purchase watered milk, since the chief expense of the condensation is in the evaporation of the water; and dairymen dishonest enough to water milk are those most likely to have impure wells, improper food and unclean surroundings. Not from added water, but from water used in washing utensils is danger to be dreaded, and the same remark is true of the original milk itself. It is out of the question, Professor Leeds says, for a canner to employ a bacteriologist to examine the milk used, and the hardening and putrefactive changes which the condensed milk sometimes undergoes are usually due to failures in cleanliness, etc., at the dairy. Later on the canner will participate with the public in the great benefits of a rigid system of inspection that will, first of all, begin with the dairy and the cattle themselves. The *JOURNAL* is aware that, as a result of municipal milk inspection in many large cities, the dealers themselves are the most efficient agents in keeping the producer up to the mark. They not alone have frequent

analysis of their supplies made by the municipal analysts, but many dealers employ appliances for milk analysis in their own depots, and are thus enabled to detect promptly the grosser forms of adulteration and to locate the responsibility.

**Health Reports.**—Sanitary reports received by the Supervising Surgeon-General of the Marine-Hospital Service:

**SMALLPOX—UNITED STATES.**

Illinois: Chicago, month of February, 95 cases, 29 deaths; March 1 to 27, 67 cases, 31 deaths.

Kentucky: Paducah, March 24, 1 case of smallpox taken from Str. Joe Fowler; from Evansville, Ky.

Michigan: Watson Township, March 13, 1 case; Ypsilanti, March 13, 1 case.

New Jersey: Jersey City, March 27, 1 case.

Pennsylvania: Pittsburg, March 27, 1 case taken from cars en route from Cincinnati to Baltimore.

Tennessee: Memphis, March 24, 1 case reported at the U. S. Marine-Hospital.

West Virginia: Wheeling, March 27, 2 cases.

**SMALLPOX—FOREIGN.**

Arabia: Aden, February 9 to 23, 6 cases, 1 death.

Belgium: Brussels, March 2 to 9, 2 deaths.

Brazil: Rio de Janeiro, February 23 to March 2, 5 deaths.

Cuba: Havana, March 1 to 27, 1 death.

Egypt: Alexandria, February 19 to 25, 1 death.

England: Leeds, March 9 to 16, 2 cases.

India: Calcutta, February 9 to 16, 73 deaths.

Italy: Trapani, under date of March 8, 1895, the United States Consul at Palermo, reported an outbreak of smallpox at Trapani.

Mexico: Nogales, March 16 to 23, 2 cases.

Netherlands: Rotterdam, March 9 to 16, 10 cases, 4 deaths.

Russia: Batoom, February 26 to March 5, 8 cases, 4 deaths; Odessa, March 2 to 9, 3 cases, 2 deaths.

Switzerland: Basel, March 2 to 9, 7 cases.

Uruguay: Montevideo, January 12 to 23, 7 cases.

**CHOLERA—FOREIGN.**

India: Calcutta, February 9 to 16, 39 deaths; Madras, February 15 to 22, 1 death.

**YELLOW FEVER—FOREIGN.**

Brazil: Rio de Janeiro, February 23 to March 2, 8 deaths.

Cuba: Havana, March 14 to 21, 5 cases, 1 death.

Mexico: Vera Cruz, March 14 to 21, 1 death.

RIO DE JANEIRO, March 5, 1895.

I have the honor to transmit report for week ended March 2, 1895.

There were 19 deaths from *accessio pernicioso*, an increase of 14; 8 from yellow fever, the same as in the foregoing week; 5 from smallpox, a decrease of 2; 7 from beriberi, none in the last week; 1 from enteric fever, a decrease of 4; none from cholera, 1 in the previous week; 7 from diarrhea, suspected to be cholera, as against 3 in the former week, which were given with various equivalent names. There were 335 deaths from all causes, being an increase of 39, and the largest number during any week in this season. This was to be expected, as we are just at the time of greatest mortality of the year, and when there is an epidemic of yellow fever it is always at its greatest in the first week in March.

Yellow fever: I think we may safely consider that there will be no epidemic of this disease this year, as the cool season is very near, and whenever there has been no great number of cases of this disease up to this time, it has never appeared to any great extent.

Cholera: I have heard of only one suspected case during the week, which was removed to Jurijuba Bay, and the usual disinfection practiced. Along the line of the Parahyba River to its mouth a little beyond Campos, the disease appears to be finishing. In the city of Campos they say it is extinct. But it has appeared in some intensity to the north of that river in the State of Espirito Santo, and is moving slowly northward. In Cachoeira in this State, from February 24 to March 3, there were 40 cases, 21 deaths. In the village of Itapemerim there were 50 cases and only 2 deaths in the same time. The reports of 20 cases in the hospital of the Insane Asylum here in Rio de Janeiro were false, as I was informed by Dr. Carvalho Bulhões of the Health Department of the Government.

Beriberi: This disease always appears more or less toward the end of summer, which may account for the 7 deaths from it during the week.

Smallpox: This disease is continuing, though in small number, during the whole summer, an unusual occurrence; I hope it does not foreshadow an epidemic during the approaching winter season.

R. CLEARY, M.D., Sanitary Inspector, M-H. S.

## ASSOCIATION NEWS.

### The Baltimore Meeting.

#### EXCURSION TO GETTYSBURG BATTLEFIELD AND PEN MAR.

In compliance with a widely-expressed desire on the part of members of the ASSOCIATION to visit the historic battle ground of Gettysburg, the Committee on Transportation has arranged for a special excursion train to that place on the fourth day of the meeting of the ASSOCIATION. The Western Maryland Railroad will furnish a fast express train for this excursion at the rate of \$1 per passenger, provided 150 persons desire to take the trip. Notice should be given at the registration office on the first day of the session.

GEORGE H. ROHE, Assistant Secretary.

**American Medical Association—Section on Dermatology and Syphilography.**—Address of the Chairman, Alfred E. Regensburger, San Francisco, Cal.

"The Human Epitrichium and its Relations to some Congenital Skin Diseases," (also specimens) by A. H. Ohmann-Dumesnil, St. Louis, Mo.

Exhibition of Protozoa in three cases of Skin Disease, by T. E. Gilchrist, Baltimore, Md.

First Symposium, Diagnosis and Treatment of Sycosis—Differential Diagnosis, Pathology, Local and Internal Treatment, by L. Duncan Bulkley, New York City.

Adenoma Sebaceum, by W. E. Maxwell, Portland, Oregon.

Keloids, by A. Ravogli, Cincinnati, Ohio.

The Identity of Lupus Vulgaris and Erythematous, by Alfred E. Regensburger, San Francisco, Cal.

Lupus, treated by Galvanism (illustrated by photographs) by Merrill B. Ricketts, Cincinnati, Ohio.

Report of about twenty cases on the Pathology of Herpes Zoster, by T. E. Gilchrist, Baltimore, Md.

Clinical Notes on Herpes Zoster, by W. F. Breakey, Ann Arbor, Mich.

Syphilis—the Dangers of and how to avoid Them, by A. S. Garnett, Hot Springs, Ark.

Syphilis of the Pharynx, by A. Ravogli, Cincinnati, Ohio.

Four Recent Cases of Extra-Genital Syphilis in Private Practice, by L. Duncan Bulkley, New York City.

Syphilitic Specific Ulceration of the Rectum, by James P. Tuttle, New York City.

Cerebral Syphilis, by Frank P. Norbury, Jacksonville, Ill.

Conceptional Syphilis, by David H. Rand, Portland, Oregon.

Syphilis and Gonorrhea as an Etiologic Factor in Diseases of Women, by H. R. Holmes, Portland, Oregon.

Hereditary Syphilis, by G. S. Stein, Columbus, Ohio.

Early Constitutional Treatment of Syphilis, and a few remarks on Local Treatment of Primary Stage, by W. F. Breakey, Ann Arbor, Mich.

Those who have promised papers, but subjects not named are, Drs. Edward Martin, Philadelphia, Pa.; James Nevins Hyde, Chicago, Ill.; James E. White, Boston, Mass.; W. A. Hardaway, St. Louis, Mo.; R. W. Bishop, Chicago, Ill.; W. T. Corlett, Cleveland, Ohio, and Louis Frank, Milwaukee, Wis.

Alfred E. Regensburger, San Francisco, Chairman; David H. Rand, Portland, Oregon, Secretary. Executive Committee: L. Duncan Bulkley, New York; Louis A. Duhring, Philadelphia, Pa.; A. H. Ohmann-Dumesnil, St. Louis.

DAVID H. RAND, Secretary, Portland, Oregon.

## SOCIETY NEWS.

**Medical Association of Missouri.**—The thirty-eighth annual session of the Medical Association of Missouri will be held in Hannibal, beginning Tuesday, May 21, and continuing three days. In order that the program may be arranged and printed and distributed throughout the State a week or



ten days before the meeting, we ask and insist that you send the title of your paper to John H. Duncan, room 409, Union Trust Building, St. Louis, Mo., on or before May 1, 1895. Those who desire to read papers will bear in mind that the title of their paper must accompany the name of the essayist, and that they must be in the hands of the committee before May 1 in order to get a place upon the program.

J. C. MULHALL,  
A. L. FULTON,  
J. H. DUNCAN,

Committee on Scientific Communications.

**Medical Society of the State of Pennsylvania.**—The forty-fifth annual meeting will be held in Chambersburg, on Tuesday, Wednesday, Thursday and Friday, May 21, 22, 23 and 24, 1895, beginning on Tuesday, May 21, at 9 A.M.

Address on Practice of Medicine, by I. C. Gable, York.

Address on Surgery, by C. L. Stevens, Athens.

Address on Obstetrics, by W. B. Ulrich, Chester.

Address on Mental Disorders, by F. X. Dercum, Philadelphia.

Address on Otology, by L. H. Taylor, Wilkes-Barre.

Address on Hygiene, by Hildegard N. Longsdorf, Dickinson.

Report of Committee on Contagious Ophthalmia, by J. A. Lippincott, Pittsburg, Chairman.

Report of Committee on Pharmacy, by Adolph Koenig, Pittsburg, Chairman.

Report of the Legislative Committee, by I. C. Gable, York, Chairman.

Report of the Committee on Increase of Membership, by C. L. Stevens, Athens, Chairman.

Report of Committee on Rush Monument Fund, by W. Murray Weidman, Reading, Chairman.

Report from the State Board of Medical Examiners.

WM. B. ATKINSON, Permanent Secretary.

## NECROLOGY.

**WILLIAM S. W. RUSCHENBERGER, M.D.,** Medical Director on the retired list with relative rank of Commodore of the United States Navy, died at his home in Philadelphia, March 24, 1895, in the eighty-eighth year of his age. He was born in Cumberland County, New Jersey, Sept. 4, 1807. Entered the Navy as Surgeon's Mate in 1826 and the Medical Department of the University of Pennsylvania under the preceptorship of Prof. Nathaniel Chapman and J. P. Hopkinson, and received his degree in 1830. He was appointed Surgeon to the East India Squadron and served in that capacity for two years, during which time he circumnavigated the globe. He was made Superintendent of the United States Naval Hospital at Brooklyn. He is credited with organizing the first medical bureau and laboratory for supplying the Service with unadulterated drugs. He was Fleet Surgeon of the Pacific Squadron from 1847 to 1850, and of the Mediterranean Squadron from 1860 to 1861, serving between cruises at the Naval Hospital in Philadelphia. During the Civil War Dr. Ruschenberger was stationed at the Boston Navy Yard, where he rendered efficient service. After the war he returned to Philadelphia. From 1866 to the date of his retirement, Sept. 4, 1869, he was the senior officer in the Medical Corps, and March 3, 1871, he was commissioned Medical Director on the retired list, with the relative rank of Commodore. Dr. Ruschenberger has been a prominent figure in medical and scientific circles for many years. He was President of the Academy of Natural Sciences from 1869 until 1885, when he was succeeded by Prof. Joseph Leidy. He continued to serve as one of the Curators until his death. He became a Fellow of the College of Physicians in 1838, and subsequently served for several years as Secretary, and was elected President in 1879, succeeding Dr. George B. Wood, and in turn was succeeded by Dr. Alfred Stillé in 1883. He was sent as a delegate to the AMERICAN MEDICAL ASSOCIATION in 1847, at a time when the College had a representation in the National organization. He was also a member of the American Philosophical Society and of the Historical Society of Pennsylvania. As chairman of the building committee of the Academy he rendered for five years most important service in carrying out the plan for



WM. S. W. RUSCHENBERGER, M.D.

the erection of the present hall, and was one of the distinguished orators on the occasion of the laying of the cornerstone. He wrote a history of the Academy in 1852, and the report of his scientific observations on his cruises were published in popular form, among which are "Three Years in the Pacific," "A Voyage Around the World," "Elements of Natural History," "Notes and Commentaries during a Voyage to Brazil and China," "Lexicon of Terms Used in Natural History." He also wrote an obituary notice of Samuel George Norton, M.D., and other contributors to the proceedings of the organizations of which he was a highly honored member. He wrote a report on U.S. Marine-Hospitals which appears in the first volume of Transactions of this Association.

**JAMES RIDLEY TAYLOR, M.D.,** of New York City, died March 24, aged 75 years. He was a native of Scotland, but was brought to this country at an early age. He was 54 years of age when he took his medical degree at Bellevue Hospital Medical College. He had in his first half century given rein to his talent for invention, and this in the direction of mechanical pursuits. He made a fortune in this line. Then while his two sons were qualifying themselves for practice he himself took up the study of medicine, and straightway went to the front as a surgeon. He was for six years a lecturer on clinical surgery at his alma mater. He was a member of the County Society, the Physicians Mutual Aid Association, the Medical Union, the Academy of Medicine, and of the "Old Guard" militia organization, which sent representatives at the time of interment at Woodlawn Cemetery.

## MISCELLANY.

**Asylums for the Inebriate Insane.**—Within a very few years the inebriate-insane class in France has increased from 11 to 16 per cent., according to *L'Union Medicale*, and until recently no provision has been made for them save in the regular insane asylums. Owing to a campaign inaugurated by Dr. Magnan, of the St. Anne Asylum, and Drs. Deschamps and Dubois, Municipal Counsellors of Paris, the Council of the Seine has decided to build an asylum for the inebriate insane. It will cost \$840,000, will accommodate 500 men and 200 women, and is expected to be finished in the course of the present year.

**Endoscopy of the Urethra.**—Grünfeld announces in the *Bulletin Medical* that endoscopic examination of the prostatic urethra reveals some peculiarities. If the instrument be introduced up to this region and the patient be asked to contract the levator ani, as at the end of defecation, it will be noticed that the posterior urethra is drawn back from six to fifteen millimeters. This facilitates examination of the verumont anum and the neighboring mucous membrane. This means of examination may be compared to that used in laryngoscopy, where the patient is told to utter sounds, so as to allow inspection of the vocal cords.

**Roosevelt Hospital, New York.**—The Twenty-third Annual Report is a neatly illustrated pamphlet. One of the cuts shows the new amphitheater with a surgical clinic about to take place. The death rate for 1894 was about 120 per 1,000, or deducting the cases admitted moribund, less than 90 per 1,000. The total number of days of hospital treatment was 56,500, and average per diem cost per capita \$1.97, but deducting out-patient work, the in-patient cost was \$1.74 per diem, of which 26 cents was for food. The number of hospital attendants was 124; average daily patient population 155; showing an apparent inflation of the paid service departments. There were ambulance calls to the number of 1,642. The accident room treatment included 5,019 cases that did not need the regular hospital ward care, but received relief without taxing the accommodations of the hospital in the regular way. This department of the work has so far increased that it is proposed to make an addition for that object and for a Nurses' Home, that should cost not less than \$150,000; enlarged quarters for private patients will also enter into this plan.

**Diphtheritic Conjunctivitis Treated by Serotherapy.**—Dr. Jessup recently communicated a report to the Royal Ophthalmological Society of two cases of diphtheritic conjunctivitis treated by Klein's antitoxin. The first case was that of a boy, aged 19 months, with false membrane on the conjunctivæ of both eyelids of the left eye, with a patch on the uvula, swelling of the sub-parotid lymph glands and albuminuria. Three injections were made; the total quantity of the antitoxin used was three grams. The membrane disappeared in five days without leaving any trace on the conjunctivæ, though the only local application used was distilled water. In the second patient, also a boy aged 8 months, there were membranes on the palpebral conjunctivæ of both eyes, enlarged glands and a muco-purulent discharge from the nostrils. Two grams of the antitoxin were used in two injections and the false membrane disappeared in four days. Hayward examined the membranes in both cases and discovered large quantities of the Löffler bacillus. In his opinion the cure was certainly due to the antitoxin, because these cases are generally accompanied with purulent ophthalmia and ocular lesions which are very slow in healing. Coppey, of Brussels, has also reported a case in a little girl of 1 year, with severe ocular diphtheria cured in four days after one injection of Behring's serum.

**The Philadelphia County Medical Society.**—We print herewith a circular which is being industriously circulated by the Philadelphia County Medical Society. We make no comment on the kind of tactics which seeks to have other societies act on an *ex parte* statement; but we venture to remind our brethren in other societies that this matter is one which must be settled by the AMERICAN MEDICAL ASSOCIATION. The JOURNAL has taken no editorial part in this matter, but it can not help noticing that not the slightest commendation is given for any of the many changes that have taken place in the JOURNAL within the year, nor is any hint or suggestion given, of how the JOURNAL is to be supported if its advertising is cut off.

There are two direct mis-statements in the committee's report which we are sure they will be pleased to have corrected; one is that the decision of the Judicial Council was "not given to them or published." We notice that Dr. John

B. Roberts has signed this document, and that he was also the Secretary of the Judicial Council. If he failed to notify his associates on the committee of the action of the Council, surely the JOURNAL is not to blame. In the matter of the Stock Sanatorium, that advertisement was inserted *once* by inadvertence of a clerk, and afterward suppressed. In the matter of Labordine, it will be seen by reference to its advertisement, that the *formula is published* each insertion. It is therefore not a *secret* preparation.

The present management has acted according to its best judgment for the interest of the Association, and as the Trustees are personally liable for the expenses of the publication (the Association having so far refused to become incorporated) they would naturally be much pleased to have some of the critics point out a way to support the JOURNAL. They *assume* that the critics mentioned are friends of the JOURNAL, but the evidence is not overwhelming that the persons behind the movement are not really inimical, and would not rather have it die than live. They at least are remarkably careful not to commend the JOURNAL in any way, nor have these persons ever commended it since its establishment, when the proposition of a certain Philadelphia publisher to publish the JOURNAL was rejected.

These warlike preparations seem to us altogether unnecessary. If our dear friends really wish to see the JOURNAL independent of any particular class of advertising matter, will they kindly point out the best means of supporting the JOURNAL without receipts from advertising, and exactly how much they are willing to contribute to that support? The Trustees are ready to receive suggestions on this point, as they have not up to this time quite understood how to go on building up and enlarging the JOURNAL while depriving it of the revenue accepted by other journals recognized as reputable throughout the world. The JOURNAL has in fact declined a great many of the advertisements offered, when the formula was refused.

Seriously, the question arises, Will the profession support the JOURNAL in such a step? Will they contribute more freely? These are points that any sound business committee would want to have settled before they accede to any very radical departure from existing methods that at present are universal in medical journalism.

#### PHILADELPHIA COUNTY MEDICAL SOCIETY.

James C. Wilson, M.D., President; T. B. Schneideman, M.D., Secretary.

N. E. Cor. THIRTEENTH AND LOCUST STREETS, Philadelphia, Pa.

*Dear Doctor:*—As a member of a constituent society represented in the AMERICAN MEDICAL ASSOCIATION, your attention is asked to a matter in which every such member has a measure of personal responsibility. You will find the history and present status of the question at issue set forth in the annexed report of the delegates of the Philadelphia County Medical Society made on their return from the last meeting of the AMERICAN MEDICAL ASSOCIATION, held in San Francisco in 1894. In this connection we would call your attention to the following salient points:

1. The Code of Ethics—the moral and organic law of the AMERICAN MEDICAL ASSOCIATION—as is well known, not only prohibits physicians from employing secret nostrums, but declares that "in any way to promote the use" of such nostrums is reprehensible.

2. The advertising of such nostrums in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, which is taking place, is certainly an attempt to promote their use. The Association appears, therefore, at least tacitly to permit the Editor and Trustees of its official journal to transgress, in the conduct of the JOURNAL, the law laid down for our guidance as physicians.

3. The attention of the Association having been called to the inconsistency of its course in this regard, resolutions were unanimously adopted at the Detroit (1892) meeting, instructing the Trustees of the JOURNAL in future to respect this prohibition of the Code in the discharge of their trust.

4. Thereupon the Trustees appear to have evaded this command by adopting as their governing policy the rule "that an advertisement of a proprietary medicine shall be accepted in the discretion of the Committee when the proprietors thereof shall furnish the complete formula." The advertisement of secret nostrums in the JOURNAL continuing, the Trustees have, presumably, become accessory to the secrecy, inasmuch as complete formulae of the preparations referred to are not published. Plainly, persistence in the present course results in an abrogation by indirection of a fundamental provision of the Code, which should either be strictly enforced or frankly repealed.

The contention of the Trustees that without the income derived from this particular class of advertisements a deficit would result, does not in any way meet the ethical issue; nor does the precedent of other journals, including the organ of the British Medical Association, furnish a justification for the course adopted.

The question under consideration is not one of money but of morals; the AMERICAN MEDICAL ASSOCIATION can not afford to sell its honor under any circumstances or for any price. But would not the apparent financial sacrifice entailed by an honest and hearty observance of the spirit and letter of the Code of Ethics in the conduct of its journal be

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, APRIL 13, 1895.

No. 15.

## LECTURES.

### LECTURES ON INTRACRANIAL SURGERY.

#### IV—ABSCESS OF THE BRAIN.

BY EMORY LANPHEAR, M.D., PH.D.

ST. LOUIS, MO.

Suppuration in the brain does not differ from abscess in other parts of the body, except in the symptoms which arise from the peculiar location of the pus. Formerly, abscess of the brain and cerebral softening were regarded as synonymous terms; but now we know that softening is the result of the death of brain tissue from interference with the blood supply—a purely passive process, the creamy mass possessing none of the characteristics of pus excepting the resemblance in consistency and color; on the other hand, abscess is the result of an active process, inflammation, and in the broken-down tissues are found the distinctive microorganisms of true pus, and the same rule for the treatment holds good as in abscess elsewhere; let the pus out as soon as its location can be determined.

#### MORTALITY.

Abscess of the brain, from a surgical standpoint, is more favorable than almost any other form of cerebral disease. The rule is therefore to operate always; and as early as possible. Death is certain without surgical interference—relief is sure if operation be not too long delayed. The mortality after operation is very slight—about 17 per cent. according to von Bergmann—as compared with a death rate of 100 per cent. without it.

#### ORIGIN OF ABSCESS.

Cerebral abscess is never idiopathic. It always come from infection, the sources of which are three in number:

1. *Trauma*.—It may originate from blows or falls upon the head, even when the skin has not been injured nor the bone fractured; though often a punctured or other fracture has been present, in which cases it is usually associated with meningitis. Following trauma the suppuration may be either diffuse (acute meningitis and cerebritis running on to pus formation and proving fatal within a few days) or circumscribed, the area of red, or inflammatory, softening growing more and more liquid in its center until it becomes simply a collection of pus. In this instance the pyogenic cocci may reach the injured tissue by direct infection through a wound on the one hand or through the circulation on the other.

2. *Embolism*.—The abscess may be due to impaction of pyogenic emboli from some distant focus of suppuration (as the lungs, especially gangrene, bronchiectasis and fetid bronchitis; ulcerative endocarditis; empyema, etc.); in which case it will probably be located near some terminal twig of the middle cerebral artery, especially the left.

3. *Infection by Direct Continuity of Structures*.—But most frequently intracranial suppuration is traceable to purulent inflammation near by, as from injury or disease of the bone. Of the latter we see a typical case in abscess accompanying inflammation of the mastoid cells and in otitis media suppurativa; here the pus microbes find an entrance from the neighboring focus—and the same is true in abscess of the anterior lobes where caries of the ethmoid is the primary trouble.

The method of extension is thus described by Moullin: (2d edition, p. 666).

"In many instances the inflammation spreads by direct continuity of structures, the bone first becoming inflamed and necrosed; the dura over it sloughs, and either the pus spreads into or through the arachnoid space at once, or the membranes become glued to each other and to the cortex by a protective inflammatory exudation before this can occur. There are, however, other routes almost as direct along which the infection may travel. It may spread down the internal auditory meatus, or through the hiatus Fallopii, or the aqueductus vestibuli, or it may extend along some of the numerous small veins (each surrounded by a peri-vascular lymph-sheath) which run between the middle and internal ear on the one hand and the dura and pia on the other. Some of these pass directly from the temporo-sphenoidal lobe to the dura covering the petrous portion of the temporal bone; others run through the squamo-petrous suture and through the slit in the dura that lies by the side of the aqueductus vestibuli; others again lie in the small canals which connect the middle ear directly with the middle fossa of the skull; and not a few communicate with the middle meningeal veins and the superior petrosal and lateral sinuses."

The only unexplainable phenomenon connected with the formation of cerebral abscess has been brought to notice by Senn, viz., how the staphylococcus pyogenes aureus (or albus) which elsewhere causes only circumscribed suppuration, and which is the peculiar pus organism of otitis media and of suppurative osteomyelitis of the ethmoid or other bones, may in some cases be the exciting factor of a diffuse, septic leptomeningitis such as would result from infection with the streptococcus pyogenes or the streptococcus of Fehleisen—the suppurative meningitis following erysipelas.

#### LOCATION.

But whatever the cause, since intracranial suppuration is invariably fatal if left to itself, the indications are always 1, to locate the affected point and 2, to open the skull, evacuate the pus, irrigate the abscess-cavity and establish free drainage. So essential to success is this rule that when the dura is opened over the supposed seat of the abscess and no pus is found, it is advisable to thrust an aspirating needle into the brain in various directions until the

pus is located; that is, in cases of supposed abscess following injury or infection from a distant focus. I have often used a large needle in this way (even withdrawing some of the fluid from the ventricles) without apparent harm to the brain.

Great care must, however, be taken not to practice this extensive exploratory work in those doubtful cases which, instead of being cerebral abscess are thrombosis of the lateral sinus or pyemia from middle ear disease—cases which closely simulate abscess of the brain in their clinical picture. When the diagnosis is not certain the mastoid antrum must be first explored and free communication established with the external auditory meatus; by this procedure many cases of meningitis might be averted. But—in cases presumed to depend upon suppurative otitis media—if no pus is found in this preliminary operation, exploratory trephining should be practiced; the points of selection being a little above and somewhat behind the meatus (to expose the anterior surface of the petrous bone) or just behind the meatus and on the same level.

It is best, perhaps, to first examine the orifice of the mastoid vein, and if no evidence of thrombosis be found, to then make the opening in front, exposing the under surface of the temporo-sphenoidal lobe. The reason for this advice is that 95 per cent. of cerebral abscesses occur within a circle of an inch radius, the center of which is a point one and one-half inches above and one and one-fourth inches behind the center of the meatus auditorius externus. Rarely abscess is found in the anterior lobes or the cerebellum.

The pus may be, as regards the skull:

1. Subcranial—between the bones and dura;
2. Subdural—among the meninges;
3. Subcortical—in the substance of the brain.

#### SYMPTOMS.

The symptoms of cerebral abscess vary according to the rapidity of development and location of the point of suppuration. Very rarely the trouble is ushered in by a rigor and high fever, succeeded by delirium, vomiting, headache and other symptoms of acute meningo-encephalitis; this is what is called acute abscess, and follows injury or operation. Usually the symptoms are quite slow in making their appearance, as certain parts of the brain (like the apex of the temporal lobe, a favorite site of abscess) may for long contain an abscess of considerable size with no special symptoms to direct attention to its existence, the disease being suspected only when it begins to encroach upon more important structures either by pressure or direct irritation. When thus far advanced there will be found a subnormal temperature for a part of the day in most cases, together with more or less headache, and irregular fever.

In cases dependent upon traumatism there is commonly a latent period after the injury. This may, in rare instances, be as short as two weeks, but is generally much longer, even years occasionally elapsing before the disease causes trouble. In this period the patient is likely to become cachectic, more or less loss of memory accompanying the decline in bodily health, though the head symptoms may be so slight or so gradual in their development as to escape notice. Head pain is almost always present and may be quite intense; but I have operated upon one case of abscess of large dimensions (fully one-half

of the hemisphere) where no pain whatever was ever felt; the location of the pain does not necessarily correspond to the situation of the abscess. The headache may be either general or local. Optic neuritis is a quite frequent accompaniment and the pupil upon the affected side may be dilated or fixed.

Only too often localizing symptoms are not present, and so when headache, drowsiness or partial paralysis make their appearance some time after an injury or during the progress of long-continued middle ear disease, the surgeon is compelled to resort to exploratory measures, operating in the one instance at the point of trauma (though abscess may really be far distant) and in the other at the point of selection already described. As a rule, it may be said that the chief evidences of abscess are subnormal temperature, irregularity of the pupils, and a dull, sluggish condition of the mental faculties, possibly diversified by unexplainable fits of irritability, with more or less headache, either localized or diffuse.

Ptosis, fixed mydriasis or paralysis of the ocular muscles indicate the temporo-sphenoidal lobe as the location of the abscess; and it is not at all unusual for more or less paralysis of the arm and face to be present from compression of the lower motor centers which are close by; with aphasia if in the left hemisphere. Hemianopia and occipital headache are the chief signs of abscess in the hind-brain.

When the abscess is located in the cerebellum, vomiting is added to the other symptoms; and when the middle lobe is affected, staggering (cerebellar incoördination) is also present usually. Abscess of the cerebellum is so uniformly due to middle ear disease that when suspicion of abscess exists in the history of a case of otitis media and trephining does not reveal the pus in the temporo-sphenoidal lobe, the surgeon should open the skull over the cerebellum and explore for abscess in this region.

#### DIAGNOSIS.

These symptoms occurring weeks, months or years after severe injury to the head, or following a chronic discharge from the ear, are sufficiently prominent to enable the surgeon to make a diagnosis; or at least to give him enough assurance of the probable existence of pus within the cranium to justify exploratory trephining. Nor is a localizing symptom necessary to determine the situation of the abscess in the majority of cases; the operator may here well rely upon his knowledge of the pathology of the disease and the surgical anatomy of the part involved. In every suspicious case the patient should be given the benefit of the doubt; and here, if anywhere, the surgeon is to be commended for being positive in his demand for operation and prompt in carrying conviction into effect.

Certain kinds of tumor resemble abscess in their clinical picture, but choked disc will be found present almost invariably in tumor, while it is not a frequent symptom in abscess. Besides, in tumor the absence of a cause of abscess may be regarded as highly important from a diagnostic standpoint. And last—subnormal temperature alternating with an irregular febrile record will not be found in tumor; but may be absent in abscess as well.

Pus in the mastoid antrum may give rise to all the symptoms of abscess (even optic neuritis) but there are generally some local signs that point to the osteal



disease. In case of doubt one should open the mastoid before trephining.

Thrombosis of the lateral sinus is quite similar in a general way but a chill precedes the other symptoms; the pain is located at the point affected; and a stiff neck, retracted head and tenderness or edema over the mastoid will assist in differentiating. Later, pyemia occurs. If doubtful between thrombosis and abscess the mastoid vein may be exposed before trephining; if active the sinus is not clogged.

The transition from a chronic to an acute abscess may be sudden from a blow upon the ear or head (as in the case of Mr. D., of which I will soon speak) or from exposure to cold and wet; and should not interfere with a proper diagnosis being made.

Cerebellar abscess is almost beyond the possibility of positive diagnosis; the symptoms being very indefinite. Severe occipital headache, persistent vomiting and retraction of the neck, with irregular variations in the temperature are suggestive of disease of the cerebellar hemisphere; and when arising in connection with ear disease are enough to warrant exploration.

#### OPERATION.

It is frequently necessary, as will be evident from the preceding remarks, to make exploratory trephining; which here is certainly justifiable. If the abscess is not found at the seat of injury in traumatic cases, if the brain project into the opening and is pulseless, there can be little doubt as to the existence of an abscess somewhere and, an aspirating needle must be inserted in various directions until the pus is found; in so using the needle the point must never be moved from one part of the brain to another without withdrawal, as important fibers would be injured; but by taking the needle clear out of the brain tissue and re-inserting it with the point guided in the desired direction little permanent injury can be caused.

In cases of middle ear disease the scalp is retracted as a large flap including the pericranium, and the trephine applied at the point already indicated, viz., one and one-half inches above and one and one-fourth inches behind the center of the external auditory meatus; if nothing is found on reaching the dura, the latter is opened and exploration made.

Moullin very properly says if no abscess is found in this anterior operation, either between the dura mater and the bone or in the substance of the brain, and there is no evidence of thrombosis of the lateral sinus even when the orifice of the mastoid bone is exposed the surgeon should not hesitate to extend his exploration, even at the risk of being called hazardous, but should separate the periosteum and muscular attachments from the occipital bone beneath the superior curved line and open the skull so as to explore the lateral lobe of the cerebellum. In many cases of cerebellar abscess, however, there is sinus thrombosis as well, and there must consequently be some danger of the one being overlooked when the other is found—so it is best to search for both in every suspicious case. If extra-dural abscess or thrombosis of the lateral sinus be found, the jugular vein must be at once tied to prevent *débris* getting into the circulation, as the only hope of saving life lies in thoroughly cleaning out the clot and removing the whole focus of the disease. (Operation for thrombosis of the lateral sinus will be considered more in detail in a subsequent lecture.)

When the abscess cavity has been located, a free incision must be made into it to obtain thorough drainage. Then, for the only time in cerebral surgery, an antiseptic solution may be employed; in every other operation a normal salt solution being used for irrigation, etc., after the point of exposing the dura has been passed. In abscess, however, the cavity should be thoroughly washed out with hydrogen dioxid followed by a solution of bichlorid of mercury, 1 to 2,000. A large rubber drainage tube is then introduced and the wound in the scalp closed with silkworm gut sutures except at the point of drainage. It is perhaps well to dust in a considerable quantity of iodoform or other drying antiseptic powder, before closing the scalp. Very great care is exercised in dressing, fresh sublimate gauze being applied in abundance, as further infection from without must be avoided.

The drainage tube is washed out twice daily for a time, especially if it becomes clogged; later, once daily is sufficiently often to dress the wound. Day by day as the wound fills with granulation tissue the tube must be drawn farther and farther out, care being taken not to let the external wound heal too speedily. Usually from two to three weeks will be required for the abscess to stop discharging.

During the operation the most scrupulous care is to be taken as to asepsis. The scalp must have been thoroughly scrubbed and cleaned with alcohol or sulphuric ether and sublimate solution, and the hands of the operator and assistants disinfected by scrubbing for six to ten minutes and immersion in saturated solution of permanganate of potassium, then in strong solution of oxalic acid and finally in sublimate solution for two minutes; or in the absence of these, soaked thoroughly in alcohol and then in sublimate solution. And during the operation, if any object be touched which has not been sterilized—the table, the pulse of the patient, a chair, the pillow, etc.—the hands must be washed again in the sublimate solution before touching the wound or any instrument. These are little points, you say? No, indeed! Too many surgeons, nowadays, are too careless in these little details; and a human life may depend upon the care with which seemingly trivial acts are watched by the operator; no assistant must be for a moment beyond the eye of the surgeon, or if necessarily so be compelled to wash again. There may be no pus in the brain, and carelessness will cause infection. It is especially in redressing the wound that I would urge the greatest care. Here the surgeon says to himself: "Oh well—I have already a purulent infection, the wound is a pus-producing one, so I need not be careful." Only too often have I heard such remarks from men who should know better. There are other germs besides the staphylococcus pyogenes aureus which is found in these abscesses, and the greatest care in aseptic details must be carried out in the dressing, or there will be contamination through carelessness and death will result when recovery should have occurred.

#### CASES.

As I have already stated, abscesses are occasionally not single. Kidd reports a case of double abscess in which the trephine was used in the frontal region and pus evacuated from an abscess; the patient died on the fourth day and the post-mortem examination revealed a second and larger abscess in the temporo-sphenoidal

lobe of the right side *without* (a rarity, indeed) disease of the petrous bone; the cause of the frontal focus was a recent kick of a horse—that of the posterior abscess unknown. A case quite similar gave one of the two fatal results I have had in my own operations for abscess:

Chas. D., aged 32 years, was struck upon the right side of the head by a rapidly moving car in Kansas City, on the night of Sept. 18, 1891. He was unconscious for a little time, but recovered and went about his work next morning, though his employer noticed that he acted strangely—"dazed." This condition continued until Oct. 11, 1891, when he went to bed on account of an increasing head pain, especially marked at the junction of the parietal and occipital bones of the right side—the place of injury. He developed fever, had a severe general convulsion, repeated chills at irregular intervals and finally became delirious and semicomatose. I first saw him October 18 in consultation with his physicians, Drs. C. D. McDonald and G. E. Mosher. I advised trephining at the point of injury and also over the temporo-sphenoidal lobe of the opposite side on account of a chronic ear discharge, though there were no localizing symptoms pointing to trouble there—it was merely advice founded upon general principles. At 4 P.M. when arrangements were completed the patient was in profound collapse, the pulse intermittent and weak, extremities cold, eyes turned strongly to the left and insensible to light; operation was therefore postponed, as it was seen that death on the table would be the effect of our work.

Under stimulants, etc., he improved somewhat; and on October 25, I opened the skull at the spot injured. The dura bulged prominently into the hole and was entirely without pulsation. On turning back the dura a large area of softened brain tissue presented; which upon incision gave a considerable amount of pus. This cavity was scooped out and the surrounding red softening gently curetted with a sharp spoon, a Paquelin cantery being necessary to control the sharp hemorrhage. Palpation showed quite extensive softening anteriorly, but not broken down tissue; so it was left. After irrigation a drainage tube was inserted and the scalp closed. As the man was in extreme collapse from the bleeding, no further exploration was deemed advisable. There seemed to be quite an improvement that day in his mental and general condition though shock was profound. On the 27th we dressed the wound, finding fully an ounce and a half of pus discharged. Fresh dressings were applied and the patient made easy, but he died the next morning apparently from exhaustion.

The autopsy showed another abscess, evidently of months' standing in the left temporo-sphenoidal lobe due to caries of the petrous bone. The only ante-mortem evidence of this abscess was the chronic discharge from the middle ear with an occasional sharp pain in the occipital region of the left side.

As illustrating the fact that the abscess may be located far away from the site of injury, I quote my other fatal case from my record book:

Ed. F., carpenter, age 26, was shot by pistol, the ball entering one and a half inches to the right of the sagittal suture and two and a half inches posterior to the coronal. It emerged (or the major portion of it as afterward proved) at the sagittal suture, cutting the superior longitudinal sinus. The hemorrhage was consequently profuse and would have proved fatal had not a bystander crowded a handkerchief into the wound and applied firm pressure. Fifteen minutes after the accident, I found him upon the floor in an incredibly large pool of blood, pallid, limp and helpless but conscious and talkative. This was at 1 A.M. I packed the wounds with gauze and had him removed to the City Hospital. At 9 A.M. I opened the wound and found the bone badly shattered between the two openings which were therefore made one by the bone forceps; a portion of the bullet was found lodged between the plates of the parietal bone. All the broken-down brain tissue, amounting to a large teacupful, was trimmed away and after irrigation with water at 120 degrees, the cavity was packed with borated gauze. The patient soon regained consciousness. On the second day evidences of inflammation arose and a hemiplegia gradually developed—but upon the same side as the wound, a symptom we explained by saying it was a case in which there was no decussation of the motor fibers in the posterior pyramids. After a few days the inflammatory signs disappeared, the wound healed nicely and the thirteenth day the man was sent to his home.

He did well for a number of weeks, but the paralysis did not disappear, I thought because the motor area was destroyed. But he suddenly developed symptoms of abscess and died. The autopsy showed the cerebrum of the injured side in excellent condition; so far as any lesion here was concerned he was well. But a small fragment of the bullet pierced the falx cerebri a little above the corpus callosum and lodged in the white matter of the side opposite the injury, causing a hemorrhage just external to the corpus striatum—hence the hemiplegia of the same side as the primary injury. This clot became the seat of an abscess which, finally ruptured into the lateral ventricle, broke down the septum lucidum and caused death.

In this case the subject practically recovered from the original wound and from the operation; and the man would have been restored to his previous condition of health had not the fragment of ball caused the abscess in the opposite hemisphere. The location of the abscess I had no means of determining before death.

It has been said that abscess of the frontal region can not be diagnosticated. While this is true, there are certain cases in which we *suspect* abscess in the frontal convolutions and here exploratory operation can be made with some degree of propriety. Three patients have been under my care for frontal abscess. One case (subcortical) in which aphasia became a symptom as the disease progressed, would not consent to operation and died in the hospital; the autopsy showed the correctness of the surmise as to the location of the suppuration. The other two submitted to operation and recovered. The first I wish to report presented this history:

Dora V., of Denver, Colo., aged 28 years, prostitute, was admitted to the hospital Sept. 21, 1893. She complained of an intense severe headache, located just to the right of the middle line, two and one-half inches above the orbit; this pain began about six weeks before, and continually grew worse. Her physician regarding the case as one of gummy tumor, sent her to me for its removal, with the statement that for about ten days the mind had been seriously affected. Upon examination she appeared stupid, dull, with dilatation of the right pupil; and there was some tenderness at the point of greatest pain. Her temperature varied from 97 to 100 degrees during the next four days, so a diagnosis of abscess was made. On September 26, assisted by Drs. Thrush and Maxson, I reflected the scalp at the point supposed to be affected, and made an opening about one inch in diameter with the gouge. Upon removing the outer table there appeared evidences of bone inflammation, and when the inner table was pierced pus came welling up from within the cranium. The abscess was subdural, but adhesions everywhere had prevented general meningeal suppuration; the cavity was therefore irrigated but not curetted. Free drainage was established and the usual dressings applied. September 27 the record says: "Doing nicely, no pain, slept well, mind clearer. Temperature all day, 99.5 degrees." She continued to improve rapidly, the discharge of pus ceased on October 28, and two days later she was allowed to go. The cause is unknown, but is presumed to be syphilis probably aggravated by a blow, though no history of the latter could be obtained. All her mental symptoms vanished immediately after operation, and at last account she was still well.

The second case was subcranial. The condensed history is as follows:

Mrs. B. D., patient of Dr. J. E. Dennis, 28 years old, I saw Dec. 16, 1891, on account of severe headache of several weeks duration, which resisted every anti-neuralgic remedy, the doctor desiring operation for the relief of pressure on the brain, the symptoms certainly indicating such a condition. A careful examination failed to show any disease of the ear or the nose; the retina was slightly congested; pupils very sluggish; slight ptosis of right lid. No cause for the pain could be discovered unless it was due to tumor or abscess. There being no localizing symptom, I declined to operate; the pain, indeed, was referred always to one point, but I did not then feel that pain alone would justify exploration.

At midnight, December 18, I again saw her in consulta-

tion. The pain, she said, was unbearable—so great she would violently beat her head against the wall unless guarded. Her temperature was 100 degrees and she was delirious most of the time. On the evening of the 19th she was in a critical condition—temperature 96.5 degrees, heart action feeble and irregular, a low form of delirium still present; as death appeared inevitable I consented to trephine—upon both sides if necessary.

December, 20, at 1 A.M., I made an incision along the line of the eyebrow to the base of the nose, dissecting the tissues upward sufficiently to allow the use of a gouge. At a point about one inch above and a little internal to the orbit I opened the frontal sinus and then attacked the internal table. As soon as the chisel entered the skull, pus began to pour out and when a sufficiently large opening was made fully one and a half ounces escaped. The abscess was between the bone and dura; with the probe dead bone could be felt, believed to be necrosis of the ethmoid, so I gently curetted with the sharp spoon but hemorrhage caused me to desist. I washed out the cavity with bichlorid solution and with Marchand's peroxid of hydrogen and finally filled in with much iodoform and inserted a drainage tube.

My record for January 3 says: "The pain ceased immediately after the operation, and the general condition improved rapidly. The wound has been dressed every second day, the cavity being thoroughly irrigated with weak sublimate solution and then with hydrogen peroxid and filled with 10 per cent., iodoform emulsion, under which treatment pus has ceased discharging." The iodoform emulsion was used because I presumed the ethmoidal necrosis to be tubercular.

On January 15 the external wound was healed, but a little pus was still discharging through the nose.

I have frequently seen this patient since and there has been no further trouble from the necrosis—if there was a necrosis—and her health is perfect. There never was any evidence of syphilis in this case.

I do not give histories of cases from middle ear disease—they are too common, but as a result of my own experience, I can well counsel exploration in every case of suspected abscess of the brain; with the expectation of a favorable result in a large percentage of operations.

## ORIGINAL ARTICLES.

### THE DISEASE RESISTING POWERS OF THE BODY.

A REVIEW OF THE FOUNDATIONS OF NUCLEIN AND SERUM THERAPY.

Read before the Biological Society of Chicago University, Feb. 20, 1895.

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When it was shown that bacteria were the cause of certain diseases, it was believed for a time, that if these bacteria by any means found an entrance into the body, disease must follow. Until quite recently, popular writers on these questions left this impression with their readers.

Pasteur noticed that in case an animal recovered from a germ-caused disease, the germs disappeared from the blood and tissues. He also observed that, in some cases at least, after an animal had recovered from the attack it was more or less immune or insusceptible to the same disease. That this immunity following one attack was true for many of the con-

tagious diseases was indeed a matter of common knowledge. Early in his investigations Pasteur noticed that some animals were readily affected by his microbes, while others were entirely immune; again, that in some cases, a young animal could be infected but not an older one. Pasteur studied these matters and worked out an explanation for them. He believed that his microbes were in some respects very delicate creatures, demanding particular kinds of foods, without which they could not grow. He noticed that in his flasks the bacteria grew for a time, then ceased growing, although a considerable amount of food remained unused. He concluded that their growth was stopped on account of the exhaustion of some essential part of the food. He noticed that other germs might grow in these flasks after one species had ceased to grow. Reasoning in this manner, he thought he saw a probable explanation for recovery and immunity. A few anthrax germs had been injected into an animal and after some hours an examination of the blood showed that each drop contained thousands of these germs, and yet a few days later, in the favorable case where the animal recovered from the disease, the blood when examined contained few, or it may be, no germs at all.

Pasteur reasoned that here the animal had served as a culture flask, and with the same result, as soon as certain things in the animal's body were exhausted the germs ceased to multiply and disappeared. On this, the "exhaustion theory," as it is called, Pasteur based his hope for preventing and curing the contagious diseases. Time will not suffice to give the details of his work on vaccines.

In brief, his method was to take an attenuated germ, one that by exposure to unfavorable conditions had been weakened and enfeebled. With a small quantity of this culture, he would then inoculate an animal. This feebly growing germ, or vaccine, would gradually and without serious harm to the animal exhaust that particular substance necessary for its growth. Having done this, the germ would die and disappear. The animal having recovered from its vaccination fever, would then be proof against an attack of the most malignant germs of that kind. The first two diseases studied by Pasteur in this way yielded brilliant results. By his method, with attenuated cultures of anthrax, and chicken cholera, he was able to make very susceptible animals wholly immune to the most virulent forms of these diseases. He concluded that the method could be universally applied, and made the remarkable statement that, "it is possible for man to eradicate every contagious disease from off the face of the earth."

Hundreds of workers attempted to apply this theory to the various bacterial diseases. Gradually it was seen that the method would give satisfactory results in but few diseases, and that the theory was a poor one.

In the same year that Pasteur's exhaustion theory was put forward, another and opposing one was advanced by Chauveau. Chauveau reasoned that bacteria ceased to grow in our flasks and test glasses, not because some particular food is exhausted, but for the same reason that a higher animal or plant when confined, is gradually poisoned by its own excretions. Whenever the excretory products of the bacteria reach a certain amount, they cease to grow, although there may be an abundance of food. It had long been known that this was true for some of the higher

plants. Pasteur himself had shown that the yeast plant ceased to grow whenever the amount of alcohol which it produced reached 15 per cent.

Chauveau explained that an animal recovered from an invasion of bacteria, if it could survive until these excretory products accumulated in such quantities as to gradually hinder and finally wholly arrest their growth. Immunity, he said, was due to the fact that these excretory bacterial products were very slowly eliminated, and as long as they remained in the body they protected it from an invasion of the germs. This theory was widely accepted and until the last two years was the most popular one. It was essentially on this theory that Koch based his attempt to cure tuberculosis with tuberculin, which is essentially an old filtered bouillon culture of the tubercle germ. So Klebs introduced diphtheridin for diphtheria.

The theory underlying these attempts at cure was to introduce into the body, those products which arrest the growth of the germ in our flasks and tubes, and by so doing to stop the growth of the germs already in the body. These attempts at cure were failures, and we now believe that they were wrong in theory.

Pasteur's facts were all right; the germs do disappear with recovery from the disease and there is generally, more or less immunity. How can we explain these things? These are all-important questions, for when we know how the body destroys disease germs then it is probable that we can discover some means with which to assist in the fight against these invaders.

"As early as 1872, Lewis and Cunningham demonstrated the fact that bacteria injected into the circulation rapidly disappear.

"In 1874, Traube and Gschiedlen found that arterial blood, taken under antiseptic precautions from a rabbit into the jugular vein of which  $1\frac{1}{2}$  c.c. of a fluid rich in putrefactive germs had been injected forty-eight hours previously, failed to undergo decomposition for months. These investigators attributed the germicidal properties of the blood to its ozonized oxygen. Similar results were obtained by Fodor and by Wysokowicz. The latter accounted for the disappearance of the germs, not by supposing that they were destroyed by the blood, but that they found lodgment in the capillaries.

"The first experiments made with extra-vascular blood were conducted by Grohmann under the direction of A. Schmidt in his researches upon the cause of coagulation. It was found that anthrax bacilli, after being kept in plasma, were less virulent, as was demonstrated by their effect upon rabbits. Grohmann supposed that in some way the bacteria were influenced by the process of coagulation.

"In 1877, Fodor made a second contribution to this subject, and in this he combatted the retention theory of Wysokowicz. One minute after the injection of 1 c.c. of anthrax culture into the jugular vein, in eight samples of blood, Fodor found only one colony of the bacillus. Then he took the blood from the heart with a sterilized pipette and added anthrax bacilli to it. This was kept at 38 degrees C., and plates made from time to time showed a rapid diminution in the number of germs; after a time, when the blood had lost its germicidal properties, the number of germs began to increase."

In 1888, Nuttall showed that defibrinated blood had this germicidal power. Since then Nissen, Behring,

Buchner, Haliburton, Hankin, Bitter, Christmas and others have worked on this question. All of these observers find that the blood, within or without the body, has germicidal powers. They find that this germicidal substance can be precipitated with alcohol, that it can be dried and when redissolved is as active as before. Prudden found that ascitic and hydrocele fluids restrain the development of certain germs. Other observers have shown that the humors of the eye have antiseptic properties. Some of the experimenters conclude that the germicidal substance is serum albumin, others that it is a globulin, while all agree that it is some proteid.

These experiments demonstrated the fact that the body had the power to kill at least some bacteria, but gave us little if any insight into how it was done. About this time, that is, in 1884, Metschnikoff brought forward an explanation that seemed plausible, and has had and still has many advocates. He believes that the white blood corpuscles together with the cells of the spleen, certain glands, and the cells lining the blood vessels have the power to take up and destroy the germs. All of these cells have the power to put out pseudopodia. It had been known for a long time that when small particles were injected into the blood, the white blood cells would pick them up and engulf them. It was also well known that when a part of the body was injured, the white blood cells flocked to the inflamed part in large numbers.

Metschnikoff concluded, that the function of these cells, which he named phagocytes, is to watch the avenues by which pathogenic germs may enter the body, and on their approach to engulf or swallow them and by a power of digestion to destroy them. The theory attracted universal attention and admiration. He also attempted to explain the migration of the white cells to a wound. He found that certain substances attracted the cells, while certain others repelled,—that they did not swallow every particle that came in their way but had a selective power—this positive and negative chemiotaxis as he calls it, is used by him to explain many of the phenomena connected with cure and immunity. He finds that certain bacteria attract and in turn are destroyed by the phagocytes while certain other more virulent ones, repel the phagocytes and so are left free to multiply, and harm their host. It was soon shown, however, that blood outside the body, blood in which the phagocytes had been killed by freezing, still had the power to destroy bacteria.

Some observers even went so far as to say, that Metschnikoff was wholly wrong; instead of the phagocytes swallowing and destroying the germs, these had invaded the phagocytes and were destroying them.

Metschnikoff, however, has brought forward evidence by means of stains, enabling him to show the difference between a living and a dead germ, to show that in some instances at least, the phagocytes do take in and destroy the bacteria. In certain other cases, however, as in gonorrhea, and mouse septicemia we must conclude from the enormous number of the germs present in a single phagocyte, and from their staining, that they have invaded the phagocyte, and multiplied at its expense.

Some three years ago, Dr. Vaughan and myself began some experiments on this question with the following results. In a paper before the Pan-Ameri-



can Congress, at Washington, we stated our views as follows:

From a careful and critical study of the investigations that have been briefly reviewed, we have come to the following conclusions:

"1. The serum albumin is not the germicidal substance in blood serum. As has been stated, either this must be true, or the experiment by which Buchner demonstrated that an active pepsin does not destroy the germicidal action of blood serum must have been an error; because peptic digestion readily and completely converts serum albumin into peptones, and we know that peptones are especially favorable to bacterial growth.

"2. The germicidal substance must belong to the proteids. Otherwise it would be difficult to explain the fact that a temperature of 55 degrees C. renders blood serum inactive.

"3. The only proteid likely to be present in blood serum and which is not destroyed by peptic digestion is nuclein.

"Having reached these conclusions, the following questions naturally present themselves:

"1. Is there a nuclein in blood serum?

"2. Has this nuclein, if there be one, germicidal properties?

"These questions we have attempted to answer.

"Dogs and rabbits were the animals from which the serum was obtained. Healthy animals that had not previously undergone any experimentation were selected. In each case the animal was bled to death. The flask containing the blood was placed in the ice-chest and allowed to remain for twenty-four hours. By the expiration of this time, a wine-colored serum had separated. This serum was poured into a second sterilized flask and about ten volumes of a mixture of equal parts of absolute alcohol and ether were added. This produced a voluminous precipitate that was nearly white. This was allowed to stand twenty-four hours, and in some cases much longer, the alcohol and ether twice, or more often during the time, being decanted and replaced by equal volumes. Then the supernatant fluid was decanted and an equal volume of 0.2 per cent. solution of hydrochloric acid containing active pepsin was added, and the flask placed in an incubator at 38 degrees C., and the digestion was continued until the fluid failed to respond to the biuret test for peptones. Each time this test was made, the fluid was decanted from the undigested portion and replaced by an equal volume of fresh digestive fluid. In some instances the flask containing this fluid was allowed to stand in the incubator for several days. This was not necessary in order to complete the digestion, but was allowed as a matter of convenience. In all cases the digestion was prompt and proceeded to a certain point, when it ceased altogether. The undigested portion was small in amount and grayish in color. This was collected on a small sterilized filter and washed first with 0.2 per cent. solution of hydrochloric acid, and then with alcohol. After the washing with alcohol, the filter was allowed to stand exposed to air for half an hour or longer, in order that all of the alcohol might pass through or evaporate. The precipitate was then dissolved in a sterilized solution of potassic hydrate. The strength of this alkalin solution usually employed was 0.12 per cent. Usually this solution contained in addition to the alkali 0.6 per cent. of sodium chlorid. In some instances a solution containing

1.2 grams of potassic hydrate, 6 grams of sodium chlorid, and 1 gram each of sodium bicarbonate and disodium hydrogen phosphate to one liter of water was employed as a solvent. The solution was filtered through a Chamberland tube and received in a sterilized flask. The solution thus obtained was perfectly clear, colorless, and did not respond to the biuret test.

"We have now answered the first question. Blood serum contains a nuclein. We hope to investigate at some time in the future the relation between this nuclein and fibrin-ferment.

"The origin of the nuclein found now for the first time in blood serum is an interesting question. Does it come from the disintegration of the polynuclear cells, or shall we regard white blood corpuscles as unicellular organs whose function it is to secrete this nuclein?

"In proceeding to determine whether or not this nuclein has germicidal properties, the solution was distributed in sterilized test-tubes, 5 c.c. being placed in each tube. It should be stated that in dissolving the nuclein, the volume of the solvent employed was in all cases the same as that of the blood serum from which the nuclein was obtained. These tubes were inoculated with different germs and plates made at varying intervals of time, in order to test the germicidal action. One and the same platinum loop was used in the preparation of each plate."

A number of experiments were then given in detail, showing that this nuclein had very decided germicidal power.

"We have made many other tests of the germicidal action of the nuclein obtained from blood serum, but as all of them gave practically the same results, further repetition is unnecessary.

"The fact that the germicidal constituent of blood serum can be isolated has an important practical bearing. Blood serum therapy has pronounced disadvantages, on account of the large amount of the fluid which must be injected. Nuclein therapy now promises to enable us to avoid this difficulty, and possibly the near future may find us using this agent in the treatment of disease. The nuclein may be obtained from an animal rendered immune to diphtheria, and a sufficient quantity of this injected into the blood or under the skin of a child suffering with this disease may effect a cure, but we will not prophesy. The future will tell us what it has in store when the future shall have become the present."

Since this was written, some two years ago, nuclein has been used extensively in the treatment of tuberculosis, and as we think with remarkable success. This work on the germicidal power of the nucleins has been confirmed by Kossel and others.

It seems to me that we have found an explanation that covers all the facts claimed by those who hold the phagocytic theory, as well as those who hold that the fluids of the body are its defenders.

Some one has suggested that the white blood cell is an unicellular gland whose business it is to secrete a germicide. As is claimed by Metschnikoff, there are obvious advantages to the animal in having the germicidal constituents of its blood (partly) in the form of amœboid bodies. Concentration at a desired place can be more easily accomplished, and the walls of the arteries and other tissues may be traversed without injury. But these cells do not eat and digest the invading bacteria. There are reasons for believ-

ing that they have no power to retard the progress of the invading bacteria until the constituents of the cells pass into solution.

Metschnikoff now regards nuclein as the germicidal substance in the blood. Suppose that it is shown that those indefinite substances which Hankin calls Defensive Proteids, Buchner Alexines, and Poehl Spermine, are nucleins, and that this substance is the one germ killing portion of the body, what have we gained?

How are we to explain the fact that of two individuals, living under the same circumstances, possibly of the same parentage, exposed to the same infective disease, the one takes it, the other escapes; or, both taking the disease, in the one, there is recovery and immunity to subsequent attacks, while the other dies?

How explain that at one age an individual is susceptible and at another immune to the same disease? That one animal is immune and another species very prone to die from a given germ? And above all how can we help the body in its ceaseless fight against disease germs? Some of the questions are as yet unanswerable, but day by day we are getting more light on these problems.

I have, so far, spoken only of the germ destroying powers of the body. It may be necessary to point out that in avoiding or recovering from disease, the body has to deal not only with germs, but also with their products.

It seems probable that the harmful effects of germs are not, as a rule, due to their mere presence, but principally to the poisonous products which they elaborate. In the case of tetanus the germs are found only in the neighborhood of the wound, while their effects are manifested, it may be, in every nerve and muscle in the body. So in diphtheria, the germs are practically confined to the upper air passages, and yet we find the deleterious effects of the disease in every organ of the body. These effects may be produced experimentally by injecting the filtered culture of the germ, without there being a single germ in the body. The paralyzes of diphtheria, or the tetanic conclusions of tetanus, can be produced at will in the laboratory with germ-free cultures.

These poisonous germ products, whether produced in our test tubes or in the body are called toxins. It is evident that if a child suffering from a severe case of diphtheria is to recover from the disease, it must be able, not only to destroy the germs themselves, but also to dispose of or destroy the toxins produced. The substances capable of destroying these soluble poisons are known as antitoxins. What are these antitoxins?

It may be well to point out, that the phenomena with which we are here concerned can not be explained, as was once supposed, by any theory of toleration. We know that there are many poisons, such as nicotin, arsenic and morphin, which when given in gradually increasing doses induce a tolerance on the part of the tissues so that eventually, many times the normal lethal dose may be taken without any serious manifestations. It can be shown that this effect is not due to any increase in the power of the body to destroy these drugs; in fact this power decreases. Not so, however, with the bacterial toxins; these are actually destroyed or rendered inert.

We take six guinea pigs, and give to each of them 1 c.c. of this diphtheria toxin. This toxin has been tried on some twenty or thirty guinea pigs and is

uniformly fatal in one-half c.c. doses. In a short time after injecting the toxin—on the opposite side of the body we inject into one of these pigs one-tenth of a c.c. (one drop) of this antitoxin, in another two-tenths, in a third five-tenths. The remaining three we leave with the toxin alone. I am describing experiments just as they were made in our laboratory some three weeks ago, and with these substances which I have here.

In forty-eight hours we find that the three pigs which received the poison alone, are all dead; the three receiving both toxin and antitoxin are alive and well. We take six more pigs. Into two of these we inject to-day one drop each of the antitoxin, twenty-four hours later we inject 1 c.c. of the toxin. These pigs never show at any time any symptoms of disease.

In a test tube we place 2 c.c. of the toxin and 2 drops of the antitoxin; after standing one hour one-half of this mixture is given to each of two pigs, these also show no sign of disease. The remaining pigs are given 1 c.c. each of the toxin and as in the preceding experiment are dead within forty-eight hours.

These experiments may be continued until many times the fatal dose of toxin is given, but if an appropriate quantity of the antitoxin is administered, no harm comes to the animal. Here there is a poison destroying power. What do we know of it? and how can the substance be produced?

We find here, just as when we study the bacteria themselves, that for a given germ or its toxin, certain animals are quite susceptible; others withstanding large doses of germ or toxin or, as we say, are immune. This immunity may in certain cases be borrowed from one animal and given to another. Thus one drop of the blood of a dog or frog, animals naturally immune to anthrax, if injected into the white mouse will effectually protect it against an inoculation of the anthrax germ. It makes no difference whether the drop of blood is injected several days before, or some hours after the inoculation with the germs. This, one experiment, and there are many similar ones, would at once suggest to us that the problems of cure and of immunity are closely connected, if not identical.

Now immunity may be natural or acquired. "Natural immunity may be peculiar to the species or race, or to the individual. An example of natural immunity is that of the domestic fowl to anthrax. As has been shown by Lazarus and Weyl, the chick, even at the time of coming from the shell, is immune to the most virulent culture of the bacillus anthracis. It is true that this animal may be made susceptible to anthrax, but this is an artificially-induced susceptibility. The immunity is natural to this bird at every period of its life. Another example of racial immunity is that of the frog to anthrax. This animal can also be rendered susceptible, but again it is true that the susceptibility is artificial and the immunity is natural. Racial immunity must be inherent in the parent cell.

"The natural immunity, which is peculiar to the individual, usually comes with adult life. The young are susceptible to a given disease, but adults of the same species lose this susceptibility and become immune. The young rat is susceptible to anthrax, while the adult is naturally immune, but can be rendered susceptible by exhaustive exercise. The child is highly

susceptible to scarlet fever and diphtheria; while the adult, though not wholly immune to these diseases, loses very much in susceptibility and is likely to become infected only when greatly reduced in vitality or after prolonged and aggravated exposure to the poison." In addition to the natural immunity due to race or age we have artificial or acquired immunity, as in the case of the mouse previously mentioned.

In 1880 Pasteur first showed that susceptible animals might be made more or less insusceptible to a contagious disease, and from that time to the present this artificial, or acquired immunity, has been the most interesting and important of bacteriologic problems.

Do natural and artificial immunity differ in degree only or in kind? This is an important question and one as yet undecided. The majority of investigators, following the lead of Behring, say that they differ in kind, that the germicidal and antitoxic powers are two different things. This is possibly true, and yet there are facts going to show that these are questions of degree only. In the last three weeks we have shown in our laboratory that nuclein from the yeast cell, has antitoxic as well as germicidal powers. A series of sixteen guinea pigs were treated for several days with yeast nuclein in varying amounts; they were then inoculated with twice the fatal dose of diphtheria toxin. Those pigs which had received doses of less than 2 c.c. of the nuclein, together with the control animals died; these receiving larger doses were not affected by the poison. The experiments were repeated with the same results. In a similar manner, rabbits have been made immune to tuberculosis and to pneumonia. The immunity to pneumonia is noteworthy, as these animals are very susceptible to the germs of this disease.

Aronson has shown that the blood of the untreated white rat has considerable antitoxic power against the diphtheria toxin, Behring and Wernicke to the contrary notwithstanding. Guinea pigs that had been treated with such blood showing marked increase in their resistance to diphtheria poison.

You will have noticed that all the work I have quoted has been the outcome of theory, and nowhere is the value of the scientific imagination shown better than in the results of bacteriology. "Again and again it has been shown that the value of a theory does not wholly depend upon its truth, but is rather to be measured by the fruitfulness of the lines of investigation that it opens. Indeed, a theory may be wholly erroneous and yet it may lead to most important discoveries."

Our theories of immunity, of the relation of acquired to natural immunity will have important bearings on the future of this work. At present, however, the attention of bacteriologists is attracted to the brilliant results that have been obtained in artificial immunity. It has been demonstrated, for example, that a horse, an animal very susceptible to tetanus, can be made so immune to the disease that it will withstand several million times as much of the tetanus toxin as would kill another and untreated horse.

The results in the treatment of diphtheria have been such as to elicit worldwide interest. Among the first workers in this line was Ehrlich. At that time it was impossible to obtain the bacterial poisons, toxins, with any degree of uniformity in their poisoning power. So that Ehrlich selected two poi-

sonous proteids or toxalbumins that had been obtained from the higher plants, as he could get these in relatively large quantities and with uniform toxic powers. These substances were ricin, obtained from the castor oil plant, and abrin from the jequerity bean.

This substance, ricin, is the most powerful poison we know. The contents of this bottle, 1 gram, 15 grains, Ehrlich estimates is sufficient to kill 1,500,000 guinea pigs. By giving his animals very minute and gradually increasing doses of these poisons; now in food, again hypodermically, and again by rubbing a weak solution on the conjunctiva of the eye, he was able at last to get them so immune that they would withstand several hundred times the fatal dose for an untreated animal.

He showed the best and quickest way to secure this immunity, and also the very important fact that his animals rendered immune to one of the poisons, say ricin, showed no immunity to the other one but were killed by it in the same dose that was fatal to the untreated pigs. Ehrlich went further, and showed that his animals did not merely tolerate the poisons, but destroyed them. He was indebted to Behring and Kitasato for this idea, they having in the meantime made the fundamental discovery that the immunity in diphtheria and tetanus was based upon a certain ability of the blood to neutralize the bacterial poisons. With this in mind, Ehrlich at last found that such a substance existed in his immune animals. These substances he called anti-ricin and anti-abrin. This discovery was the basis for all that we know of antitoxins.

Behring and Ehrlich next established the fact that the blood taken from immune animals rendered other animals immune. Discoveries now followed each other in rapid succession. Ehrlich demonstrated that the offspring of an immune mother was for a time immune. Further, that the immunizing or antitoxic substance was present in the milk of the immune mother, and could be transmitted in the milk of an immune nurse, even when the nursing was no relation to the nurse, and the offspring of very susceptible parents. This gives us an explanation for the well-known, but heretofore little understood fact, that the suckling is more or less immune to several diseases to which it is very susceptible after weaning, as scarlet fever, measles, etc.

Further experiments led to a method for quantitatively estimating the value of the antitoxins, and the duration and degree of the immunity. The results of these discoveries are far reaching. By appropriate treatment we can give an animal such a high degree of immunity to a certain disease, that a relatively small quantity of its blood or blood serum, will contain sufficient poison destroying power, or antitoxin, to neutralize all the poison produced in an ordinary case of this disease. The blood serum of this immune animal we can borrow without detriment to the owner; we can bottle it, preserve it, if need be send it thousands of miles and there give its hoarded strength to one in need.

The method of immunizing animals against tetanus and diphtheria has been published so widely that I pass it by. As to the results of the antitoxic treatment in these diseases I may say, in brief, that the mortality in tetanus has been reduced from 80 to 20 per cent. In diphtheria, an average of many estimates shows a death rate diminished one-half under

this treatment. Behring believes that the mortality will not exceed 5 per cent. if the treatment is begun within forty-eight hours after the attack. Roux holds that the treatment is not very effective in those cases complicated by a streptococcus infection. But these figures, good as they are, a saving of one-half of the children who die of this dread disease, do not nearly represent the value of antitoxin. Its greatest promise is in the way of immunity, prophylaxis. We will have little need of a cure for diphtheria if every child exposed to the disease can have an injection of antitoxin and thus escape an attack. This result is promised by this new remedy.

Now to return to a question previously raised, How do the antitoxins neutralize or destroy the toxins?

We have seen that when a lethal dose of toxin is injected it fails to have any harmful effect, if, at the time a sufficient quantity of antitoxin is injected. The results are the same whether we mix the antitoxic serum with the toxin and inject both together, or we inject them separately in different parts of the body, or finally, whether we inject the antitoxic serum twenty-four hours before injection of the poison. It is quite different, however, if we inject the antitoxin some time after the injection of the poison. The longer we delay the more unfavorable is the prospect of cure, the greater is the quantity of antitoxin required, and the more uncertain becomes the result.

Behring and his followers hold that toxin and antitoxin chemically neutralize each other and are both changed or destroyed in the process, just as when an acid and a base form a neutral salt—unite and neutralize each other. But there are, possibly, other explanations of this phenomena.

Many experiments go to show that when we mix toxin and antitoxin in test tube and then inject the mixture into an animal the toxin is destroyed but some antitoxin remains, capable of protecting the animal against small doses of the poison subsequently injected.

On the other hand, if the toxin alone is destroyed, we should expect that in our test tube mixtures, after a certain length of time, all the toxin would be destroyed and the antitoxin remaining would be capable of destroying a fresh quantity of the toxin—just as pepsin is capable of converting an indefinite amount of proteid into peptone. But experiments fail to justify any such conclusion.

These and similar experiments lead us to doubt the direct poison destroying of toxin by antitoxin. If that were true it should make no difference, except in quantity, at what stage of the disease we injected our antitoxin. We have seen, however, that it does make a great difference, often requiring in diphtheria five hundred times the dose to save an animal twenty-four hours after infection as before. The dose needed to cure in tetanus is a thousand million times the immunizing dose. Buchner carried out the following ingenious experiment: Ten white mice and ten guinea pigs were given injections containing 1-10 mg. of a tetanus toxin. As was to be expected, all the mice died with pronounced symptoms of tetanus poisoning. The guinea pigs lived, only a few of them showing transient symptoms of the disease. In the second experiment, twenty-three mice and twenty-three guinea pigs were used. Each of them received 14 mg. of tetanus poison, one hundred and forty times the amount which in the first series was sufficient to kill the mice. But with the tetanus toxin, 1.35 mg.

of an antitoxin had been mixed. Through this quantity of antitoxin the activity of the tetanus poison was almost destroyed. Nine of the mice were unaffected, eleven showed slight symptoms of the disease, while only three died.

As in the previous series 1-10 mg. had proved uniformly fatal to the mice, we must conclude that in this experiment the larger part of the toxin, certainly 13.9 mg. had been destroyed, otherwise the remaining 1-10 would have certainly killed the animals. Now exactly the same dose of toxin and antitoxin is given the twenty-three guinea pigs.

The previous experiment has shown that 1-10 mg. of the poison has but little effect on the guinea pig; this experiment seems to show that the antitoxin present is sufficient to destroy all but 1-10 of the poison in the mixture; hence we should expect to find little if any effect on the guinea pigs. On the contrary, eight died of marked tetanus, twelve showed chronic tetanic symptoms, and only three remained unaffected; showing conclusively that the antitoxin could accomplish results in the body of the mice which it could not in the guinea pig.

A study of this and other experiments, it seems to me, must force us to the conclusion that there is no destructive action of toxin by antitoxin, either in the test tube or in the body; but both substances act only through the intermediation of the cells of the body or, in other words, the action of the antitoxin is only an immunizing not a destructive one. There is in the strict sense of the word, no "antitoxin," but instead an immunizing substance.

Again the question, What is immunity? Before attempting any speculations on this question, it is necessary to call your attention to some facts regarding the nature of toxins. These, all are agreed, are albuminous bodies, toxalbumins as they are called—related to the poison of stinging insects, the venom of serpents.

Roux and Yersin in Pasteur's laboratory were the first to demonstrate the nature of these substances. They regarded the poison as a sort of enzyme or soluble ferment. This view has been adopted by Brieger and Fraenkel. This was the only way in which they could account for the intensity of the poison. By a ferment action, splitting up the albumins in our culture fluids, or in the body, they could account for the poisonous effects of the bodies. But in the laboratory of Straus, in Paris, it was shown that there was no diminution in the diphtheria poison when the germs were grown in albumin free urine. Buchner, in Munich, grew his tetanus germ in a solution of asparagin and mineral salts. Here, there could be but one source of the proteid poison, the cell contents of the bacteria themselves. Buchner concludes that the tetanus toxalbumins spring directly from the plasma of the tetanus cell.

Most writers on this subject assume that bacterial poisons are secretions or excretions of the germs producing them. But the ordinary method in use for obtaining the toxin of diphtheria disproves this. In our flasks of bouillon inoculated with the germ of diphtheria and kept at body temperature, there is every reason to believe that all growth and reproduction of the bacteria come to an end after two or three days, and yet before this fluid has attained its greatest toxicity it must be kept for some three months. Now what happens in that time? If we examine portions of the culture from time to time with



the microscope, we notice that the germs gradually lose their staining reaction and are slowly macerated and finally dissolved in the bouillon. The filtered fluid which at the end of three days had very little toxicity is now intensely poisonous. Here again we are led to believe that the source of the poison is in the bacterial cell. But I can not agree with Buchner that it comes from the cell plasma. In the last three weeks I have attempted to extract the poison from fresh cultures of the germs. By using the ordinary methods for extracting nuclein I have obtained an exceedingly poisonous substance, giving when injected, apparently the same symptoms as the toxin obtained from old cultures. If the bacterial poisons are nucleins it will help us to explain the phenomena of immunity and cure. That they are nucleins seems to me altogether probable even on theoretical grounds. The poison of the tetanus cell differs markedly from that of the diphtherial; the one produces tetanic convulsions; the other complete paralyses. Now we have many reasons to suppose that the protoplasm of all cells is much alike—that which gives the cell its morphologic or physiologic individuality comes from the nucleus.

I am aware that there are facts opposed to this view and I only offer it as an hypothesis. Brieger and Fraenkel have shown by analysis that tetanus toxin contains neither phosphorous nor sulphur. Malm has shown that a purified tuberculin contains no sulphur. How can they be proteids, much less nucleins? But the albuminous substance of the bacterial cell, according to Neucki, "is not precipitated by alcohol, and differs in its chemic composition from other known substances of this class." He calls it *mykoprotein*, and says that it contains no sulphur and no phosphorus. If these observers are right we must enlarge or modify our views as to the nature of proteids.

With all the preceding facts before us, what insight do we get in the problems of immunity and cure?

Pasteur's "exhaustion" theory asks us to believe that in case of natural immunity there was lacking in the organism a something necessary to the life of the microbe; that in acquired immunity, the attack of the disease—the growth of the germs within the body had exhausted this necessary food and until it was replaced the animal was immune. This theory is no longer sustained by Pasteur, or his pupils, and is evidently untenable.

The "retention" theory as proposed by Chauveau, is subject to similar objections. To suppose that an individual who has had scarlet fever, diphtheria, measles, smallpox, etc., retains in his body certain products which are capable for years, or even a lifetime, of protecting the body against these diseases is to ask a great deal of our credulity. Note that the theory requires a separate substance for each of the diseases. The child who has had, and is now immune to diphtheria is still susceptible to measles, etc. Moreover, we must under the theory suppose that the diphtheria poison for example, which now affects the organism so powerfully, is after recovery retained in the body without any deleterious influence. That the body could retain so many different poisons, for such lengths of time, and that these poisons could be tolerated with no ill effects seems to me to be bad physiology and poor theory.

Sternberg has elaborated a theory of immunity based on the idea of tolerance to poisons. Without

giving the arguments advanced for and against this theory, I may say that, as it seems to me, there is abundant experimental evidence to show that these poisons are not merely tolerated; they are destroyed or at least disposed of.

Metschnikoff on his "phagocytic" theory would explain immunity in this way: Immunity and cure are essentially the same thing, or as he expresses it "most often immunity is but recovery in operation from the very onset of a disease." Disease germs which are not very malignant to the body exert a positive chemiotaxis or attractive power for the phagocytes; these in turn swallow the germs and destroy them. This ability to destroy the germs, and to be attracted by them, increases with use and is hereditary. Hence in the case cited, sooner or later the germs are overcome and on account of the educational process which the phagocytes have gone through, they retain for a longer or shorter time this power, or there is immunity.

Artificial or induced immunity, he explains, by supposing and in some cases demonstrating, that when there is negative chemiotaxis for the malignant germ, for the attenuated germ there may be a feeble positive attraction; this is increased by use until gradually the most virulent germs of this kind attract the phagocytes only to be destroyed. So when the tissues are gradually subjected to bacterial poisons, in this method of immunizing, the phagocytes are gradually educated.

I feel that I should apologize for such a brief and unsatisfactory presentation of the really beautiful and weighty theory of Metschnikoff.

I wish to call your attention to one more theory in regard to immunity. This is a theory advanced by my teacher, Vaughan, of Michigan. For the most part I shall use his own words:

"There are three methods of inducing immunity which reduce themselves to one and the same principle, *i. e.*, the introduction of germ nuclein into the body. This nuclein may be either inclosed in the cell wall or in solution. These methods are: 1, by the use of very small numbers of the virulent germs; 2, with living bacteria modified and reduced in virulence, attenuated culture; 3, dead bacteria morphologically intact or in solution. In all cases the cause that brings into existence the condition of immunity is a bacterial proteid. I call these proteids, and I wish it to be understood that I do so tentatively, and that I recognize the fact that the exact chemic nature of none of them is known; but for the present we may call them proteids. For reasons already given, I believe that the proteids which induce immunity belong to the class of nucleins."

How can we explain immunity with these facts before us? Briefly thus: the nucleins of the animal body have the power, or under certain conditions may be so trained or educated that they assimilate the bacterial nuclein. We have seen that toxin must be regarded as a specific product of the bacterial cell. Toxin and antitoxin from their very nature should be closely related, possibly only different modifications of the same substance. The fact that one is poisonous and the other not, that the one heals while the other kills, does not contradict this assumption. We have many examples of closely related substances which differ widely in their physiologic effects. From the comparatively harmless cholin the very poisonous neurin is produced by the simple abstraction of water.

"These different nucleins, that of the bacterial cell, and that of the blood, may be isomeric bodies, one of which may be designated as the  $\alpha$ -compound, and the other as the  $\beta$ -compound, and one of these by simply causing a rearrangement in the atoms within the molecules of the other may assimilate the second. We do not mean to say that the process by which a nuclein assimilates another proteid is as simple as would be indicated by these examples, but they may suggest something of the nature of the chemistry of assimilation. We may assume that when an alpha-nuclein and a beta-nuclein are brought together, one will assimilate the other; and which one will absorb the other, will depend upon the relative strength or vitality possessed by them, and in measuring this strength several things must be taken into consideration. A vaccine has less of this power of assimilation than a germ of full virulence, and a nuclein in a sterilized culture less than either of the others.

"An organ that has once been stimulated by a given excitant responds more quickly the second time to the same excitant, provided that the interval of time is not too great. This explains the gradual loss of acquired immunity.

"Again, an organ that is stimulated by one excitant may not be responsive to another, and this accounts for the fact that an animal rendered immune to one disease remains susceptible to another.

"We can suppose that the process of immunizing an animal proceeds in something like the following manner: The modified virus of tetanus is introduced into some distant part, in some unknown way; the spleen is stimulated to action, and secretes a nuclein which is carried partly in solution, partly in the form of multinuclear cells to the invaded part of the body, and the tetanus poison is converted into the nuclein coming in contact with it, or is otherwise rendered inert. Later, a larger quantity of the tetanus poison is introduced, and now the spleen acts more promptly and energetically than before. This promptness and energy of action are increased by exercise and, finally, an amount of tetanus culture, of full virulence, sufficient to kill an animal whose spleen has not been subjected to this training may be introduced without ill effect. On this theory, the production of immunity consists in a special education of certain cells."

Now what have we learned from this review of these theories and experiments? We have seen that the body has the power to kill bacteria; that this power resides chiefly if not wholly in its soluble nucleins. On this fact is based nuclein therapy. We endeavor to aid the body when it is engaged in a losing fight, by giving it a nuclein closely related to its own, which it can readily assimilate and in turn use as a defensive agent.

We have seen that the body has a poison destroying or antitoxic power; that we can increase this to an enormous extent in certain animals, and that we can borrow this power from one animal and lend it to another. On these facts serum therapy is based.

We have seen that there are some reasons for believing that these germicidal and antitoxic powers are related; that in a strict sense there is no antitoxin but only an immunizing substance; that the problems of cure and immunity are probably identical. And I trust that we have seen that nucleins and antitoxins are not chance discoveries, but are the results of the investigations of many workers. A theory here,

an experiment there—step by step—until at last the bacteriologist offers to humanity the results of his labors.

In conclusion: Men have for ages sought to find specific remedies for diseases. There are but few substances,—mineral, vegetable, animal or the products of the chemist, but have been tried. These attempts have been well summarized by Rossbach as follows: "For thousands of years mankind has experimented in this direction and the result has been the discovery of but four remedies for three diseases. It would be a terrible idea, that some other thousand years were necessary to detect another four remedies. The usual way of proceeding is too dangerous. Especially harmful proves the enthusiasm, not to say dishonesty of many observers. If by chance, a physician has found a remedy, after the application of which one or two cases of an infectious disease have quickly recovered, the success is at once attributed to the medicine. No thorough investigation on a larger scale is made, the new 'specific' has been discovered and is emphatically recommended."

We are learning better methods. Before attempting to find remedies we study the etiology of a disease. Having found the cause,—its noxious principles,—the way in which it harms, we then endeavor to discover the agents with which the body combats the "disease powers." Then, and not until then, are we in a position to intelligently seek for remedies. With this method, medicine seems to be entering on a new day.

The brilliant results that are being obtained in tetanus and diphtheria lead us to hope that many, it may be most of the contagious diseases may be subdued. With the same methods, experiments more or less successful have been made with septicemia, erysipelas, typhoid fever, tuberculosis, etc. But when we remember that two-thirds of mankind die of germ caused diseases we hesitate and fear to prophecy.

## THE MEDICAL COLLEGE FRATERNITY, NU SIGMA NU.

BY BAYARD HOLMES, M.D. (ETA CHAPTER).  
CHICAGO.

Perhaps this effort to bring a college fraternity to the notice of the medical profession will not be approved by many public-spirited physicians. The wars between the Greeks and the barbarians are still going on in all our American colleges and universities. Much can be said for and against the fraternities as they exist or have existed. Medical men are no exception to the mass of educated men in being prejudiced either for or against the Greeks. This article is written to inform, not to convert.

The introduction of fraternities into medical schools marks a distinct stage in the development of medical education. While the medical college was open only a few weeks each winter for bombastic lectures embellished with obscene stories on the part of teachers and for boisterous cramming on the part of students, all repeated once or twice on successive seasons, there was neither time nor incentive for fraternity life. The medical students of those halcyon days rarely knew many of their classmates in after life. As times and customs changed and the medical term was extended to eight or nine months for each of three or four successive years, the medical college became the home of a social unit. It was natural

that the precedent of the literary colleges in America should be followed by the students in these new medical centers and that Greek letter societies confined to medical schools should accordingly be established.

There are traditions of little fraternities in nearly all of the older colleges. None of these, however, attempted to become national in character until the establishment in a formal way of the Nu Sigma Nu at Ann Arbor. From a humble beginning at the University of Michigan in 1882, this order now numbers nine chapters and a membership of about one thousand. The membership in each chapter is limited to eighteen active student members. The existing chapters are:

- A. Alpha, University of Michigan (1882).
- B. Beta, Detroit College of Medicine (1889).
- Δ. Delta, Western Pennsylvania Medical College (1891).
- E. Epsilon, University of Minnesota (1891).
- Z. Zeta, Northwestern University (1891).
- H. Eta, College of Physicians and Surgeons, Chicago (1892).
- Θ. Theta, University of Cincinnati (1892).
- I. Iota, College of Physicians and Surgeons, New York (1893).
- K. Kappa, Rush Medical College (1893).

Gamma Chapter has surrendered its charter.

The order stands for high scholarship and professional integrity. Its teachings are of the highest ethical character and the discipline of the order has been mild but effective. There has so far been no manifestation of snobbery, which is the rock upon which many fraternities break. Perhaps the spirit of the fraternity can be best exhibited by relating some experiences in the Eta Chapter. This chapter was organized three years ago. Over half the men were graduates of literary colleges and the active members have always been and are men of superior education and ability. Nearly all are total abstainers. At the banquets of this chapter no intoxicants have ever been used. A majority of the present active members live together in a flat which is called the Chapter House. It has been a great pleasure to me to drop in and see a little of the life there. The rooms are very pleasant and are furnished like a modern home. Music and pictures give the convivial spirit of community expression. An occasional visitor keeps alive the genial spirit of hospitality. For a few days, one of the fraters was sick and I found him well cared for by the other residents. The table is furnished by the occupants of the adjoining flat. It is not what one would call lavish, but it does very well and is dignified and satisfactory. The Chapter House is not only the home of the students but it is also the home of the chapter and the place of all regular meetings and entertainments. The influence of this chapter in promoting fraternity life seems to be very great. An older man looks with great satisfaction at the growing friendships which he sees in the relatively young under his instruction and care.

In this chapter the most favorable reaction of the stronger and rougher upon the weaker and more refined has been observed; of the true and exacting upon the politic; of the genial and effusive upon the reserved and diffident. It is not difficult to predict for the men who thus live together,—all for one and one for all, in this little social community,—great

pleasure in after life from these well cemented friendships. Each one has been a gainer. Each one has become a truer man, a better student, and will be a broader physician from the culture of this fraternity life. A few of the residents are working for honors and hospital positions. No records have yet been made.

In the college, the sentiment was for a time strongly against the fraternity and fraternity men. By a very carefully executed policy of non-interference and non-resistance and by a concerted effort at conciliation, nearly all the opposition has now subsided. A chapter of the medical order of *H. P. Σ.*, has lately been introduced with a full membership among the very best men in the institution, and this, it is hoped, will allay the remaining prejudice against the older fraternity.

The last grand council of the order was held with Zeta Chapter during the World's Fair. Prof. Nicholas Senn gave the council a complimentary clinic at Rush Medical College and a banquet was held at the German Press Club. John L. Irwin, M.D., was elected Grand President, and W. J. Lyster, Harper Hospital, Detroit, Acting Secretary. A directory of the fraternity has lately been published. The names of many members of the faculties of the colleges in which chapters are located are to be found in this directory as honorary members. Some of the most distinguished physicians and surgeons in the country are thus enrolled. With careful discipline and a discrete propaganda, the Nu Sigma Nu will be a powerful factor in medical life and education during the next twenty years.

## PERITONEAL SUPPORTS—(LIGAMENTUM PERITONEI.)

BY BYRON ROBINSON, M.D.

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The peritoneal supports of the abdominal viscera have received different names and appellations. In the Latin language they all come under the term, *ligamentum*, but in the general English in vogue the supports are called: *a*, ligaments; *b*, mesenteries; and *c*, omenta. The term, *ligament*, is applied to a fold of peritoneum which supports the more solid portions of the digestive organs as the liver, pancreas and spleen, yet is not restricted to these organs but is applied to the peritoneal supports of the genitourinary organs. The term, *omentum*, is generally applied to a fold of peritoneum which stretches from the stomach to some other organs. There are three omenta stretching from the stomach to the liver, colon and spleen. The term, *mesentery*, is applied strictly to the small intestinal support, but general usage extended it to the supports of the four parts of the large bowel. The synonyms for the term, *mesentery*, are, *mesaraion*, *mesaræum*, *medianum*, *membrana pinquis intestinorum*, *Lactes*, *Mesenteron*, *meseræum*, *mesoræum*, *medium intestineum* and *epichordis*. Latin, *mesenterium*; French, *mesentere* and German, *Gekröse*. Some writers apply the word, *mesentery*, to the whole of the peritoneal supports. The utility of the peritoneal supports are:

1. To retain an organ in a definite position.
2. To hold the viscera in definite relations so that entanglement is prevented. To prevent volvulus strangulation, dislocation or misplaced pressure.

3. To limit the viscera in physiologic and anatomic relations.

4. To allow sufficient independent motion for the viscera to functionate. From the peritoneal supports allowing such freedom by slender neuro-vascular styles on the various viscera, arises the difficulty of acquiring accurate anatomic knowledge of visceral anatomy. The difficulty of acquiring correct views of visceral relations consist of three peculiarities of the viscera, viz., *a*, the abdominal organs allow a wide range of movement without becoming dislocated; *b*, the organs can alter their conditions without losing their integrity to return to normal; *c*, they are highly endowed with elasticity.

5. The supports serve to some extent to prevent hernia.

6. A special utility of supports is to transmit vessels and nerves to viscera.

7. The elongated visceral supports allow the organs to pass through their rhythm.

8. The supports allow the law of compensation, *e.g.*, when one viscus enlarges the elongated supports of others give them a chance to glide out of pressure, out of the way of harm.

9. The most common pathologic condition of peritoneal supports is elongation (frequent after 35 years of age).

10. Anomalies of peritoneal supports are not common. Their origin is nearly always due to peritonitis.

The following table of the chief peritoneal supports I have prepared for the purpose of noting the English and Latin appellations of the same, and also to show at a glance the variety and kind. The scope and number are more easily comprehended in a compact diagram:



FIG. 1—Represents the primitive mesentery and digestive tubes of mammals. S, stomach; M, mesentery; I, intestine; A, aorta. The straight digestive tube is suspended from its dorsum by a simple double bladed membrane.

Suspensory ligament of the liver. (Ligamentum suspensorium hepatis.)

Round ligament of the liver. (Ligamentum teres hepatis.)

Right lateral ligament of the liver. (Ligamentum triangulare hepatis dextra.)

Left lateral ligament of the liver. (Ligamentum triangulare hepatis sinistra.)

Coronary ligament of the liver. (Ligamentum coronarium hepatis.)

Gastro-splenic ligament. (Ligamentum gastro-lienale.)

Phreno-splenic ligament. (Ligamentum phrenico-lienale.)

Left costo-colic ligament. (Ligamentum phrenico-colicum sinistra.)

Right costo-colic ligament. (Ligamentum hepato-colicum.)

Hepatico-colic ligament. (Ligamentum hepato-colicum.)

Ascending mesocolon. (Mesocolon ascendens.)

Descending mesocolon. (Mesocolon descendens.)

Transverse mesocolon. (Mesocolon transversum.)

Lesser omentum. (Ligamentum gastro-hepaticum.)

Greater omentum. (Ligamentum gastro-colicum.)

Gastro-splenic omentum. (Ligamentum phrenico-esophageal.)

Phrenico-esophageal ligament. (Ligamentum phrenico-esophageal.)

Mesentery. (Mesenterium.)  
Broad ligament of the uterus. (Ligamentum latum uteri.)  
Round ligament of the uterus. (Ligamentum teres uteri.)  
Utero-sacral ligament. (Ligamentum sacro-uteri.)  
Utero-vesical ligament. (Ligamentum vesico-uteri.)  
Gastro-pancreatic ligament. (Ligamentum gastro-pancreaticum.)  
Infundibulo-pelvic ligament. (Ligamentum infundibulo-pelvicum.)  
Posterior ligament of the bladder. (Ligamentum recto-vesicale.)  
Lateral ligaments of the bladder. (Ligamentum vesico-laterale.)  
Suspensory ligaments of the bladder. (Ligamentum suspensorium vesicale.)

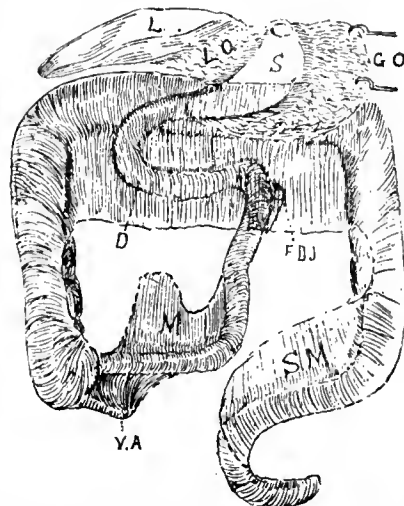


FIG. 2—Represents the final peritoneal structure in man. L, liver; L.O, lesser omentum; G.O, great omentum, drawn aside by two hooks; D, the outline of the duodenum; F.D.J, fossa duodeno-jejunalis; M, mesentery; S.M, meso-sigmoid; Y.A, appendix with its mesenterolum.

#### THE MESENTERY.

In various valuable works it will be observed that the word mesentery, is used to embrace all that is finally covered by the word, peritoneum. I wish at this place to discuss the origin of the mesenteries—the neuro-vascular pedicles of the viscera.

The works of Toldt and Gegenbaur may be mentioned as samples of such titles as the mesentery. The digestive tract is so intimately associated with the peritoneum that they are both studied together, as may be noted in Treves' little pamphlet, "Intestinal Tract and Peritoneum in Man." In the present work I shall consider the development of the digestive tract and peritoneum together, and that the development of the one can not be comprehended without the other. There can be no serous cavity without viscera. The viscera produce the cavity by their presence and advancing growth. The moving viscera and independent moving of adjacent walls are accountable for the serous lymphatic sac. In fact, the very relation of sac to organs also shows one depends on the other, for the peritoneum envelops the organs, without inclosing them, like a tightly fitting night-cap. A good illustration of the peritoneum is a frieze on a house, where the figures are represented in relief, but all the elevations and depressions are covered. The figures are thrust forward on the frieze, invaginating or carrying the surface with them. The idea of the inseparability of the abdominal viscera and the peritoneum can not be more forcibly impressed on the reader than to say that arrest of visceral development is nearly always due to peritonitis, *e.g.*, the non-descent of the cecum, which I have seen six times, was in each case due to old or recent peritonitis.

A mesentery in general consists of a double fold of peritoneum, which partially invests a viscus. No viscus is entirely covered by peritoneum. The point on the organ where the membrane diverges to envelop it, leaves a space uncovered by peritoneum. A mes-



entery is generally considered as such when its blades after diverging again come in contact before reaching the line of parietal insertion. As illustration of this idea the right or left colon may be taken. If the peritoneum covering the anterior and lateral surfaces of the colon does not come in contact between the posterior surface of the colon and dorsal wall we say there is no meso-colon. With no meso-colon the posterior surface of the bowel is in contact with the connective tissue of the dorsal abdominal wall. Should there be a mesentery of the colon, the layers of peritoneum which invest the lateral and anterior bowel surface approach to contiguity between the bowel and dorsal wall. In human anatomy the word, mesentery, is by general consent limited to the small and large bowel.

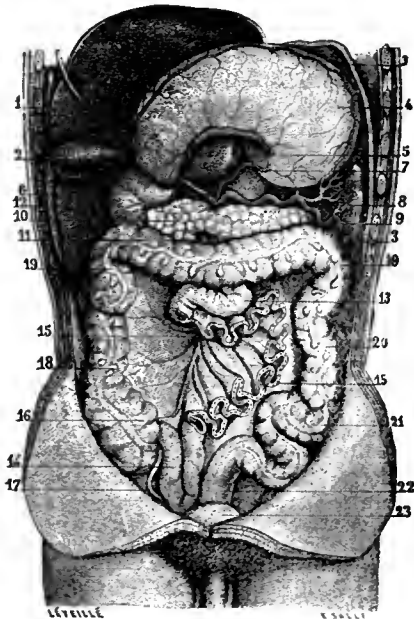


FIG. 4—Represents the mesentery with the chief part of the small intestine cut away (after Sappey).

As the digestive canal is developed, the peritoneum is also developed. The double layers of peritoneal membrane anchor the canal to the posterior abdominal wall and this anchorage is the mesentery. That part of the mesentery which passes to the stomach is called the mesogaster, anterior or posterior. At this point we have both a posterior and an anterior mesentery. Beginning at the middle line of the dorsal wall two layers of peritoneum (mesogastrium posticum) pass to the posterior border of the stomach. These two layers of peritoneum diverge, pass forward on each side of the stomach and again come in contact on the anterior border or lesser curvature, after which they (mesogastrium anticum) pass to the anterior abdominal wall. That portion of the double fold of peritoneum which extends from the liver to the abdominal wall and down to the umbilicus and is known as the suspensory ligament (ligamentum suspensorium) of the liver is a part of the anterior mesogaster. The mesogastrium anticum or lesser omentum has deviated from the middle line to the right, away from the remnant of umbilical vein, by the irregular and rapid growth of the liver. The remainder of the digestive canal has no anterior mesentery, having lost it by absorption or atrophy. In human anatomy the mesogastrium posticum and anticum bear the names of greater and lesser omen-

tum. They are then mesenteries with other acquired names. As long as the digestive canal maintains its original straight course the relations of its mesentery are simple. The peculiarities of its mesentery are all acquired, and in fact the only primitive mesentery left in the adult is the mesentery of the sigmoid. The liver grows rapidly and irregularly, displacing organs and appropriating large areas of peritoneum. The stomach rotates and twists, assuming new forms and positions. The great intestinal loop rotates and

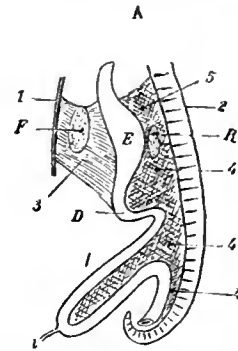


FIG. 5—"A" represents an early mesogastrium anterior and posterior before torsion. 1, anterior abdominal wall; F, liver; E, stomach; 3, lesser omentum; D, duodenum; 1, remnant of vitelline duct (Meckel's diverticulum); 5, mesogaster posterior; 2, vertebral column; 4, 4, primitive mesentery; L, great intestinal loop; R, spleen, (after Deblierre).

changes the original mesenterial attachments. The kidneys rapidly enlarge and steal away the mesenteries of the colon ascendens et descendens. Still further changes of the mesentery arise from the fact that the small bowel grows more rapidly in length than its mesentery and hence the intestine is thrown into frill-like folds. These changes in the simple primitive mesentery are manifest in fishes; as the scale of animal life ascends, the most complicated acquired arrangements are found in man. In watching the development of the mesenteries from a simple straight fold, embracing a simple straight tube, through evolutionary stages to complications which are almost incapable of being unravelled, the mechanical idea of peritoneal development must be thrown aside. The whole matter must be considered under

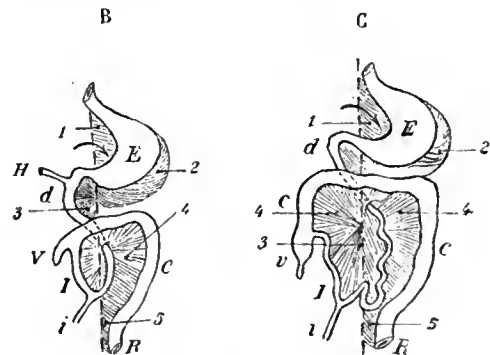


FIG. 3 and 6—"B" and "C" represent progressive torsion and formation of mesenteric supports. 1, anterior mesogaster; 2, posterior mesogaster; E, stomach; C, colon; 1, vitelline duct; I, small intestine; V, cecum; 4, mesocolon; 5, mesorectum; R, rectum; 3, in "B" mesoduo-denum, and 3, in "A" mesentery, (after Deblierre).

readjustments of parts and relations. Some organs appropriate peritoneum by rapid growth, while others yield a portion from shrinking. Hypertrophy, atrophy and changes of position of viscera account for peculiarities of peritoneal arrangement in adults. Remnants of embryonic life, the peritoneal recesses formed by blood vessels contained in folds of the membrane account for changes in the mesenteries.

In a completely formed mesentery we have three distinctly formed layers to observe. The two superficial layers consist of an epithelial membrane of a whitish pink color, glistening, moist and smooth to the touch and covering the organs out of sight with an unbroken surface. The third, middle or essential part of the mesentery is the connective tissue lying between the superficial epithelial layers. This is the *membrana mesenterii propria*. It includes in its meshes veins, arteries, lymph vessels and nerves and occasionally some muscular fibers. This is the essential structure which serves as scaffolding to support in the definite relations vessels and nerves. It is a fibrous bed in which vessels and nerves securely lie. The fibrous tissue in the mesentery surrounding the vessels and nerves is dense, strong and often sufficient in quality to bury the vessels or nerves out of sight. This mesentery can be seen as early as the fourth embryonic week, in the human, with a strong lens. It then stretches from the mid-dorsal line to the straight digestive tube. At this time no sign of fat is visible with the strongest lens.

I have made careful examinations of the mesentery at six weeks of human embryonic life, when the digestive tube had just begun to distinctly show the bend for the great intestinal loop and the dragging of the duodenum to the right with its mesentery. At this age (six weeks) with a strong lens and the mesentery in a good light, it is plain to see white strands of connective tissue forming the *membrana mesenterii propria*. At certain points the mesentery is more transparent than at others. It is made non-transparent or opalescent by the accumulations of bundles of fibrous tissue. The bundles of tissue do not seem to have any distinct order, but seem to follow in general parallel with nerves and vessels. The change of this middle mesenteric connective tissue layer is not very manifest as fetal life advances. The bundles of nerves and vessels are securely united and fixed by the *membrana propria* in extensive qualities. As the nerves and vessels approach the gut they become more scattered and less parallel. The fibrous tissue also becomes more scattered and diffuse. The whole mesentery becomes thin among the arches of the mesenteric arteries. In the two months' human embryo, and in the horse, I have noticed it astonishingly thin. In most cases it may be noted that just as the mesentery divides to embrace the bowel, the middle mesenteric layer again increases in connective tissue. This serves the useful purpose of properly distributing the small vessels and nerves on the digestive tube. It also gives the bowel an opportunity to contract and expand in an elastic bed of tissue. About the fourth month of human embryonic life, the *membrana mesenterii propria* assumes more manifest proportions. The mesentery becomes thicker and stronger. It assumes more of the character of adult life. But the special change in the mesentery which occurs so manifestly at the fourth fetal month is the rapid increase of, not only the size of the blood vessels and nerves, but the sudden increase of the connective tissue fibers lying around them. The great trunks of blood vessels lie solidly and firmly embedded in the quickly increasing bundles of fibrous tissue, while the lateral small branches pass off in less compact surroundings. This connective tissue lying between the mesentery is governed very much by the blood vessels and probably nerves, for when the blood vessels become manifestly large at the

fourth fetal month the tissue accumulates step by step with them. This tissue is the guardian of the vessels and nerves to sustain and protect relations. In later fetal life the arrangement of fibrous bundles of sub-peritoneal tissue must be wrought in the line of blood vessels. A small amount of dissection will soon demonstrate that these fibrous bundles between the mesentery run parallel to blood vessels in general, and entwine and weave themselves around the channels which carry nourishment. Between the trunks of vessels one can observe the *membrana mesenterii propria* more as a membrane, dense and strong, which holds the parts in definite relations. In very spare infants of six months old or in very spare cadavers of adults, I have often dissected it and was surprised at the strength of the membrane. Yet it varies in different individuals. It is not so apparent in fat subjects, but in the sense of distinctly observing its wide meshes the fat subject is the best, for all fat is contained in the meshes of the *membrana mesenterii propria*. Perhaps this membrane can be seen the most typically in the horse, with his enormous-sized mesentery. It looks almost like fibers of white tendon in this animal. In a spare infant cadaver, of six months, the membrane is very thin, but in that case shows its fibrous character. It may be observed that by careful dissection on a spare adolescent cadaver it will be easy to note muscular fibers passing from the celiac axis and its adjacent region into the mesentery. In some subjects this muscle (*musculus suspensorius duodeni* or, better, *mesenterii*) is abundant, while in others it is difficult to find it at all, especially if the cadaver be old and long dead, or injected with decolorizing agents. Again, with the increase in size of the blood vessels, the fibrous bundles in the mesentery accumulate so rapidly along the blood channels that the deficiency of the fibers in the intervening spaces becomes more apparent. The view would hence arise that the *membrana mesenterii propria* has some directing influence over the vascular channels. Even the existence of the mesentery itself depends on the ordering of the blood channels. For, in certain areas in the mesentery, chiefly at the lower ilium, we may find in man and lower animals spaces almost devoid of blood vessels. These areas are so thin that a slight trauma would perforate the mesentery.

(To be continued.)

## NEPHRORRHAPHY FOR MOVABLE KIDNEY (LEFT).

Read before the Chicago Pathological Society, Jan. 14, 1895.

BY E. F. GAVIN, M.D.

CHICAGO.

J. P., 50 years old, sailor by occupation, married. Family history negative. Previous condition of health: He had typhoid fever when 4 or 5 years old. During the late war, while serving in the Navy, he was confined to his bed with rheumatism for nine months and at another time for four months. No history of tuberculosis in the family. He denies any syphilitic taint. He had malaria at about 20 years of age.

Condition before operation: His present illness began about five years ago. Since then he has been annoyed by chronic inflammation of the bladder. He found it necessary to void his urine four or five times during the night and the act of micturition

was accompanied by sensations of scalding or burning. His bowels have been constipated all the time, and he has slight gastric disturbance. About four years ago, slight spinal curvature began, being principally marked in the dorsal and lumbar regions. He finds it necessary to use a cane to support himself on account of his deformity. He has lost considerable flesh and complains of much pain of a neuralgic type, which radiates from the left lumbar region to left thigh and leg. About two years ago he noticed a "lump" in his abdomen which he could move around in various directions, and which he found gave him no trouble when it was pushed up under the left ribs as he expressed it. He stated that when he squeezed it a sickening pain was felt. After awhile he found that a canvas belt with a large pad on the inside of it kept the "lump" up in the left lumbar region. He said that occasionally this lump would slide down under the belt and being squeezed would cause him a great deal of distress. For a long while he has been unable to control his bladder and has found it necessary to wear a rubber urinal.

Bi-manual examination revealed a movable kidney, the outline of which could be easily made out as his abdominal walls were very flaccid.

An examination of his urine revealed pus and triple phosphates. A search was not made for tubercle bacilli. His spine was strongly curved to the right. Possibly there was some ankylosis of the lower dorsal vertebræ. The patient had no recollection of acute symptoms of spinal disease. His skin was dry and had a dusky hue.

Treatment previous to operation: I recommended him to drink freely of flaxseed tea and prescribed salol and boric acid  $\bar{a}\bar{a}$  5 grs., to be taken in a glassful of water (boiled) or in flaxseed tea every four hours during the daytime. I taught him how to pass a soft rubber catheter No. 9, and directed him to use it four times daily and told him to empty the bladder before retiring for the night.

A special apparatus was secured for him, with a suitable pad attached on the left side to keep the kidney in place. This failed to give him relief, *e.g.*, to support him as he desired, and so it was discontinued. He found that his old belt worked better. His bladder improved steadily and his annoyance at night almost disappeared.

He urged me to operate and either remove the kidney or fasten it in its normal position, and so I made the necessary arrangements. The indications were:

1. To relieve annoying pain, resulting from the kidney being squeezed.
2. To relieve bladder symptoms by straightening the ureter and relieving symptoms resulting from irritating urine in it and in pelvis of kidney.
3. Possibly to relieve weight from bladder and pressure upon bowels.
4. To possibly favor treatment of the spine.

Operation March 3, 1893: Chloroform anesthesia. The usual colotomy incision was made, the kidney pushed into its normal position, the capsule opened about one inch and the edges of the incised capsule sutured with silk sutures to the edges of the wound on either side, drawing the edges of the cut capsule as far outward as possible.

Three long silkworm gut sutures were passed through the kidney substance and through the muscles and fascia some distance from the edges of the

wound on either side and tied after inserting a twisted silkworm gut drain in the lower angle of the wound. The balance of the wound was closed with silkworm gut interrupted sutures, taking care to approximate the edges of the skin incision as neatly as possible. Beta-naphthol was sprinkled over the line of incision and bichlorid gauze and cotton applied. The patient made an excellent recovery.

Subsequent treatment: After the wound closed I decided to try and improve the condition of his spine. I advised Sayre's suspensory apparatus which he has used faithfully with good results. He is now more erect, the spinal curvature less marked and he feels better.

Once a week for about two months I washed his bladder out with silver nitrate sol. 2.5 per cent. This improved the condition of this organ very much, as he hardly ever expressed the desire to void his urine during the night after this treatment was begun.

He used the interrupted and continuous currents for some time and felt better, but electricity did not seem to assist the bladder as much as the silver nitrate sol. He now has some control over the bladder and can retain a moderate amount of urine. At night there is not the old inclination to void the urine, and taking everything into consideration, I feel that the operation has helped his condition a great deal.

#### DISCUSSION.

DR. D. W. GRAHAM—I would not consider in this case that the spine was in any degree the cause of the movable kidney. The Doctor is silent as to the pathologic condition of the spinal column; whether this was what we call scoliosis or whether it was disease of the vertebræ. But I do not see how the curve could be a cause of the condition of the kidney, although possibly it had something to do with it. In regard to the indications for operation, I think they were very clear in this case. It is in just this class of cases where anchoring the kidney to the muscles of the loin is followed by relief of symptoms and is of benefit to the patient. In the large majority of cases the right kidney is the movable one. I have had two cases of movable kidney on the left side; one this afternoon, and it seems to me in these two cases and the one reported tonight that the symptoms are more pronounced than when the right kidney is involved. I have seen a good many cases of movable kidney on the right side, but only one in which the symptoms were as pronounced and affected the health of the patient as much as in these cases of movable left kidney. We know that there are a great many cases of movable kidney, in which there is no necessity or indication for operation as far as symptoms are concerned. I have in mind a number of such cases. So it is not simply the presence of a movable kidney that calls for operation; it is the group of symptoms and their severity. The Doctor speaks of the kidney pressing on the bladder; that may be correct; it is possible. In one case where I operated the kidney was found hanging over in the pelvis, lying between the common iliac vessels. However, I did not determine that to be the kidney until I had opened the abdomen through the middle line. I then sewed up the wound and through an incision in the loin anchored the kidney in place. We know that the symptoms of cystitis and the symptoms the Doctor has described, as due to pressure of the kidney, may occur in any of these severe cases without having the kidney press upon the bladder. I am inclined to think the Doctor has drawn a wrong inference there.

As to the method of operating, there are three chief ones: one is simply stitching the fatty capsule to the muscles of the loin, but that method is being and should be abandoned. The other two methods differ a little in detail; one simply brings the kidney up against the wound and sutures it with two to four sutures through its substance to the borders of the incision. The other method consists in incising the fibrous capsule for a distance of an inch or an inch and a half and suturing the incised border of the capsule to the tissues. I prefer, having opened the capsule, to suture the edge of the fibrous capsule to the border of the muscle with absorbable sutures and then sew up the wound. I have seen a good many use silk and silkworm gut sutures to stitch the kidney to the lumbar wall. I do not understand why this is still

persisted in, because in the large majority of cases this material causes trouble; it leaves sinuses, and the stitches have to be removed at some future time. I am satisfied that it is not a question of the aseptic condition of the suture, because if one careful person can render silk or silkworm gut aseptic, another careful person can usually do it. With the help I have, I believe I can render silk or silkworm gut as aseptic as anybody can, and yet in the majority of cases where I bury silk in the tissues it gives rise to a sinus from which these sutures have to be removed. I am satisfied that the greater number of buried sutures of silk or silkworm gut require removal later. I am not speaking of the peritoneum, but of other tissues.

DR. GAVIN—In regard to the spine producing the movable kidney, Dr. Graham misunderstood me. I considered the curvature of the spine as tubercular in nature, and having caused the consumption of nearly all the fat of the body a lack of support to the kidney resulted. When I exposed the kidney there was very little fat about it, and I thought it extremely probable that the general wasting process favored the movable state of the kidney. I did not use catgut because I had no preparation that I could rely upon as being perfectly aseptic. I used buried silk sutures to connect the muscles together. I did not intend to state that I brought the skin directly in contact with the capsule, but the object was to bring the edges of the cut capsule as near the surface as possible and allow it to adhere to the muscular structure. The skin incision proper was closed with silkworm gut sutures, which were removed at an early date.

DR. SANGER BROWN—It appears to me that this is a very interesting case, but it is rather puzzling to get any satisfactory explanation of the relation between the spinal curvature and the kidney. I did not quite understand from the Doctor's paper that it was demonstrated the patient had tuberculosis, and it occurred to me in trying to think of cause of the curvature, that possibly the movable condition of the kidney and the irritation set up by that might excite atrophy or wasting of the muscle and in some way unfavorably affect the nutrition of the intravertebral substance, and in that way the spinal curvature be accounted for.

DR. A. E. HALSTEAD—I believe the ordinary explanation of cystitis in such cases is that the hydronephrosis which is usually present in movable kidney is always infective. I think that would explain all the bladder symptoms in this case. When the Doctor changed the position of the kidney and straightened out the ureter, the bladder symptoms disappeared, because the hydronephrosis was drained. I do not see any relation between spinal curvature and floating kidney.

DR. GRAHAM—I did not understand whether the Doctor's patient has tuberculosis of the vertebræ or any other disease of the bones.

DR. GAVIN, in closing the discussion, said: The patient had no active disease at the time I saw him; there was no evidence of a collection of pus. I thought possibly there might be a tubercular process in the bodies of the vertebræ.

## A CASE OF PAPULAR SYPHILIDE OF THE CONJUNCTIVA.

Read before the Chicago Pathological Society, Jan. 14, 1895.

BY W. FRANKLIN COLEMAN, M.D.

PROFESSOR OF OPHTHALMOLOGY, POST-GRADUATE MEDICAL SCHOOL OF CHICAGO.

As several of my confrères have never seen a secondary syphilitic lesion of the conjunctiva, and since, until recently, no case has come under my own observation, the disease seems sufficiently rare to demand that every instance of it be put on record.

Before reporting our own case, we will take a glance at the literature of the subject, to illustrate the infrequency and the nature of syphilitic disease of the conjunctiva (especially secondary lesions) and will refer chiefly to Bull's excellent resumé in 1878, and to writings indicated under the head of "Diseases of the Conjunctiva" in the "Index Medicus" from its first issue (1879) to date.

The following is taken from a paper by Charles Stedman Bull, M.D., in *American Journal Medical Sciences*, October, 1878:

"Syphilitic lesions of the conjunctiva, existing independently, and not connected with lesions of the eyelid on the one hand, or the eyeball on the other are not common. The syphilitic lesions of the conjunctiva are eruptions, ulcerations and infiltrations. Under the head of ulceration are the chancre and secondary ulcers resulting from the breaking down of infiltrated masses. According to Sturgis in his report of 1,646 tabulated cases of chancre, the ulcer occurred only six times on the eyelid. In some of the cases, the ulcer was purely a conjunctival lesion. Demarres had in his practice two cases of chancre of the conjunctiva, one palpebral, another in the inferior cul-de-sac.

Galezowski reports six patients with chancre of the conjunctiva, and Sturgis, Bumstead, Dietlen, and Bull one each.

An instance of syphilitic conjunctival disease is quoted from Smee, who calls it "conjunctival blotch," and three similar cases are given from Mr. French.

Lawrence cites two cases of general papular eruption in which there were a few pustules on the mucous membrane of the lids.

Bull says he has seen several cases of ulcerated mucous patches of the conjunctiva, and reports one. He remarks that secondary lesions of the conjunctiva, those occurring during the period of constitutional infection, are much more frequent than the initial lesion.

The papular syphilide at least, if more frequent than the chancre, is much less often reported. Bull does not quote a single case in his very full paper, and the "Index Medicus" gives only one by title.

A third variety of conjunctival lesion in constitutional syphilis is the gummy infiltration, and this is probably the least common of all.

Descriptions are given of conjunctivitis gummosa in the practice of Tavignot, Magnin, Hirschberg, De Wecker, Estlander, Brière and Bull.

Galezowski affirms that syphilitic affections of the conjunctiva are either chancres or mucous patches. If he intends to assert that the latter are identically the same as papules, the authority of Keyes will support it.

Laucereaux describes secondary lesions of the conjunctiva as small circumscribed spots, elevated, of a reddish gray or coppery color, not differing much from certain eruptions on the skin with which they may co-exist.

"The 'Index Medicus' refers to some thirty papers on the primary (ulcer) and tertiary (gumma) lesions of the conjunctiva, but to only one by title on the secondary (papular) lesions, viz., *Les papules syphilitiques de la conjunctive*."—*Gaz. Med. de Paris*, 1894, 9, s. I., 196–198.

Bull, writing on "System of Genito-Urinary Diseases, Syphilology and Dermatology," by Morrow, 1893, divides the syphilitic diseases of the conjunctiva thus: conjunctivitis; secondary lesions; mucous patches; ulcers; gummata.

Loring, in a chapter contributed to Bumstead on "Venereal Diseases," 4th Ed., says: "The ocular conjunctiva is very rarely the seat of syphilitic manifestations." He quotes from Savoy, (Paris, 1876), a case of syphilitic papule developed upon the ocular conjunctiva 3 m.m. above the cornea. The patient contracted syphilis six months previously, and had a lenticular eruption on the whole body. Two similar cases are given from Horteloup and Laibler.



Secondary syphilis gives rise to secondary skin affections of the conjunctiva, which attend it on other parts of the body. (Swanzy, "Diseases of the Eye," 1892).

In cases where the face is the seat of papular or tubercular eruptions, a corresponding condition may at times, though rarely, be observed upon the lining membrane of the lids (De Wecker). The papular syphilide appears from the third to the sixth month. Unless they ulcerate, the papules leave no scars. They frequently leave pigmented areas behind (Keyes).

The following notes of my case are incomplete, as the patient unexpectedly discontinued his attendance:

N. T., age 24, male, colored, came to my clinic at the Charity Hospital in November, 1894, on account of an inflammation of the left eye, which had somewhat annoyed him for a week, with a feeling as if something had got into his eye. At the limbus of the cornea were four nodules implanted in the conjunctiva; one on the nasal side, one on the temporal, and two below and within 3 m.m. of each other. The lateral nodules were 4 m.m. in diameter by 2 m.m. in height. The lower 3 m.m. in diameter by 2 m.m. in height. All circular, with a finely granular apex, and of the red color of granulation tissue. The papillary reaction, the iris and the cornea were normal. V = 20-50. The refraction was not tested. In the vicinity of the nodules there was moderate hyperemia of the conjunctiva. Very little pain had been complained of. Two very small ulcers (1 m.m. in diameter) were situated on the outer third of the anterior edge of the upper lid. The pre-aqueal glands were not enlarged. A history was given of the appearance on the face, at the age of 13, of an eruption which disappeared and left no pitting and relapsed once in about three years. During July last he contracted a chancre, which was followed by swelling of the inguinal glands, and a secondary papular eruption on the skin. The cheeks and forehead presented a thickly covered, mixed acne-like and papular eruption, arranged here and there in somewhat irregularly concentric groups. Numerous depressed hyper-pigmented scars were scattered among the papules. The covered parts of the body were not examined.

During the second week of treatment the papules of conjunctiva diminished one-half in size, and around the two lower edges of the conjunctiva a pigmented zone was first seen.

The diagnosis of a secondary papular syphilide of the conjunctiva was based upon the syphilitic history of the case, the associated papular syphilide of the face, the exclusion of other lesions of the conjunctiva, and the rapid resolution of the nodules without ulceration under the mixed treatment and the application to the eye of an ointment of hydrarg. ox. rub. grs. ii, vaselin 3j rubbed in for five minutes daily, by massage of the lids.

The patient was referred to Dr. Baum, Professor of Dermatology, Post-Graduate Medical School, who confirmed the diagnosis and prescribed the constitutional treatment. The rapid progress toward recovery (in two weeks) probably accounts for the early vanishing of the possessor of our rare specimen.

#### DISCUSSION.

Dr. C. D. Wescott—As Dr. Coleman has said, these cases are very rare; it has never been my fortune to see one such as the Doctor has described. The only syphilitic lesions of the conjunctiva I have seen are the simple chancre, of which I have seen one case, and one case of gumma. It does not seem possible that there can be an error of diagnosis in this case. I do not know of anything that affects the conjunctiva which would give a similar appearance, even without the confirmative syphilitic history and other lesions. I congratulate the Doctor on having had an opportunity to observe such a case.

Dr. F. W. Coleman—I would say with regard to chancre that they are not so very infrequent upon the edge of the lid, and chancres upon the lids might be easily mistaken for epitheliomata. I have had the misfortune to remove from the lid what I thought was an epithelioma and had a chancre turn up very near it within ten days, which was cured

with iodid of potassium. This case, by the way, was diagnosed by the syphilologists as an epithelioma. Gumma is not so rare although it seldom manifests itself in the conjunctiva, but not so rarely in the iris and ciliary body involving the sclera and therefore appearing externally as a nodule. That the Doctor does not refer to. The gumma that limits itself and is situated primarily in the conjunctiva is an excessively rare disease. Up to 1878 Bull makes a resumé of all the cases he has had access to and describes them fully, but does not describe a single case of papule. The "Indicus Medicus" from 1879 to date only records a single case by title of papule of the conjunctiva.

Dr. C. W. Hawley—Speaking of gumma of the conjunctiva reminds me of a case I saw in a hospital in Europe, which was diagnosed gumma of the conjunctiva and was treated with mercurials very faithfully for a long time, but it did not seem to improve and finally the surgeon concluded to operate upon it. When he made his incision through what he at first supposed was a gumma he removed three pieces of putty. It was impossible to get any history of how the putty came there, the patient said she did not know; either she did not want to tell or did not know how it got there.

### A CASE OF TACHYCARDIA COMPLICATING CHLOROFORM ANESTHESIA.

Read before the Louisville Academy of Medicine, March 18, 1895.

BY HENRY E. TULEY, A.B., M.D.

CLINICAL ASSISTANT TO CHAIR OF PRACTICE KENTUCKY SCHOOL OF MEDICINE; VISITING PHYSICIAN TO THE MASONIC WIDOWS AND ORPHANS' HOME, ETC.  
LOUISVILLE, KY.

The following is the report of a case of tachycardia, complicating chloroform anesthesia. The man was a patient of Dr. Mathews, and was to be operated upon for fistula. He was about 30 years of age; a strong, vigorous man, and a good subject for chloroform anesthesia. The following previous history was detailed after his regaining consciousness. He had had repeatedly, attacks of heart trouble, a greatly accelerated heart's action being the chief symptom, with once or twice loss of consciousness during the attack. He is a slave to smoking, using the strongest tobacco, uses liquor sometimes to excess and drinks strong coffee. Face was florid, but heart's action normal, pulse 84, with no organic lesion. He was very nervous when he got on the table, and asked that his heart be examined but said nothing of his previous history. The anesthesia was begun at 3:06 P.M., with chloroform, on the Esmarch inhaler, drop by drop method. The exciting stage was quite severe, the chloroform was pushed and in three minutes he was relaxed, it having taken 2 5-10 drachms to bring him to the surgical degree, taking fourteen minutes; in all 5 drachms were used.

The operation was begun at 3:20 P.M.; the pulse and respiration were normal. At about 3:42, after the operation was nearly completed, the chloroform mask was removed, as the pupils were well contracted and the patient fully anesthetized. At 3:44 without any warning whatever, the pulse from an even regular one of about 80 or 90 suddenly began beating too fast to count, more than 200. The respirations remained unimpaired. We administered 1-100 grain of nitroglycerin hypodermatically, the dressing was hastily applied and the patient put to bed. While his pulse was in this condition and before he was removed from the table he raised his head and said: "Well, I'm glad I'm through with that chloroform." During the next hour 1-25 grain of nitroglycerin was administered, 1-100 grain of atropia and 1-32 of strychnia, without any effect as to lessening the rapidity of the heart beats. Hot water bags were applied to feet, and over the heart. Only at one time, and then for only four or five minutes, did he complain of dyspnea. He was convinced of the fact that he was going to die. The radial pulse all of this time, one hour, felt as if there were a constant current of blood under your finger, no pulsation was distinguishable, but the ventricular contraction was easily made out, much too rapid to count. His respirations were unimpaired, breathing through his nose, skin relaxed and moist, mouth dry from the atropia and finger nails pink. He was seen at 4:20 by Dr. Marvin in consultation; ¼ grain of morphia was given at his suggestion hypodermatically, ice was substituted over the precordia, and in twenty minutes the pulsations could be felt, not counted at the wrist, but the ventricular contractions could be counted 160 to the minute. His pulse remained in this condition until 7 P.M., when it

again became rapid, beating 200 to the minute. A second dose of morphia,  $\frac{1}{4}$  grain was given hypodermatically, and at 8 P.M., his pulse was 97, and the patient sleeping quietly, having vomited some water which had been taken in the shape of crushed ice. During the night he slept at intervals and the hourly pulse was as follows, beginning at 7 P.M.: Two hundred, 97, 98, 92, 88, 80, 80, 81, 78, 78. At midnight one teaspoonful of aromatic spirits of ammonia was given.

The case seems to be a unique one as well as instructive. Here was a man who apparently was a good subject for anesthization and without warning the above complications arose. It teaches us that the rule laid down by most authors as to the careful watching of the respiration alone is erroneous. Had this man's condition not been noted, and the operation only partially completed, and had more chloroform been given, I believe he would have died. Hence the practical conclusion, watch the heart always, as well as the respiration. The second lesson is the danger of being too zealous in the application of restoratives, owing to anxiety as to the safety of your patient. There was in all probability too much given this man.

This case is entirely unique in the writer's experience, nor have I seen any such case in the literature of the subject.

#### DISCUSSION.

DR. BAILEY—The subject of anesthesia is a big one. As to the case reported, I would criticise it first, because Dr. Tuley said the patient was a vigorous healthy man; I find these the worst cases. I think his condition was peculiar and not developed by the anesthesia in the light of his present condition.

There was a bad nerve force present. As to the management of the case, with the rapid heart, nitroglycerin should not have been given. I should rather have chosen digitalis or digitalin because of its influence on the inhibition. I should have used moderate doses of morphia—should not have ventured 1-4 grain but have given 1-8 grain and waited for effects.

I think constantly of the possible evils of the Hyderabad Commission, in recommending that the respiration be watched and not the pulse. Notwithstanding that report, I am more anxious to watch the pulse, and I endeavor to look after both. I disregard the pulse in etherization, but not in chloroform. I am sure I have given chloroform in more than one thousand cases, and I am firmly convinced of that fact.

DR. F. C. WILSON—The case reported is an interesting one and shows the necessity of careful watching. To watch the pulse and respiration both, the anesthetist has his hands full. He should also watch the countenance. Anesthesia must be profound in operations upon the rectum, and because of that fact the danger is enhanced. If the previous attacks had been known in this patient, in all probability the case would have been watched for a recurrence, but I doubt if the case could have been watched more closely, or the tachycardia noticed earlier than was done by Dr. Tuley. Like Dr. Bailey I should not have given nitro-glycerin, but think that digitalin was indicated; strychnia also, as was given, morphia and perhaps spartein; the latter given previous to the administration of the anesthetic fortifies the heart, and those cases in which I have used it have done well, the heart maintaining its strength throughout the anesthesia.

DR. BAILEY—I would like to state that as to complete anesthesia, it is difficult to bring anesthesia to a proper stage for division of the sphincter, and there apparently is pain. Lauder Brunton said that no operation should be done unless there was complete anesthesia. It may be possible that the case was not fully anesthetized, and the reflex caused the tachycardia. No operation should be done unless the anesthesia is complete.

DR. VANCE—I believe that in local anesthesia the shock is not so profound. We used to see great shock from the removal of a toe nail under general anesthesia. Since cocaine has been introduced we see less of it, the nerves are benumbed locally, and they are prevented from transmitting any shock. I believe that all operations should be done under complete anesthesia. The greatest accidents are

when we operate under primary anesthesia. Local anesthesia proves that the shock is reflex, as it is in the division of the rectum.

DR. W. C. CHAPMAN—It has been noticed how frequently tachycardia occurs in tobacco users. I never examine tobacco users that I don't find them with a pulse rate of ten to twenty above normal. Tachycardia is not present at all times, and may be brought on by other causes, as a latent malaria may develop after a surgical operation, so an indigestion and excesses may cause tachycardia.

DR. DUGAN—I have had two fatal cases under chloroform anesthesia. Neither used tobacco, for they were both ladies; both occurred within a week of each other. The first one was an operation for ovariectomy; there was only one inhalation, the patient called for "a candle, a candle," being a Roman Catholic, in one breath. The lips became livid, the heart's action stopped. I thought that perhaps it was partially from pressure by the large tumor, and plunged my knife through the abdominal wall and relieved that by letting out the fluid, but the patient never rallied. This case was on Sunday, and the following Tuesday I wished to divide a rectum for fissure. The patient was not excited, her heart was good, pulse regular. She was rather inclined to be fat, but took the anesthetic like a baby. When Dr. Guest said she was ready, I introduced my thumbs and divulsed; there was no pain, no resistance, chloroform was withdrawn, and the patient was sponged off. In half a minute, Dr. Guest seemed concerned, and said the patient was not breathing well. I noticed some lividity of the face. She was suspended, artificial respiration performed, and at no time during the forty-five minutes we worked with her did she show pulse or respiration. She was healthy, a non-tobacco user, and drank little tea or coffee. We can not tell when these cases will do badly. The shock could not have been due to the division, and Dr. Guest estimated that only 30 minims had been used altogether.

DR. J. B. BULLITT—Dr. Wright, of Bowling Green, has in the last few months reported several cases of the new-born asphyxiated, in whom respiratory effort was established by the introduction of the tip of the index finger in the anal orifice, producing thereby a dilatation of the sphincter. There was complete asphyxiation, absolutely no respiratory effort, but immediately on dilatation of the sphincter and respiration was established and the infant began to cry lustily. He also suggested the adoption of similar means to restore respiratory effort in unfortunate cases of anesthetization. This fact would appear to throw some light on the subject in hand. It is generally conceded that death from chloroform occurs primarily from respiratory failure, the heart failure being secondary. It hardly seems probable that dilatation of the sphincter and could produce respiratory effort on the one hand (asphyxia neonatorum) and yet produce a paralysis of effort on the other (chloroform narcosis). There seems to be here an incompatibility of effects. It would seem probable, that what really happens is this: division of the sphincter before narcosis is surgically complete causes deeper respiratory effort, thereby a largely increased amount of the anesthetic is thrown suddenly into the circulation, so that the centers are overwhelmed and respiration suddenly ceases. It is not the "shock" *per se*, that has done the mischief, but its respiratory effects. In such a case, if the anesthetic were withdrawn and the division of the sphincter and again practiced, it would seem quite probable that respiratory effort would again be stimulated as suggested by Dr. Wright.

DR. RODMAN—We never know when accidents will occur. If deaths are more likely occur from partial anesthesia, why do they not occur without any anesthesia in minor operations? Certainly if a little pain is so dangerous, we would have many deaths where no anesthetic is given. I do not believe Dr. Bailey's explanation the true one. I think it is best to have light anesthesia in the condition of shock. I am satisfied that the danger is in proportion to the amount of chloroform vapor in the blood at any given time. There have been more deaths reported in the last few years than ever before in the history of chloroform. In Germany, chloroform used to be given almost exclusively, but ether is now being extensively used. There have been five or six deaths in Louisville in the past eighteen months from chloroform, and there were none for five years previous that I remember. It may be that the chloroform we use now is not so good, but the chemists say it is better. A statement was made recently by the Professor of Therapeutics in the Johns Hopkins Hospital, that if we give chloroform to a dog once it bears it well, and will have no bad effects, but if it is given the second time it kills, but this is not so of ether.

Hare, in a paper on chloroform, makes the statement that instead of lowering the head it should be thrown forward as that position opens the epiglottis. Notwithstanding chloroform has been a favorite in Louisville for so many years. I am an advocate of ether. It can be incontestably shown that ether is safer than chloroform:

DR. I. N. BLOOM—The history of anesthesia shows ether to be the safer. It is rare that death occurs in complete anesthesia. Statistics will prove this.

DR. DUGAN—I would like to add that I saw a patient operated on by Dr. Weir for a nephrectomy, die under the anesthetic, having taken it twenty-one times before.

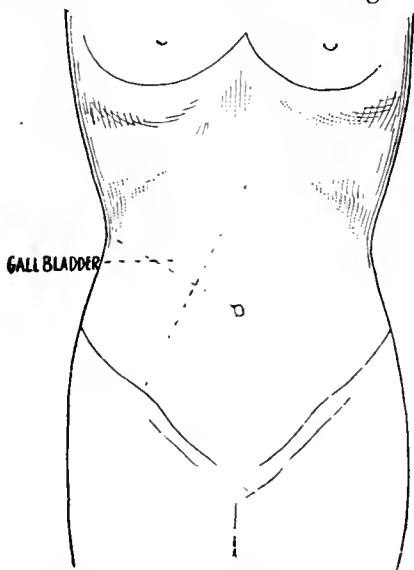
DR. TULEY—I simply want to state that nitro-glycerin was given in the case reported, because there was a good effect noticed from it, in that the pulsations at the wrist could be felt after each dose. Digitalin was thought of but none was at hand. The divulsion was practiced without causing any impression upon the patient.

## THE NORMAL SITUATION OF THE GALL BLADDER IN MALES.

BY JOHN B. HAMILTON, M.D.

CHICAGO.

To find the gall bladder, draw a line from the anterior superior spinous process of the ilium to the center of the xiphoid appendix. Intersect this with a line from the umbilicus to the tenth costo-cartilaginous junction.



tion. In the right upper triangle near the apex, but nearer the right oblique line, the fundus of gall cyst will be found. A needle thrust through the abdomen at the point indicated, will usually transfix the gall bladder. The position of the gall bladder varies with the changes in the position of the liver; in enlargements it is pushed downward, and in some cases deflected to the right.

## ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.  
NEW ORLEANS, LA.

(Continued from page 520.)

### CHAPTER VIII.

#### EFFECTS OF JAUNDICE UPON THE FREQUENCY OF THE PULSE.

Case 1.—Malarial fever, dysentery and jaundice. A. F., age 32; native of Germany. Entered Charity Hospital Dec.

29, 1875. Had had intermittent fever. Says that he has been sick with intermittent fever and dysentery for fourteen days. Upon entrance presented a pale sallow, bloodless hue, and suffered from painful discharges from the bowels, of mucus and blood at regular intervals. On January 1, the patient showed a distinct yellow tinge of the skin and conjunctiva of the eyes, which gradually increased to the most intense jaundice in the course of ten days. The urine was heavily loaded with bile, but free from albumin. The pulse which had been rapid and feeble, ranging from 100 to 120, became much slower after the supervention of the jaundice. The effect of the bile in the blood upon the frequency of the pulse is shown in the following table:

Date.	Pulse.		Resp.		Temp.	
1875	M.	E.	M.	E.	M.	E.
Jan. 13	...	70	...	...	...	99 °
14	...	70	...	32	...	101
15	...	80	...	36	...	100
16	70	80	28	32	99 °	101
17	100	100	24	32	101	104
18	80	92	32	32	98	102
19	70	92	24	32	99.5	103.5
20	72	80	28	36	99.5	103.5
21	80	88	20	20	98.5	103.5
22	76	84	24	24	99.5	101
23	76	72	32	24	99.5	100.5
24	72	68	28	28	99.5	100
25	...	80	...	20	...	99.5
26	72	72	36	40	97.5	98.5
27	72	76	40	36	99.5	99
28	60	72	36	32	98.5	100
29	72	64	32	32	99	99.5
30	60	64	28	36	99.5	100
31	...	68	...	32	...	99
Feb. 1	68	68	40	32	99.5	99.5
2	68	...	32	...	98.5	...

The periodic variations of the temperature in this case were regarded as the result of the action of the malarial poison. It will be observed that in this case after the supervention of jaundice, the pulse was only 100, with a temperature of 104 degrees F., and on January 20, the pulse was only 80, with a temperature of 103.5 degrees F. On the 30th the pulse was only 60, notwithstanding the continuance of the dysentery, with frequent discharges from the bowels.

The treatment of this case consisted mainly in the rigid adherence to milk and rice diet and beef tea, and the employment at regular intervals of a mixture of quinin, subnitrate of Bismuth and Dover's powder; in the proportion of 3 grains each of quinin and Dover's powder, and 10 grains subnitrate of bismuth, every three, four or six hours. These powders were also alternated with a simple mixture of syrup of morphia and subnitrate of bismuth, or with a mixture composed of equal parts of the tinctures of catechu, opium, camphor, capsicum and Peruvian bark, a teaspoonful in a wineglass of water every three or six hours. Port wine and alcoholic stimulants in small quantities were also found to be beneficial. This was a protracted and tedious case, but the patient was finally restored to health and was discharged in the month of March.

Case 2.—Malignant scarlet fever attended with jaundice; slow pulse, recovery. Adam Grethiel, age 19; native of New Orleans. Entered Charity Hospital Feb. 11, 1876. February 11, deep scarlet eruption; where the eruption is not very great the skin presents a yellowish tinge. Conjunctiva of eyes yellow. Mucous membrane of throat and tonsils swollen and ulcerated. Tongue dry and red; patient swallows with difficulty; hemorrhage from the mouth and gums; wild delirium; necessary to confine the patient to bed. Has been sick about one week. Abscesses are beginning to form near the elbows and at the extremities of the fingers; P.M., pulse 100, respiration 48, temperature 103.5. February 12, A.M., pulse 100, respiration 36, temperature 102; P.M., pulse 108, respiration 28, temperature 103. Desquamation is beginning, and as the scarlet color diminishes, the deep yellow color becomes more manifest. February 13, A.M., pulse 100, respiration 36, temperature 100; P.M., pulse 124, respiration 36, temperature 103.5. February 14, A.M., pulse 88, respiration

tion 28, temperature 100; P.M., pulse 100, respiration 32, temperature 99. The pulse continued to decline in frequency and on the 16th was 72, with a respiration of 24 and temperature 101. It would consume too much space to present the numerous details relating to the pulse, respiration and temperature in this case; the pulse, however, continued to grow slower notwithstanding the condition of the throat and the formation of abscesses and on the 19th the pulse was 68, respiration 24, temperature 101; on the 22d, pulse 64, respiration 20, temperature 100.5. The patient finally recovered entirely.

*Case 3.*—Pneumonia, with intense jaundice; albumin and bile present in the urine, chlorids absent; frequency of the pulse diminished by the bile in the blood. John T. Webb, age 37, native of Maryland. Has resided in New Orleans for eighteen months. Entered Charity Hospital January 8 in a restless sleepless state and apparently suffering from alcoholism. Patient states that he "had been drinking very hard before entering the hospital." The bowels were opened with the compound cathartic pill (U. S. P.), and the nervous agitation was measurably relieved by bromid of potassium in combination with liquor ammoniac acetates. On January 10, the patient complained of pain in the right side, with cough and oppression of breathing. Dullness upon percussion, with crepitation over lower and middle lobe of right lung. Pulse and respiration greatly accelerated, temperature elevated. January 11, evident marks of pneumonia of right lung; the conjunctiva of eyes and skin present a distinct yellow tinge. January 12, jaundice well marked, high fever, pulse decreasing in frequency, falling from 130 to 112. Bile and albumin present in urine, chlorids entirely absent. There is no hepatic tenderness.

January 13, cough, pneumonic sputa, headache, pain in back and limbs; no hepatic tenderness, albumin and bile in urine, chlorids absent. Skin of a golden yellow color, conjunctiva of eyes yellow. Patient complains of great depression of spirits and restlessness. At 8 A.M., pulse 100, temperature of axilla 101. 14th, A.M., pulse 128, respiration 32, temperature 99; P.M., temperature 102. 15th, P.M., pulse 100, respiration 32, temperature 99.5; P.M., temperature 100.5. 16th, A.M., pulse 100, respiration 20, temperature 99.5; P.M., pulse 109, respiration 32, temperature 99. 17th, A.M., pulse 108, respiration 28, temperature 100; P.M., pulse 112, respiration 24, temperature 101. 18th, A.M., pulse 88, respiration 24, temperature 98.5; P.M., pulse 100, respiration 32, temperature 101. 19th, A.M., pulse 100, respiration 28, temperature 100; P.M., pulse 100, respiration 24, temperature 102. 20th, A.M., pulse 100, respiration 32, temperature 99.5; P.M., pulse 100, respiration 28, temperature 101. 21st, A.M., pulse 84, respiration 32, temperature 98.5; P.M., pulse 88, respiration 32, temperature 101. 22d, A.M., pulse 80; respiration 32, temperature 98.5; P.M., pulse 100, respiration 40, temperature 101.5. 23d, A.M., pulse 72, respiration 32, temperature 98.5; P.M., pulse 92, respiration 32, temperature 101.

Convalescence was tedious in this case, but the patient was discharged on the 23d. In the intensity of the jaundice and in the presence of albumin in the urine this case upon a superficial examination resembled yellow fever. The effect of the bile in the blood on the action of the heart will be still further evident by comparing the variations of the pulse and temperature in the three preceding cases, with the three following:

*Case 4.*—Pneumonia of right lung, rapid pulse, rapid respiration and elevated temperature—fatal issue. Thomas Gegan, age 20, native of Ireland, baker. On Feb. 10, 1876, went to sleep on cold ground, and on awakening suffered with severe pain in the right side. Entered Charity Hospital Feb. 17, 1876. He says that he has been sick with fever and severe pain in the right side for five days. February 17, evening, pulse 140, respiration 48, temperature 105.5 F. Some pain in right side, with cough but little expectoration; sputa contains much pus mixed with the rusty colored fibroid matter. Crepitation and dullness over right lung and over lower lobe of left lung. A cavity is evidently forming in the infraclavicular region of the right lung. Percussion gives the cracked-pot sound, and auscultation reveals amphoric respiration. The purulent matter comes from this cavity in great measure. February 18, A.M., pulse 140, respiration 44, temperature 105.5; P.M., pulse 128, respiration 40, temperature 106. No albumin in urine, bile present, chlorids wholly absent; specific gravity 1010. 19th, A.M., pulse 140, respiration 36, temperature 104.5; P.M., pulse 140, respiration 36, temper-

ature 104.5. 20th, A.M., pulse 146, respiration 48, temperature 106; P.M., temperature 103.5. 21st, A.M., pulse 140, respiration 36, temperature 105; P.M., pulse 140, respiration 24, temperature 103.5. 22d, A.M., pulse 148, respiration 28, temperature 105; P.M., pulse 144, respiration 24, temperature 104.5. 23d, A.M., pulse 120, respiration 28, temperature 103.5. On the 20th the patient became delirious, with occasional lucid intervals and died on the 23d.

We might greatly multiply such cases, but they have been illustrated in the first volume of my "Medical and Surgical Memoirs."

*Case 5.*—Chronic malarial poisoning and intermittent fever, illustrating the rapid circulation in this disease. J. Hogan, age 29, native of New Orleans, carpenter, admitted to Charity Hospital Oct. 21, 1875; has been working on Baker River, Louisiana, and has suffered with intermittent fever for two months. October 23, sallow anemic complexion, presenting a dusky greenish-yellow color; has fever as in chronic malarial poisoning. A.M., pulse 122, respiration 32, temperature 103.25; P.M., temperature 102. 24th, A.M., pulse 128, respiration 36, temperature 103; P.M., temperature 101.5. 25th, A.M., pulse 130, respiration 24, temperature 101.5; P.M., temperature 101. 26th, A.M., temperature 100; P.M., temperature 102. 27th, A.M., pulse 100, respiration 24, temperature 101.5, P.M., temperature 102. On October 25 I administered to this patient, in addition to the full doses of quinin, tincture of digitalis. The reduction of the frequency of the pulse was marked and rapid. In this case with a temperature of 101.5, the pulse reached 130 beats per minute. The urine was high colored, but contained no albumin.

Case of circumscribed pneumonic pleuritis; rapid pulse; fall of pulse after effusion into pleura and lungs. George Allen, sailor, entered Charity Hospital Jan. 18, 1875. January 19, pain in left side; hurried respiration; pleuritic friction sound and crepitant râles in lower and middle lobes of left lung; delirium. A.M., pulse 150, temperature 103.6. 20th, A.M., pulse 120, respiration 45, temperature 101.5. 21st, A.M., pulse 112, respiration 36, temperature 99. The urine was loaded with urates but contained no chlorids. Albumin absent. The dullness upon percussion increased, effusion has taken place and with it the temperature has fallen and the pulse has become slower.

January 22, A.M., pulse 72, respiration 20, temperature 97.7. 23d A.M., pulse 72, respiration 25, temperature 97.8. The delirium and mental aberration continued for four days and was followed by two days of sleep and drowsiness. Patient recovered.

It will be observed that in this case of circumscribed pleuro-pneumonia the pulse was 150, with a temperature of 103.6 degrees.

*Case 6.*—Typhoid fever and double pneumonia, rapid pulse, high temperature; death on thirteenth day of disease. Thomas Feverson, age 22, native of Norway, sailor. Has been in New Orleans during the past five months; came direct from Europe. Entered Charity Hospital Feb. 1, 1876. At time of entrance had fever, which was wholly uninfluenced by quinin which was daily given for four or five days without any manifest effect. February 4, P.M., skin hot and dry; dichrotic pulse, 160 per minute, respiration 28, temperature of axilla 103.5. Dullness upon percussion over lower lobes of both lungs, with crepitant râles and rusty colored sputa. Epistaxis, delirium, subsultus tendinum. Tenderness in right iliac region, with some gurgling; bowels slightly tympanitic; stools not frequent but loose. Passed excrement and urine in bed; sordes on teeth; tongue red and dry, not furred. The tympanitis has been greatly relieved by turpentine stupes over chest and abdomen. Chlorids absent from urine; high color. Albumin present in small quantities in urine. February 5, ninth day of disease, morning, pulse 100, respiration 24, temperature of axilla 100. February 6, tenth day of disease, morning, pulse 100, respiration 20, temperature 100; P.M., pulse 112, respiration 32, temperature 104. 7th, A.M., pulse 120, respiration 36, temperature 102; P.M., pulse 130, respiration 40, temperature 106. 8th, A.M., pulse 120, respiration 40, temperature 103.5; P.M., pulse 136, respiration 48, temperature 106. 9th, A.M., pulse 160, respiration 40, temperature 104. Patient died February 9, at 12 M.

Autopsy twelve hours after death. Thorax: Heart normal, cavities contained no blood. Lungs: right lung did not collapse when the pleura was opened; lower lobe in second stage of pneumonic inflammation, left lung adherent to walls of chest by old pleu-



ritic effusion. Lower lobe like that of right lung, congested and solidified and in second stage of pneumonic inflammation.

Abdominal cavity: liver, spleen and kidneys normal. Gall bladder distended with bile. Peyer's patches in ileum, prominent with ulcerations; solitary glands of small intestines and especially of ileum enlarged and ulcerated. White deposits in Peyer's gland and solitary glands.

In a case of yellow fever, which terminated fatally in the month of November, in the ward directly opposite to the one in which the preceding case was located, the temperature on the third and fourth day of the disease reached 104, while the pulse never exceeded during this period 100. This case (Martin H. King, a native of Ireland, age 26) terminated fatally on the fourth day; and the post-mortem examination revealed the characteristic lesions of yellow fever; fatty yellow heart, liver and kidneys; black vomit in stomach; mucous membrane of stomach highly congested.

(To be continued.)

## SOCIETY PROCEEDINGS.

### Proceedings of the First Meeting of the American Academy of Railway Surgeons.

Held at the Grand Pacific Hotel, Chicago, Ill., Nov. 9 and 10, 1894.

(Concluded from page 448.)

#### The Academy then discussed the subject of INJURIES OF THE TENDONS IN RAILWAY ACCIDENTS.

THE CHAIRMAN—Inasmuch as none of the essayists are present, we will proceed to a general discussion on this subject. Nothing troubles me more than injuries of the tendons. I want to hear what the members have to say. I expect to get some wheat and a lot of chaff as usual, but I will try and save the wheat.

DR. R. HARVEY REED—There is no question but what the subject of injuries of the tendons is one that is important to the railway surgeon. I do not think in any of the previous meetings of railway surgeons that I have attended in this country that this question has been discussed. Not a paper has been written on the subject, and yet at the same time the surgeon every now and then encounters a case of injury to the tendon that gives him more or less trouble. A traumatism to a tendon is bound under ordinary circumstances to give permanent injury, and where permanent injury occurs to a person riding on a railroad it usually means damage and loss of money to the company. We may have a tear of the tendon from its insertion; we may have a rupture in the body of the tendon itself. These are the two most frequent injuries I have met with or that are taught in our text-books, although there are other varieties, but in the treatment of injuries of tendons our text-books nearly all advise placing the arm or leg in a position in which the muscles can be relaxed, placing the tendon in the most relaxed position and keeping it there until the reparative process takes place. In my experience that is absolutely impractical, and I think if we rely on our success in treating cases in this way we will find ourselves defeated in our object. In the first place, you can not hold any tendon of any consequence in its place by a bandage. In the second place, if you bandage the tendon tight enough to come near holding it you cut off the circulation and if you do that you interfere with nature's process, and you can not have a normal reparative process. We recognize this as an important matter and one which we should seriously consider. When we have a simple tear of a tendon we should make it a compound injury instead of a simple one. With the present advantages offered us by antiseptic and aseptic surgery, I think we are justifiable in making a simple injury of this kind a compound one. It is our duty to explain to the party injured the importance of doing so and the danger of permanent injury if it is not done. If we had a tear, a fracture, a solution of the continuity of the tendon in the middle part of it, we may have so much contraction as to be unable to bring the two ends

of the tendon together. Then what are we to do? We are taught to build a bridge of catgut between the two points and we would expect a reparative process to go on the same as in bone or sponge grafting. We bring the two ends of the tendon together with catgut and therefore aid the reparative process and fill up the space with connective tissue. The difficulty with this method is to get your catgut sufficiently strong so that it will bear the tension brought on it by the muscle—i.e., the biceps or the gastrocnemius, as the case may be. It is quite difficult to get enough catgut interlaced to hold the tendon solid without destroying so much tissue in the tendon as to impair or even prevent the reparative process and thereby induce sloughing of the ends of the tendon. If you get the catgut to remain in its place you are liable to have adhesions of the sheath of the tendon, and are liable to set up thecitis, and have these adhesions extending from the sheath of the tendon to the muscles, thus impairing the activity of the tendon which we desire to obtain if possible. I think the better plan is to lengthen the tendon by the ordinary methods, which you all understand, of cutting into the tendon above at this point (illustrating), and cut down near the end, turn the piece around and do the same way below, bring the two parts together, and it requires only a few short sutures to hold them in place; at the same time you lengthen the tendon. Instead of building in a bridge of catgut you simply lengthen the tendon with its own substance, and the reparative process goes on satisfactorily. On the other hand, if you have to suture the tendon in order to bring it together, I prefer silkworm gut to catgut or silk, as the silkworm gut is stronger and less liable to become septic, and when put in position it remains unabsorbed for a long time. I have had very satisfactory results from its use. It seems to me with all of these different methods—any one of which you may adopt—it is highly important that you warn the patient against the possibilities of impairment of motion in cases of this kind. I recall a case I was called to treat a few months ago. In attempting to lift a barrel of salt, a railway employee tore the tendon of the long head of the biceps from its insertion. I made an incision in a line with the normal position of the tendon, beginning the incision just below the fibers of the deltoid and extending it downward some two inches. I found the muscle contracted, and the tendon coiled up with the belly of the muscle midway between the shoulder and the elbow. After fishing out the tendon I passed a strong double silkworm gut ligature through it, which I attached to a long needle. I carried this needle up the groove for the tendon under the deltoid and pectoralis major fibers to its normal point of insertion where I firmly anchored it subcutaneously. By this method I replaced the dislocated tendon besides anchoring it firmly at its normal point of attachment. By placing the arm in a Velpeau bandage the muscle was relaxed and the result was a speedy and very satisfactory recovery, with good use of the arm.

DR. R. S. HARNDEN, of Waverly, N. Y.—I desire to express my pleasure at hearing the remarks of Dr. Reed in regard to this subject. It seems to me important, simply from the fact that it has received so little attention, also because of its importance with regard to the prospective feature of damages to railway companies. Some ten or twelve years since I undertook to suture tendons and, while I think at that time we were usually advised against suturing them, I undertook to go against that advice. I sutured the tendon in a case to relieve the patient from deformity and I had the usual result, I suppose—a thecitis which alarmed me—and I proceeded to take out my suture and made up my mind that I would never use one again. I thought I had acted unwisely in going against what I supposed was authority in the matter. This subject was held in abeyance by me until the advent of aseptic treatment. Since that time I have used sutures in tendons with invariably good results, and I have become satisfied that the suturing of tendons is not only feasible, but proper, whether authority in the past has recommended it or not. The method of suturing tendons to overcome the natural shortening and contraction, as Dr. Sayre puts it, is something original. I would like to ask the Doctor if it is not a new method of suturing?

DR. REED—Yes, it is a comparatively new method.

DR. HARNDEN—It overcomes the natural method of shortening in a tendon. I would also emphasize the use of antiseptics and experimentation in this direction, because I think this subject may still become more important and useful to us.

DR. F. H. CALDWELL, of Sanford, Florida—I do not have a great deal of this work to do, but I have sutured some tendons, and have to report in a majority of cases that I have

given relief to the unfortunate ones. By releasing the tendon from its surrounding adhesions I have been enabled to render the limb fairly useful, after making a resection and by suturing. I have never tried the plan mentioned by Dr. Reed of lengthening the tendon.

DR. F. H. PECK of Clinton, N. Y.—In incised wounds of tendons it is a very simple thing to put in a buried suture, making an end-to-end approximation of the tendon and getting a very nice result. In the class of injuries we are called upon to treat as railway surgeons, we are liable to get a contused wound of the tendon which will cause sloughing of the bruised parts and consequent shortening and contraction, and it seems to me it is important that when the tendon is likely to slough we should excise the bruised ends and then make our lengthening of the proximal and distal fragments of the tendon by the method that Dr. Reed has already mentioned.

DR. L. E. LEMEN, of Denver, Colo.—I have tried the plan that has been mentioned, but in the last six or eight months, in addition to suturing after rendering the wound as aseptic as possible and removing the bruised tissues, I have been in the habit of dusting the tendon, before I sew up my incision, with stearate of zinc, thereby preventing adhesion of the tendon to its sheath. You will be surprised how nicely it works. The stearate of zinc will remain for quite a while. You apply it to the wound and then seal it over. It is simply to prevent mechanical adhesions of the tendon to the sheath.

DR. REED—Do you not have to make it aseptic in order to avoid sepsis?

DR. LEMEN—I render the wound antiseptic before I apply my suture and then wash it afterward. I do not use it as an antiseptic, but simply to prevent mechanical adhesions. It is one of the best powders for eczema or galling, or of any surface that is raw. I simply use my finger and rub it all around the sutured ends of the tendon until I varnish it over, so to speak, and sew the parts together. I have a great deal less trouble in having the tendon itself unite since practicing this plan.

DR. REED—I am not sufficiently familiar with the stearate of zinc to know whether it is antiseptic or not, or whether if we were to put in a wound, it will be the means of infecting the wound, or whether it would be necessary to submit it to any process by which it could be made aseptic. I heard a prominent surgeon advocate making antiseptics aseptic a few days since. Is this one of this kind?

DR. LEMEN—In cases in which I have used stearate of zinc, I will say that I have had union by first intention.

DR. C. M. DANIELS, of Buffalo—I think Dr. Reed and Dr. Lemen struck the keynote of this question when they referred to antiseptic treatment. Many years ago it was considered by leading surgeons almost criminal to perform subcutaneous tenotomy, but we have reached a point where we can incise tendons and suture them with a considerable degree of success.

DR. HARNDEN—I would suggest one point in regard to the prognosis that seems to me important, as we are working for the interest of science and admittedly for the interest of the companies we represent. Inasmuch as there is a prospective feature of damages always in sight, I believe it is admitted that in a resulting contracture from injury to the tendons there is the feature of damages. Now in the light that has been given us by Dr. Reed's description of this operation, which seems to be very valuable, can we not render the prognosis of cases of thecitis, or the result of an injury to the tendons where contracture has taken place, more favorable, thereby benefiting the company and science as well by this operation? I simply call attention to that point.

DR. JOHN E. OWENS of Chicago—I feel somewhat handicapped in discussing this subject, as I did not hear the paper. I may say, however, that the prognosis after operations upon tendons is most favorable, not only when done at early, but at remote periods, and particularly is it the case if you can bring the two ends of the tendon together, after having prepared them for suturing. I think that this can be done by certain well-formulated operations for splitting and splicing one part with a piece taken from the other. It can be done by stitching the end of the divided tendon to the contiguous tendon, all of which you can do well, and I think it ought to go without saying that the prognosis after such procedures must be favorable.

Take, for instance, the case which I have in hand at the present time. It seems so simple that I feel like apologizing for mentioning it. The wound occurred across the dorsum of the hand of a patient during my absence, and when I returned to the city it was noted that the patient could

not extend the middle finger. Two weeks afterward the ends of the tendons were readily united by making a longitudinal incision corresponding with the tendon, freshening the ends, bringing them together. The patient now has full control over the finger. If this case had been allowed to go on a considerable time without operation there certainly would have been added an element of cost which would have doubtless brought larger damages in case of a medico-legal contest. The time does not seem to cut a very important figure in the matter, because I have seen records of long periods after the accident where operations have been done for the purpose of uniting tendons to contiguous tendons for the purpose of restoring the loss of function. In the case referred to the question comes up when I ought to remove the splint. I am disposed to keep it there for six weeks, because on account of flexion I was afraid the new cicatrix might be gradually elongated and finally give way and the effect of the operation would be lost. I would say that rather long continuance of the splint seems to be essential.

DR. REED—Before the discussion is closed, there is one point that it might be well for us to remember, and that is when we make a tenotomy, we will say of the tendo-Achilles for shortening of some kind as the result of some accident or disease, we all know that union takes place subsequently. That is a fact which we should consider before treating a tendon by suturing. We all know that where the tendo-Achilles is an inch too short, by making a tenotomy there is an inch of space to be filled up. We understand that space is not filled up with tendon but with connective tissue that is built up during the reparative process by the proliferation of connective tissue cells and which unites the two ends of the tendon by this band of connective tissue. We must take into consideration that where we have a fracture of the tendon, where it is possible to immobilize the part and where shortening is not too great, we can depend upon the reparative process in cases of this kind. Under these circumstances, I would not advise making a compound wound of one that is simple when it can be repaired by nature in this way. In my former remarks I was speaking of the class of injuries of the tendon which could not be repaired in this manner. I think it is the proper thing to splice the tendon by the well-known methods of recent date, whether by suturing or otherwise, as the case may be.

The Committee on Constitution and By-Laws being ready to report on that part relative to the duties of the Editor, such report was made, and on motion of Dr. C. B. Parker, Cleveland, Ohio, adopted.

On motion of DR. R. HARVEY REED, Columbus, Ohio, the Constitution and By-Laws were then, as amended, adopted.

On motion of DR. C. K. COLE, Helena, Mont., the Secretary was instructed to have the Constitution and By-Laws printed and a copy sent to each Fellow of the Academy, together with a slip authorizing the Secretary to sign the Constitution and By-Laws for them.

On motion of DR. C. D. EVANS, Columbus, Neb., the Committee on Publication was authorized to secure certificates of fellowship.

On motion of DR. R. HARVEY REED, Dr. W. H. Elliott, Savannah, Ga., and Dr. L. E. Lemen, Denver, Colo., were appointed to conduct the newly elected President to the chair.

DR. COLE, in accepting the Presidency of the Academy, spoke as follows: Mr. President and Fellows of the Academy: I feel that it would be inopportune for me to attempt to make any extended remarks at this time. Because first, we have no time to devote to that sort of thing, and also, because I am totally unprepared to say what would seem befitting upon this occasion. I can do no more than to make my profound acknowledgments for the distinguished honor which you have voluntarily conferred upon me, and to say to you that I am not unmindful of the gravity of the duties which I shall assume in becoming the President of this organization. I desire to say further, that I pledge you in the interest of railway surgery that I will give my very best efforts in behalf of the institution which we have organized upon this occasion. In saying this, I am not saying any more than any gentleman has already said to himself, and whatever I may do, as well as the other officers of the Academy, will necessarily be entirely unavailing unless they are seconded by your efforts. While I think we all appreciate the fact that we have taken an important step, and one fraught with grave responsibilities and important possible results, I question whether we ourselves, notwithstanding the consideration we have given this matter, fully appreciate the step we have taken and the importance of this structure which we are about to rear. If the American Academy of Railway Surgeons fulfills its mission, we will have been factors in

making history in this country in connection with what is destined to be one of the most important branches of medicine—railway surgery.

Gentlemen, I trust you will excuse me and the embarrassment under which I labor. I feel keenly my inability to properly respond and give voice to the sentiments of my heart. I reiterate what I have previously said, that I will endeavor to the best of my ability to aid in advancing the objects and aims of this Academy and ask of you your indulgence and aid in furthering this plan. (Applause).

The following standing committees for the ensuing year were appointed by the President:

Committee of Arrangements: Chairman, Dr. A. D. Bevan, Chief Surgeon Iowa Central R'y, Chicago, Ill.; Dr. F. H. Caldwell, Chief Surgeon S. F. & W. R'y, Sanford, Fla.; Dr. J. H. Ford, Chief Surgeon, Big Four R'y, Wabash, Ind.

Committee on Transportation: Dr. W. J. Galbraith, Chief Surgeon, Union Pacific R'y, Omaha, Neb.; Dr. G. W. Hogeboom, Chief Surgeon, A. T. & S. F. R'y, Topeka, Kan.; Dr. A. C. Scott, Chief Surgeon, G. C. & S. F. R'y, Temple, Tex.

After short addresses by the different officers elected, the Academy adjourned to meet in Chicago on Sept. 12, 13 and 14, 1895.

### American Electro-Therapeutic Association.

*Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26, and 27, 1894.*

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 522.)

DR. G. BETTON MASSEY, of Philadelphia, read a paper on THE GALVANIC CURRENT IN CATARRHAL AFFECTIONS OF THE UTERUS.

The keynotes to the prevailing methods of treating pelvic disease may be said to be the following pathologic dicta: That the cause of the given complaint is either 1, a narrow or constricted os, producing menstrual obstruction; 2, a bend in the neck or body of the uterus resulting in the same conditions; 3, a mechanical displacement of the uterus causing congestion, enlargement and even inflammation; 4, a laceration of the cervix or even the scar tissue resulting from it, causing enlargement of the uterus, congestion, and a host of reflex symptoms through the agency of the nervous system; 5, a salpingitis, unassociated with other conditions; or 6, a diseased ovary or ovaries, similarly unconnected with more important concurrent conditions.

These six generalizations in pathology do not cover the whole field of pelvic diseases, but any one conversant with the every-day practice of the average gynecologist will agree with me that they represent the conceptions formed by him in the majority of his cases. Some of these conceptions are of recent origin; others date from Marion Sims and his earliest followers, and have molded practice for forty years.

It is noteworthy that but one of these conceptions, that of salpingitis, has any bearing on the modern facts of bacteriology, the accepted facts of endometritis being really neglected in practice. This neglect of the germ theory in the pathology of uterine disease is even more remarkable, when we consider the importance accorded the same theory in the operative precautions of surgical practice.

It is my own conviction that a catarrhal affection of the uterine cavity is at the bottom of many of the complaints heretofore referred to various mechanical deviations in and about the uterus; that it is far more frequently the cause of menorrhagia or menstrual pain than any alleged narrowing or bending of the cervical canal; that it is the prime cause of the enlargement that accompanies metritis, whether associated with laceration or not; and that it is the initial lesion in both salpingitis and oophoritis, often persisting after their appearance as a most important factor in the case. Its relative importance when associated with these conditions is attested by the fact that in many instances it remains to annoy the patient after the cervix has been torn apart in one class or sewed up in another, after the pessary has been worn for years, or the tubes and ovaries have been removed from the body. The day is past when we can consistently expect to cure a microbically-produced proliferation of the uterine endometrium and parenchyma by stretching the cervix, by stitching it up, or by merely propping up a heavy or displaced organ; and the day is equally far past when we should expect to cure the same condition of the uterus by removing ovaries and tubes that have become

affected by an upward extension of the process; yet at no time in medical history are these illogical procedures more frequently resorted to or more generally regarded as orthodox than at the present moment.

The opportunities afforded by the post-operative history of some of their cases has, however, had its effect on certain gynecologic surgeons who now announce their conviction that the uterus itself should be removed when operations are undertaken for diseased adnexa, and from all over the land come reports of the performance of complete amputations and extirpations of this nature. This acknowledgment of their previously neglectful attitude toward the uterine seat of the catarrhal process would be more encouraging if it were not accompanied by the hopelessly pessimistic prognosis that advises amputation rather than an attempt to cure. Lawson Tait is said to have graphically answered a questioner as to his treatment of chronic metritis by thrusting a red hot wire into the uterine cavity of a patient on the table; but these gentlemen prefer the knife and total destruction to even this heroic treatment.

The members of this Association are thoroughly conversant with the admirable results to be gained from the use of the galvanic current within the uterine cavity in this intractable affection, yet I fear that the allied work in the treatment of true fibroid processes has cast somewhat into the shade this important additional contribution of Apostoli to our practical resources. To the general profession, itself, this work is almost unknown; a fact due not only to the pathologic errors alluded to, but to a misconception of the range of the activities of milliampere currents. To many physicians electricity is nothing but a nerve and muscle stimulant—actions extremely valuable, it is true, in relaxation of the uterus, but far less important than the alterations of tissue activities by which absorption and trophic regeneration may be initiated. In these catarrhal hyperplasias of the uterus, electricity has a fourfold value, combining within itself probably four times the usefulness of any other remedial agency, for it is at once an antiseptic, a stimulant to absorption, a nutritive stimulant and a means of lessening uterine bulk by contracting the uterine muscular tissue.

For therapeutic purposes, these cases may be divided into two classes: those in which the uterus is movable by reason of the fact that the catarrhal process has not yet ascended into the Fallopian tubes; and those in which the uterus has become adherent or fixed by a metro-salpingitis or its consequences. The movable class is by far the more readily cured by electrical applications. Any appropriately curved electrode may be used within the cavity, skillfully inserted, for the application of the negative pole of the galvanic current, though my practice of late is to more frequently employ the positive pole, necessitating a platinum electrode. This latter polarity is imperative in hemorrhagic cases, and is distinctly best if any form of discharge is abundant. Another reason for the use of the positive pole is its distinctly microbicidal power in doses above 50 milliamperes, under the conditions of electrode surface existing in these applications. As to the question of the dosage used, however, I find that in my own practice it is more often below than above the figure mentioned, 35 or 40 milliamperes being often the limit.

In the second class of affections, those in which the uterus, while yet retaining the initial catarrhal affection and its hyperplastic consequences, is handicapped by an extension of the chronic process upward along the tubes, with more or less adhesion between the diseased structures and neighboring surfaces, the intra-uterine treatment must be extremely circumspect. It is best preceded by a course of a vaginal galvanic applications by means of moist, cotton-covered electrodes and strong currents, with possibly the addition of calomel faradic currents. The intra-uterine treatment by means of galvanic currents will nevertheless be necessary if we expect to do more than alleviate this unfortunate condition, and it is employed in its least painful form if the elastic platinum instrument is used, either bare as ordinarily employed, or covered with cotton if the cavity is patulous and sensitive. In cases where the extra-uterine morbid conditions are of long standing, curative results are possible, though we must often be satisfied with a more or less permanent amelioration of the symptoms. With the cases of uncomplicated catarrhal hypertrophy, on the other hand, the results should always be perfect, the morbid conditions yielding slowly but surely to the directly applied alterative agency. Not only may a resolution of the uterine process be thus gained, but the disappearance of swelling about the uterine end of the tubes will permit catarrhal accumulations within the

No. of Case.	Age.	Duration of Disease.	Depth of Cavity, Inches.	Mobility.	Discharges.	Condition of Uterus.	Complications.	Mode of Treatment.	Results.
1	34	15 years.	3½	Fixed.	Slight mucop.	Moderately hypertrophied.	Left salpingitis deep laceration of cervix.	— Vag. followed by — intra-ut. 15.	Cure, followed by pregnancy.
2	27	1 year.	3¼	Movable.	Hemorrhagic, leucor.	Corporeal hypertrophy.	Deep stellate lac. of cervix.	+ Intra-ut. flex. elect. 30 and vaginal galv.	Improved.
3	26	2 years.	3	Movable.	Hemorrhage, leucor.	Slight enlargement.	Retroversion and stenosis.	+ Intra-ut. 25 (twice only).	Cure, followed by pregnancy.
4	34	8 "	3½ later 2½	Fixed.	Profuse, purulent.	Corporeal hyper.	Mono-lateral laceration.	+ Intra-ut. 25 to 65 with flexible elect.	Improved, followed by pregnancy.
5	21	2 "	3 to 2½	Movable.	Profuse, purulent.	Normal size.	Severe menorrhagia.	+ and — intra-ut. 8 to 25 and vag. galv.	Cured.
6	22	1 year.	2½	Movable.	Inconstant mucoid.	Some enlargement.	Severe menorrhagia.	+ Intra-ut. 50 to 40.	Cured, followed by two pregnancies.
7	38	3 years.	3	Movable.	Inconstant mucoid.	Hypertrophied.	First degree of prolapse.	+ Intra-ut. 70 and prim. farad.	Cure, with improvement of prolapse.
8	23	3 "	3½ lat'r 2½	Movable.	Constant mucop.	Hypertrophied.	Tenderness in left ovarian region.	— Intra-ut. 10 to 25 and + vag. 70.	Cured.
9	36	9 "	3	Movable.	None at pr'snt	Moderate hyper.	Menorrhagia.	+ Intra-ut. 15 to 25 and vag. galv.	Cured.
10	27	8 "	3	Adherent.	Copious purulent.	Hypertrophied with large cavity	A lacerated cervix had been repaired without relief.	+ Intra-ut. 35 and gen. galv.	Cured.
11	28	8 "	3	Movable.	Copious mucoid.	Corpus 2 in. in diameter, cavity large.	A lacerated cervix had been repaired without relief.	— Intra-ut. 20 to 35 and — vag.	Improved.
12	32	8 "	3+ lat'r 2½	Movable.	Slight inconstant.	Capacious cavity.	Tender and enlarged ovary.	+ Intra-ut. 20 to 35 and — vag. galv.	Cured.
13	27	4 "	3	Adherent to left.	Inconstant.	Moderate hyper.		— Vag. 60 and farad. and + intra-ut. 20	Symptomatic cure, adhesions remain.
14	25	2 "	2½	Movable.	Profuse mucop.	Slight hyper.	Menorrhagia.	+ Intra-ut. once only.	Cured, followed by pregnancy.
15	25	3 "	2½	Movable.	Profuse.	Slight hyper.	Menorrhagia.	+ Intra-ut. 20.	Cured.
16	37	7 "	not sound	Fixed.	Copious purulent.	Hyperplasia.	Dense masses in region of both broad ligaments.	+ Vag. 100 to 150.	Symptomatic cure, adhesions loosened.
17	22	16 mon.	3¼ to 2½	Movable.	Copious mucoid.	Engorged.	Nervous prostration.	+ Intra-ut. 20 to 25 and vag. galv.	Cured.
18	31	6 years.	4 to 2¾	Movable.	Moderate mucoid.	Hyperplasia.	Evidences of old pelvic inflam.	Intra-ut. alternatives 70 and vag. galv.	Cured, followed by pregnancy.
19	30	9 "	3	Movable.	Copious mucop.	Slight hyper.		+ Intra-ut. 20 and vag. galv.	Improved.
20	21	3 "	3¼ to 2½	Movable.	Mucoid.	Prolapsed uterus with hyper.	Left ovary prolapsed.	+ Intra-ut. flex. elect. 25 to 40 and vag. gal.	Cured, ovary still lower.
21	25	1½ "	3	Movable.	Slight mucoid.	Hyperplasia.	Nervous prost.	— Intra-ut. 20 and vag. galv.	Improved.
22	29	7 "	3	Movable.	Profuse mucop. pur. hemorrhagic.	Stenosis, cervix.	Menorrhagia.	+ Intra-ut. 20 to 50.	Cured.
23	24	7 "	3	Movable.	Copious mucoid.		Nervous prost.	+ Intra-ut. 25 and vag. galv.	Improved.
24	24	3 "	2½	Movable.	Copious purulent.			+ Intra-ut. flex. elect. 20 to 80 and vag. gal.	Cured, followed by pregnancy.
25	22	4 "	3	Movable.	Constant mucoid.	Moderate hyper.		+ Intra-ut. 20 to 35.	Cured.
26	26	6 "	3+	Adherent.	Profuse offensive, mucop.	Hyperplasia.	Prolapse of both ovaries and enlargement of left ovary.	+ and — intra-ut. 20 to 30 and secondary faradic.	Discharge, cured and enlargement lessened
27	26	4 "	3	Movable.	Profuse mucop.		Tenderness in ovarian regions.	+ Intra-ut. 50.	Cured.
28	31	3 "	3	Movable.	Profuse mucop.	Hyperplasia.		— Intra-ut. 50.	Improved.
29	26	4 "	2¾	Adherent.	Profuse purulent.		Tubes involved.	— Intra-ut. 50 and vag. galv.	Cured.
30	40	2 "	3 later 2½	Movable.	Hemorrhage, leucor.	Hyperplasia.		+ Intra-ut. 50.	Cured, followed by pregnancy.
31	30	3 "	3½	Movable.	Mucoid.		Tenderness and thickening at left broad lig.	— Intra-ut. 15 to 40 and neg. vag.	Cured.
32	30	1 year.	3	Fixed.	Mucop.		Tenderness and thickening at both broad lig.	— Intra-ut. 35 preceded by neg. vag. 50.	Symptomatic cure.
33	34	1 "	3 later 2½	Movable.	Mucop.	Hyperplasia and prolapsed.		— and + intra-ut. 50 to 75.	Improved.
34	38	5 years.	3½	Slightly adherent.	Mucop.	Hyperplasia and prolapsed.		+ Intra-ut. 25 to 50 (for two months.)	Greatly improved. Two years later hysterectomy with fatal results from supposed cancer.

latter to be drained through the uterus, several well-attested instances having occurred within my own experience.

Appended to this paper will be found a tabulated analysis of thirty-four unselected cases of catarrhal disease of the uterus which have been more or less under galvanic treatment. The histories were consecutively extracted records of my private and hospital practice, and state the results attained, so far as known, together with clinical and therapeutic data.

Of these thirty-four cases, twenty-four were found to be of the movable class, of which seventeen were cured and seven improved. Ten cases belonged to the adherent variety, of which four were cured and six improved. Eight of these patients are recorded to have become pregnant after the cessation of the treatment, six having been of the movable variety and two of the adherent.

DR. L. A. W. ALLEMAN, of Brooklyn, N. Y., read a paper on  
ELECTRO-THERAPEUTICS OF DISEASES OF THE EYE.

It is not my purpose to enter into an exhaustive consideration of all the possibilities of electro-therapeutics in the

treatment of ocular disorders, but to invite you to discuss with me some of the more important and better established indications for its employment.

In ophthalmic surgery, as in all other branches of medicine, the charlatan has found "electricity" a fruitful field for his endeavors. "To vivify the decaying nerve, by the tamed lightning," has proved a very catching phrase and the discouraged patient receiving no promise of relief from legitimate medicine, has again and again caught at this straw only to be disappointed. I doubt not that these perennial electric humbugs have done much to discourage the profession from enthusiastically investigating, and sifting out the really beneficial, from among the much that was worthless or actually harmful that has been asserted for electro-therapeutics. Then, too, the class of cases in which electro-therapeutics is indicated are, as a rule, chronic, and it is impossible that this, or any other treatment, will yield immediate and startling results, and patient and practitioner are apt to become discouraged, and abandon treatment before sufficient time has elapsed to render an appreciable improvement possible.



I am, however, convinced, that used intelligently and perseveringly, we have in electro-therapeutics, an agent which in certain classes of ocular disorders is of the utmost utility, and one which will yield us results which can be obtained by any other method with difficulty if at all; and I am farther convinced that the scope of its applicability will be found to broaden in the light of farther experience.

There are already many conditions in which the indications are clear and the results immediate and definite. Such for example, as when an annoying irritation is kept up in the eye, by the presence of lashes which either through a faulty position or direction rub against the ball. When this condition extends to a part of the lid only, (partial trichiasis) electrolysis furnishes the best method of treatment at our command. For this procedure, no special apparatus is required beyond that necessary in ordinary office practice.

A battery of eight or ten cells, a milliamperemeter, an electrolysis needle (it is much preferable to use a stronger battery and a rheostat,) are all that is required.

Platinum needles are often employed for electrolysis; but a very fine steel needle is more serviceable in destroying cilia. I prefer a needle holder without a circuit breaker; it is sufficiently difficult to insert and hold a delicate needle in the hair follicle, without the unnecessary manipulation of working the circuit breaker with the fingers. The circuit can be closed by a floor button by an assistant, or by the patient, who presses the anode upon the skin when directed. The anode should be large and well moistened.

The patient should be placed in a reclining chair, with the head comfortably fixed on a rest, and in a good light. The whole success of the operation will depend upon reaching with the needles the bottom of the hair bulb which is to be destroyed, and if this is properly done there should never be any question of the permanency of the relief afforded; as these hairs are often set very obliquely. This is by no means an easy task and one has to learn by experience the sensation of resistance which is experienced when the needle leaves the follicle. The needle (the kathode) being well down past the bulb, the circuit is closed and a current of 3 or 4 milliamperes passed until a little froth is seen to bubble up about the needle. The hair is then withdrawn with an epilation forceps and should come away without the slightest resistance. If it is not thoroughly loosened, the operation should be repeated, several hairs should be removed at a sitting and the treatment followed up till the lid is entirely free.

The patient will experience some little pain during the passing of the current, which is not relieved by cocaine; which will, however, render the insertion of the needle practically painless; but so severe is the distress occasioned by the lashes that patients never rebel at a little pain, if it will insure them permanent relief.

*Herpes Zoster* is a condition in which galvanism has been found empirically of great utility. The distressing neuralgia is relieved by it, as well as the duration of the disease lessened. The direction of the current does not seem to be a matter of great importance, as good results have followed its use, however employed. The anode seems, however, to be preferable on the painful nerve and a current of  $1\frac{1}{2}$  to 2 milliamperes for ten minutes every day. I have in this way obtained excellent results in several cases.

*Conjunctivitis Granularis.*—Among the myriad remedies which have been advocated in the treatment of granular conjunctivitis, electrolysis has found a place and justly, as it is an agent of undoubted utility.

Whether there be any special indications for its use, I know not, save that it must be used in the stages preceding cicatricial contraction. In the use of electrolysis, as in any other treatment of this disease, the natural history must not be lost sight of. The goal to which the case is tending, and the termination which we wish to prevent is the final stage of cicatricial contraction and atrophy. For this reason, any method should be deprecated which involves tissue destruction. All severe applications and operations, although attended by temporary benefit must in the end be harmful, and a current which destroys the deeper conjunctival tissues is even more harmful than a knife.

George Lindsay Johnson has published<sup>1</sup> a very valuable paper on this subject; he points out that in many cases the indifferent success which attends treatment is due to the failure of the applied remedies to penetrate to the deeper layers of the conjunctiva, and suggests the use of electrolysis. His method is to make scarifications in the conjunctiva, and to follow the track of the scarifier with an

electrode. He reports excellent results. The only criticism on his work is that he uses a current of 30 milliamperes. I would not feel safe in using a current of anything like this strength in the conjunctiva, and it strikes me as odd that in the paper he deprecates the use of strong currents.

D. T. Myers, of Philadelphia, has also furnished a valuable contribution to the subject of electrolysis in granular conjunctivitis and his method is preferable, in that he uses no scarification and milder currents: he destroys the granulation with a needle, thus sterilizing each sac.

It will require much time and patience in practice, but I have found it to work admirably in the few cases in which I have tried it. The lid can be anesthetized by cocaine, and when necessary Myers uses the solid salt; he advises one and one-half to two milliamperes, which would be entirely free from objection. Many cases are amenable to treatment, by the ordinary methods; but we will now and then meet cases in practice, which are entirely unrelieved by the antiseptic and astringent applications or even expression, and for such I hope we have a new resource in electrolysis.

*Stricture of the Lachrymal Duct.*—In occlusion of the lachrymal punctum, and in strictures of the canal, the old treatment of slitting up the punctum and passing probes after dividing the stricture leaves much to be desired. The punctum loses its usefulness as a capillary canal after the operation, and we too often find that the operation which was at first eminently successful, fails to afford permanent relief. It is far preferable, when possible, to dilate the punctum and inject antiseptic solutions, and this procedure is greatly assisted by electrolysis. Several observers have reported favorably on this treatment, and the experiments of Lagrange<sup>2</sup> on the antiseptic action of electrolysis do much to explain its utility. The benefits are not, however, confined to the antiseptic action of the current. It undoubtedly tends to reduce the swelling and hypertrophy of the mucous membrane lining the duct, and the results of the treatment are fortunately much more permanent than by the use of probes alone. When the punctum is occluded, it can usually be sufficiently dilated by a conical probe, to admit a small lachrymal probe into the duct. This is made the kathode, and a mild current of say 2 milliamperes passed for three or four minutes; the probe which was at first tightly grasped will be now found to lie loosely in the canal, and a larger one can be introduced. If this is followed up, allowing an interval of a day between treatments, and the injections used at the same time, the treatment will be much less tedious and the results much more permanent.

Lagrange<sup>3</sup> while indorsing the use of electrolysis and reporting good results from it, gives, very wisely, a word of caution against the employment of very strong currents which would produce sloughing and subsequent cicatricial contraction. I have noticed an interesting fact in this connection, viz., that the passing of a probe, made by the kathode with a mild current is much less painful than without the current which is an additional reason for the use of electrolysis. One must remember not to use the anode, as much pain and reaction attends its use and the probe instead of passing easily is even more firmly grasped in the canal than before the current is applied.

*Keratitis.*—To relieve the blepharospasm, and the distressing photophobia, which does so much to make miserable the little sufferers with this disease, as well as to retard the cure, the constant current is a valuable adjunct to treatment. This is mentioned in Althus, and I have found it of much utility; a current of 2 or 3 milliamperes on the closed lids, anode to the eyes for five minutes at a sitting, is, I believe, the preferable method of employment.

*Corneal Opacities.*—The use directly upon the site of the opacity, with a corneal electrode and a current of from one-half to one and one-half milliamperes kathode to the eye is the best, and so far as I know, the only way in which old opacities of the cornea can be at all benefited; under the use of galvanism, in time, old and dense opacities can be thinned down and, if proper care is exercised, no distressing reaction need follow the application.

I have presented this subject in detail to this Association at a previous meeting,<sup>4</sup> and I will only add that my subsequent experience has tended to increase rather than diminish my confidence in the possibilities of the treatment.

*Retinitis.*—In certain forms of retinitis much can be accomplished by employment of the constant current. In retinitis diabetica, I have obtained most excellent results. Not only has the central scotoma when present, diminished

<sup>2</sup> Journal de Med. de Bordeaux, August, 1893.

<sup>3</sup> Eleventh International Medical Congress.

<sup>4</sup> The Times and Register, Nov. 21, 1891.

and the vision much improved, but the ophthalmoscopic picture has shown that the effect on the tone of the retinal vessels has been most pronounced. In one case in my practice, a few years since, I had an opportunity to demonstrate this very satisfactorily. The patient was suffering from retinal hemorrhage; small punctate hemorrhages were scattered in the greatest profusion in the fundus, and vision was seriously interfered with. I endeavored for some time to give the patient relief by rest, the correction of ametropia and the like; but the case failed to improve. I then began the use of the galvanic current, diet and medical treatment remaining unchanged. She steadily improved, the hemorrhages cleared up, and the vision showed a corresponding increase. After several months, she was so much better that treatment was discontinued. She remained very comfortable for a year or more, when she again had a recurrence of the hemorrhages and again under treatment made a gratifying recovery. In several subsequent cases, although not having so marked a result, I have been much gratified by the success attending the treatment. I used a current of one to one and one-half milliamperes through the closed eyelids, with frequent reversals.

*Retinitis Pigmentosa.*—Among all the diseases which we are called upon to treat, none are more utterly discouraging than retinitis pigmentosa. The subjects are, as a rule, young and the termination is pretty sure to be, sooner or later, hopeless blindness. In such a condition any faint prospect of relief or retardation would be most welcome; but we are as yet, practically helpless as far as any direct treatment is concerned.

It is surprising that since Dor, in 1873,<sup>5</sup> published reports of improvement obtained by the use of galvanism, we have had so little experience contributed to our meager fund of knowledge. Gunn<sup>6</sup> has reported a few cases as benefited, but the most trustworthy reports thus far at our command are those of Derby<sup>7</sup> and Standish.<sup>8</sup> These experienced observers made careful studies in several cases, observing all precaution against error, and report results which are wonderfully encouraging.

Dr. Derby also publishes a personal letter from Mr. Gunn (June, 1894) in which he writes: "I have followed only one case of those I then published and the improvement has been, or rather was when last seen, permanent."

Dr. Derby presented two cases of retinitis pigmentosa, on which the current had been applied three times a week for three months. The sittings were for five minutes, with six to eight Stöhrer cells. The electrodes were, as a rule, placed on the temples, but sometimes above and on the eye. The results were slight visual improvement and marked increase in the size of each visual field, as shown by the charts; he also mentioned a case treated by Dr. Standish, which Dr. Standish reported in detail at the next meeting of the society. It was of a woman 33 years of age, who had noticed a failure of vision for three years; this had increased very rapidly the three months previous to her first examination by Dr. Standish; her vision was at that time reduced to 12-40 in the right and 12-50 in the left. The night blindness was so great that she could no longer go safely alone on the street at night. The ophthalmoscope showed a number of characteristic star-shaped spots of pigment in the periphery of the fundus of each eye. The field of vision did not extend over 20 degrees in any meridian in either eye. The patient was placed under treatment by the galvanic current, and no other treatment was employed. The sittings were of five minutes' duration and were, as a rule, repeated every five days. The anode was placed on the closed lid; the kathode on the brow or temple; the current employed was not more than that given by four to six Stöhrer cells. The treatment was continued for fifteen months and the result was most surprising and gratifying. There was a constant improvement in vision up to the last three months, since which the vision has remained stationary. Upon one occasion, when the patient absented herself for a period of six weeks, after having been under treatment for four months, the vision and field were found to have fallen off slightly. At the end of the treatment the vision was improved from 12-40 to 12-30 in the right, and from 12-50 to 12-15 in the left; the field from 20 to 75 degrees right; 70 degrees left, horizontal diameters; 60 degrees right and 68 degrees left, vertical diameters. These measurements were made upon a perimeter, and the greatest care was exercised to make the different examinations under uniform conditions. The ophthalmoscopic

changes which took place while the patient was under observation were confined to a widening out of the prolongations of each patch of pigment, so that they did not present so characteristic a picture as when first seen. No new pigment patches appeared.

Such results as these should stimulate us to further investigation, and should they be confirmed by good results the effort will be richly repaid.

#### DISCUSSION.

DR. HOLFORD WALKER, of Toronto, said that Dr. Fuller, of Montreal, had been consulted by a physician's wife who six months previously had suffered from la grippe, followed by paralysis of the ciliary muscles. About two weeks ago she had come to him with the suggestion that he should do something for her with electricity. He would like to know what Dr. Alleman would do in such a case.

DR. ALLEMAN replied that the constant current frequently reversed was the most likely to give good results, but the outcome in such cases was very doubtful, some of them recovering very suddenly without treatment, and others proving obstinate under what appeared to be well directed measures.

DR. BEAVER, of Reading, Pa., said he was very much pleased with the success the author had had with electricity in the treatment of so many diseased conditions of the eye. He wished, however, to criticise the paper in one particular, *i. e.*, the importance of considering the element of time. It had seemed to him that most of the papers already presented were lacking in this same particular. In this last paper we had not been told how often the applications were made, how long they had been continued, or the amount of pain produced by them. Just as we need to be precise in stating the doses of drugs, so should we be particular in stating the exact conditions under which we employ electrical treatment. He had never found it necessary to use the very strong currents which had been recommended, either in the treatment of eye diseases or of gynecologic cases.

DR. O. S. PHILIPS, of New York City—referred to an interesting case, that of a lady who had been operated upon about one year ago for cataract. From partial blindness in one eye and perhaps half vision in the other, there was total blindness after the operation. The lens was broken up and the cavity filled with opaque matter. He would like to ask the reader of the paper whether he had had any experience with galvanism directed toward causing absorption of any such deposit?

DR. ALLEMAN said he had tried galvanism only in incipient stages of cataract. In the case reported he thought it would accomplish no purpose. As to the remarks of Dr. Beaver, he would say that he was entirely in accord with him regarding the importance of accurately stating the dosage and time of application, and he thought he had done so in most of the instances mentioned in the paper.

DR. CLEAVES said that she thought optic atrophy had not been mentioned by the author. It might be interesting therefore to report such a case, which had been under her care during the last six months. The atrophy was of four years' standing. R. V. was found to be 1-200 with a correction of one dioptre, and L. V. 1-200. The patient could read No. 12 of Jaeger's type. For the first two weeks he received three applications daily of the constant current with from 1 to 5 milliamperes, depending upon the tolerance, which varied from day to day. The indifferent electrode which presented an area of eighteen square inches, was placed at the nape of the neck, and the active electrode over the eye. The method was by changing the polarity. Always following the voltaic alternations a mild application of the sinusoidal current was made, with position of electrodes unchanged. During the months of August and September the treatments were not regular. On Sept. 22, 1894, the patient was re-examined by Dr. Francis Valk, who reported that there was a decided improvement in the distant vision, R. V. being 10-200, with a correction of two dioptres = 10-100, and L. V. 20-200 with correction of 1-36 = 20-50. The vision in the left eye had improved about 100 per cent., but otherwise in the examination of the field the appearance of the fundus of the eye was about the same. Symptomatically, the patient was in much better condition. He could now read letters, and could see objects clearly in going about the room and street, which he could not do before the treatment.

The Association then adjourned at 6 p.m.

(To be continued.)

<sup>5</sup> A. F. O., vol. XIX, p. 342.

<sup>6</sup> Ophthalmic Hospital Reports, vol. x, p. 161.

<sup>7</sup> Transactions Amer. Ophthal. Society, 1886.

<sup>8</sup> Transactions Amer. Ophthal. Society, 1887.

Blank Applications for membership in the Association at the JOURNAL office.

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PUBLISHED WEEKLY.

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On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the Editor, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 86 Fifth Avenue, Chicago.

SATURDAY, APRIL 13, 1895.

THE STATUE OF PROFESSOR GROSS.



"For if our grief is alleviated by gazing on the pictures of departed friends in our houses, how much more pleasure is there in looking on those public representations of them, which are memorials not only of their air and countenance, but of the honor and esteem with which they were regarded by their fellow-citizens."—PLINIUS EPISTOLÆ.

The day before the adjournment of Congress, that body passed the following public resolution:

[PUBLIC RESOLUTION—No. 21.]

Joint resolution granting permission for the erection of a bronze statue in Washington, District of Columbia, in honor of the late Prof. Samuel D. Gross, Doctor of Medicine, Doctor of Laws, Doctor of Civil Law.

WHEREAS, The physicians and surgeons of the United States of America have raised a fund for the erection of a bronze statue to the memory of Samuel D. Gross, Doctor of Medicine, Doctor of Laws, Doctor of Civil Law, late Professor of Surgery in the Jefferson Medical College of Philadelphia, whose labors in the cause of his profession as surgeon and as author have caused his name to be respected in the civilized world as one of the benefactors of his race, and have added luster to the entire medical profession of the United States; therefore, be it

*Resolved by the Senate and House of Representatives of the United States of America in Congress assembled,* That permission be, and the same is hereby granted to the American Surgical Association and the Alumni Association of the Jefferson Medical College to erect said statue in such place in the city of Washington, District of Columbia, as shall be designated by the Superintendent of Public Buildings and Grounds. And the sum of fifteen hundred dollars, or so much thereof as may be necessary, is hereby appropriated, out of any money in the Treasury not otherwise appropriated, for the erection of a pedestal upon which to place the said statue.

Approved, March 2, 1895.

Great credit is due Drs. W. W. KEEN, of Philadelphia, and C. H. MASTIN, of Mobile, for their successful work in securing this public honor for the late PROFESSOR GROSS who as President of the AMERICAN MEDICAL ASSOCIATION and founder of the American Surgical Association, did so much for the elevation of the standard of American Medicine. Mr. Adams from the Committee on the Library, in reporting the bill gave an exhaustive and appreciative review of his life, literary work and services, and concluded as follows:

"The record of such a well-spent life is a valuable lesson, and in the opinion of the committee the erection of a statue to such a distinguished man in civil life will serve as an object of inspiration to the generations to come, as a monument of one of the brightest examples of skill, learning, patient study, dignity and morality that ever adorned the medical profession of our country."

It is well that this statue is to be erected while the generation that knew him in the ripeness of age is still alive, for experience warns us that the duty of commemorating virtue and learning as exemplified in any person, is neglected in exact proportion to the march of time.

SIR WM. TURNER DECLINES.

PRESIDENT DONALD MACLEAN, on behalf of the AMERICAN MEDICAL ASSOCIATION, extended an invitation to SIR WM. TURNER, of Edinburgh, to attend the Baltimore meeting. SIR WILLIAM would have been a welcome guest, for he is recognized in America as in Great Britain, as the greatest living anatomic philosopher. His article on "Anatomy" in the Encyclopædia Britannica, deserves to rank among the English classics.

In a pleasant response to DR. MACLEAN's letter of invitation, the venerable anatomist says in part:

"When your letter of February 28 reached me, I was ill in bed with a sharp attack of influenza, and

for some days after its arrival I was quite unable to give it the consideration which was due to it. Nothing could surpass the graciousness and cordiality of your invitation, and it did me good in my illness to think that my professional colleagues in America had been so kind and so considerate.

"In many respects I have felt that I ought to accept the invitation of the AMERICAN MEDICAL ASSOCIATION, and to take a part in its proceedings. There are powerful reasons to lead me to do so; the desire to meet distinguished members of my profession in America, the opportunity of seeing under such favorable auspices the beautiful city of Baltimore, and such other of your great cities as time would permit, and to visit your great educational institutions, such as the Johns Hopkins University and its distinguished President, whom I claim as a personal friend; were strong arguments in favor of my accepting this most cordial invitation."

SIR WILLIAM adds, however, that the debility following the grip compels him to decline to attend the meeting.

PRESIDENT MACLEAN, in giving the foregoing information to the JOURNAL, expresses what we are sure will be the voice of the ASSOCIATION—sincere regret, not only that the invitation was declined, but on account of the illness which occasioned the declination.

#### THE STATE SOCIETY VS. THE TRI-STATE.

Under our form of government, the States have the power that regulates manufactures, and the internal affairs of the State. Neither municipal nor Federal authority may meddle with that exclusive jurisdiction.

As Legislatures thus have almost supreme control over the citizens of the State, it naturally follows that all legislation which affects the profession and the direct sanitary interests of the people, must emanate from the State Legislature, and this necessitates similar organization on our part. If the medical profession are to influence a Legislature, it must be done by the State medical organization; no "Tri-State" organization can accomplish anything in the State except at the expense of the different State societies, and even then they can not take the place of the State society. The more the question is studied, the more clear will stand forth the principle that if our profession desires power, influence and consideration, every member of that profession owes it to himself and as well to his colleagues, that he support and maintain his local, State and National medical societies. These societies should be as a holy trinity to the medical man, and the necessary support should be given as a matter of duty.

These three societies surely afford an ample field for all the power, energy and ability that any medical man may possess, and in so far as the "Tri-State" societies weaken the respective State societies, they are directly harmful to the profession by loosening the ties of professional organization.

#### A FATAL RESULT FOLLOWING A HYPODERMIC INJECTION, BEHRING'S ANTITOXIN BEING THE INJECTED REMEDY.

A death has been reported at Brooklyn following a treatment of diphtheria by means of BEHRING'S antitoxin. The death is stated as having followed the injection in about ten minutes. This lamentable result occurred in the case of a girl in her seventeenth year, in the practice of a regularly equipped physician who had already had some very satisfactory experience in the use of the serum. The case was duly referred to the coroner of the county and an autopsy performed by a competent pathologist. The coroner's findings were inconclusive as to the true cause of the fatal issue of the case. The serum was all used upon the case, but other packages belonging to the same shipment from the same German laboratory were procured and tested.

There was nothing found in this procedure that can justly be held to inculcate the antitoxin used in the case. Experiments were made by the bacteriologists of the Boards of Health of New York City as well as Brooklyn, and these concur in tending to show that the serum was of sound quality, and in leaving the inference to be drawn that the hypodermic operation itself was at fault. Untoward accidents are not unknown as following that operation, and they are nearly always difficult of explanation except in a general way.

The accident, in this particular case, judging from the great rapidity with which the disaster followed the injection was doubtless a lesion of some part of the circulatory apparatus, although it must be admitted as possible that the bottle of antitoxin was not correctly labeled and really contained some toxin or other substance intended only for laboratory uses. Very little knowledge has yet been obtained regarding possible toxic alterations that may take place in the serum after bottling.

The following is taken from the report of DR. E. H. WILSON, of the Brooklyn Board of Health, and shows the line of experimentation followed by him to ascertain the qualities of the serum, of the same shipment as that used in the fatal case. He says, in effect: "I procured two bottles of BEHRING'S antitoxin No. 2, containing one thousand immunity units, sealed under the date January 30, operation No. 159, being a portion of the same lot as used in the case of BERTHA VALENTINE. Of this serum, 1 cubic centimeter was injected beneath the skin of a guinea pig weighing 420 grams; at 4:30 P.M. the animal suffered no inconvenience from this injection. At the same time 2½ cubic centimeters of the same serum were injected directly into the ear vein of a large rabbit; this animal also suffered no inconvenience. I also obtained from DR. CLAYLAND, coroner's physician, about one ounce of fluid blood received in a sterilized



bottle from the right auricle of the heart. One-half of this blood was given to the chemist of the department for chemic analysis. Direct microscopic examination and cultures made from this blood showed it to be free from microorganisms. Speculative theories may be advanced as to the cause of death in this case, the true cause not having yet been determined, but the above experiments conforming as nearly as possible to the actual condition, demonstrate that the cause was not inherent in the antitoxin."

DR. W. H. PARK, of the New York Board, also experimented with two vials of the same importation of "operation No. 159," and his report states: "I have submitted both vials to thorough tests at the bacteriologic laboratory of the Board of Health, by injecting excessive doses into guinea pigs and rabbits without producing in the animals any deleterious effects whatever. Specimens from both vials were also submitted to bacteriologic tests and were found to be absolutely free from living germs of any kind.

"These results, taken together with the fact that the New York City Board of Health has employed this same make of antitoxin in a considerable number of cases with only the best of results, leads me to express the opinion that the unfortunate results which followed its administration in the case referred to can not be attributed in any way to the antitoxin which was employed."

There have already been many hundreds, if not thousands, of injections made in this country of the imported serum, and this is the first accident of the nature described that has been publicly reported. On the other side of the ocean the number of serum treatments has been vastly greater, with only a very small proportion of untoward results referable to the remedy and not to the operation.

#### BUFFALO MEDICAL AND SURGICAL JOURNAL.

After a half century of good work in the cause of medical literature, and for the welfare of mankind, the *Buffalo Medical and Surgical Journal* proposes to signalize its semi-centennial anniversary by increasing its reading pages from sixty-four to eighty, and by making other improvements.

The editors will please accept the congratulations of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, on the youthful vigor which still characterizes our Buffalo contemporary despite the fifty winters that have passed away since it was founded. We hope that our contemporary may still be young and as active, when it celebrates its centenary.

#### PROGRAMS OF THE SECTIONS.

In order to prevent delay in the preparation of the program, Section officers are earnestly requested to send their *manuscript at once to this office*.

#### AFTER THE FIRE.

WE print herewith an illustration showing the appearance of the hallway at the entrance to the office of the JOURNAL, from which the members of the ASSOCIATION will see our narrow escape from a disastrous conflagration. It is a source of gratification that the Saturday issue of the JOURNAL was not only on time, but had the standard number of twenty-eight pages of reading matter. This is the smallest number issued since July, 1893, but it is the same size as most of the other weekly journals in the United States and the size adopted for the four years previous to 1893.



The hallway entrance to the JOURNAL office, after the fire.  
[From a photograph.]

We can not commend too highly the prompt and efficient service of the Fire Insurance Patrol of Chicago. Every night since the fire, while the roof has been open and exposed to the rain, the Patrol has promptly appeared and covered up every article in the office with waterproof tarpaulin. To this care and vigilance may be ascribed a large part of the saving that was effected.

Do not forget the JOURNAL SPECIAL TRAIN leaving Chicago Sunday, May 5, from Pennsylvania depot, 3:15 P.M. Write for space desired.

Blank Applications for membership in the Association, at the JOURNAL office.

## CORRESPONDENCE.

## The Case Against the Code.

SAN JOSE, CAL., April 3, 1895.

To the Editor:—I have just received a copy of a circular issued by the Philadelphia County Medical Society under date of March 11, 1895, desiring action by our county and State societies in relation to the character of advertisements that shall appear in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. This circular states among other things the following:

1. "The Code of Ethics—the moral and organic law of the AMERICAN MEDICAL ASSOCIATION—as is well known, not only prohibits physicians from employing secret nostrums, but declares that 'in any way to promote the use of such nostrums is reprehensible.'

2. "The advertising of such nostrums in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, which is taking place, is certainly an attempt to promote their use. The ASSOCIATION appears, therefore, at least tacitly to permit the Editor and Trustees of its official JOURNAL to transgress, in the conduct of the JOURNAL, the law laid down for our guidance as physicians."

It may be recollected that the present writer had something to say a year ago and more, in the JOURNAL, on the question of the revision of the Code of Ethics. I pointed out then some of the glaring inconsistencies as between some of the declarations of the Code and the practices of most members of the profession. I urged the importance of revising the Code that our professions and practice might be in harmony. But the majority at the San Francisco meeting thought that the old creeds had better stand, while we would go on belying them every day.

This Philadelphia County Medical Society assumes an air of immaculateness, innocence and virtue that is refreshing in these days of moral degeneracy and humbuggery. They say the JOURNAL OF THE ASSOCIATION must be immaculate like themselves, and stand on the very orthodox letter of the Code! There must not be the least shadow of a doubt about every medicine and thing advertised in the JOURNAL as being warranted by "The Patent Regulator," the Code. Their chief refrain seems to be in relation to proprietary medicines, forgetting at the same time that the Code also declares that no member of the ASSOCIATION shall patent a surgical instrument or appliance, and inferentially "that he must not use a patented instrument or encourage the use of the same." "Consistency, thou art a rare jewel!" What about the patent vibrometers, nebulizers, uterine supporters, artificial limbs, surgical chairs, and multitudinous other instruments advertised in the columns of the JOURNAL from time to time? Should the JOURNAL aid the use of patented instruments any more than proprietary medicines? Philadelphia County Society, stand up and answer!

The Philadelphia County Society may be composed entirely of members who are nothing but the true blue, Code of Ethics type of medical gentlemen; but if we can judge of that society by what we know of others, and at such long range, I would seriously question whether their practice corresponds with their preaching. In the first place, how many members of that society use proprietary medicines constantly in their practice? Yea, how many, even, have used antikamnia? How many members of that code-bound society use patented surgical instruments or appliances in their practice? Is it a sin to patent a surgical instrument, but not a sin to use one? Would the members of this society allow a patient to die before they would use a patented surgical instrument, and thus violate the Code? If not, why not?

This society says that a certain class of advertisements that are admitted to the columns of other supposedly respectable medical journals must not be published in the columns of our JOURNAL, as being inconsistent, and contradictory to the Code.

Let us put these gentlemen on the witness stand again: Do the members of the Philadelphia County Medical Society take any other journals than the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION? If so, do not all these journals contain in their advertising columns just the very class of advertisements that they declare shall not be published in our JOURNAL? Why do they take journals which aid and abet the use of secret nostrums or proprietary medicines? In doing so, are they not likewise aiding the use of said remedies?

As I said, in the first place: "Consistency is a rare jewel." If we are guided by an injunction which is much older than the Code of Ethics of our ASSOCIATION, and which reads, "Let him that is without guilt cast the first stone," I wonder how many stones will be thrown? I wonder if the members of the Philadelphia County Medical Society would make the air fairly black with missiles? Our own Augean stables must be cleaned before we insist on a general cleaning up all round. We must "get the beam out of our own eyes."

The only way to have consistency between the Code and the practice of the profession, in regard to patent things in general, is to remove the clause referring to the same from the Code. We know that we are professing one thing and practicing another now; why should the inconsistency continue?

Yours truly,

A. C. SIMONTON, M.D.

## Of What Use Is the Pharmacopœia?

FORT WAYNE, IND.

To the Editor:—I do not wish to disparage the United States Pharmacopœia in the least, nor to detract from the great merit of a work involving so much conscientious care and science and labor on the part of its authors, but I think I voice the feeling of the profession generally when I ask the question written above.

In England, the College of Physicians has a legal right to inspect apothecaries' shops, and therefore to determine to some extent the nature of their contents. In Germany, Italy, and some other European countries the civil authorities have control over pharmacies, and can fine the proprietors if a specified list of drugs of a specified quality be not kept in stock. But in the United States there is no legal control of pharmacy, except in regard to pharmacists' qualifications, and there is no pretense on the part of physicians to regulate the range of their remedies by the Pharmacopœia. A few druggists are still found who make their salts and tinctures as this authority prescribes; for most drugs and preparations are purchased from reputable wholesale dealers, and from manufacturers whose pharmaceutical laboratories are on a scale calculated to inspire confidence in the purchaser regarding the purity and standard strength of drugs sold. Hosts of small makers, too, compete for the patronage of the physicians, with a pill or tablet or elixir; and the German color makers supply most of the newer and rarer chemicals.

Under these circumstances, the Pharmacopœia seems to be out of gear with the times, and is to be looked on as a kind of survival from the past, like the great auk and the woolly rhinoceros. Yet it is quite possible that there is still a place for a United States Pharmacopœia, provided that the book can be made to suit the conditions of these days. Until then, it is only an expensive luxury, and an unnecessary imitation of works that—under the different laws of European countries—may have some good right of

existence. What number of American physicians use the Pharmacopœia in their practice, or have it in their libraries? What drugstore confines itself to the Pharmacopœia, or cares for it as an authority? What medical college uses the Pharmacopœia as a text-book for teaching materia medica? It was said once that the work "has got away from the medical profession;" but I think it is the profession—including pharmacy—that has emancipated itself from the Pharmacopœia.

In America, our chief use of such a work would be to fix or standardize the nomenclature of drugs. A second use would be to offer a list of drugs that are therapeutically efficient, distinguished from drugs that are valueless or inert, and from new remedies that have not been sufficiently tested. A third use would be to reinforce the decimal system of weights and measures in medical usage; and, to accomplish this, a new weight, the decimilligramme, should be added, and the system must be made to conform better to the *teaspoonful*, until the domestic and convenient measure can be eliminated.

More regard must be paid to the convenience of prescribers; the confusion between waters, liquors, and solutions, syrups, elixirs and glyceroles, tinctures, wines and spirits, and so on, should be abolished. A more extensive list of remedies, with posologic and therapeutic tables might be added. The list of preparations should be as brief as possible—especially of compound mixtures and syrups, and powdered extracts, tablets and troches should be recognized. We should regret to give up the Pharmacopœia; we should be glad to see it radically recast; but, in its present form, we are justified in asking, Of what use is the U. S. Pharmacopœia? W. P. WHERY, M.D.

### Leprosy Case—Where It should be Reported.

NEW YORK, March 31, 1895.

To the Editor:—I beg to state, with reference to one of your remarks in the Public Health columns, of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, March 30, as to my not reporting a certain case of leprosy directly to the local Board of Health that I take, in such affairs, a higher ground. According to my opinion, such cases should be reported to a United States Health Officer, and the State or City Board of Health should have nothing to do with them. The State Board of Health would think only of the protection of its own citizens, and would most probably do everything possible to shift the responsibility, that is the expense of the maintenance of the leprosy family on some relations or friends of the leper, living perhaps in another State. If the danger was averted from their own vicinity, their particularistic conscience would be perfectly satisfied.

A city board would rather shut its eyes and ears to the proclamation or avowal of existing leper cases, than to undergo all the evils resulting from the reception of such a communication. Think of the New York Chinese lepers who had to be shipped back and forth, to and from Vancouver, in box cars (like cattle), and then to be exposed miserably on the extremity of North Brothers Island, until death separated them still more from human charity, as they had been separated from it before. These things must be trying for any human being whose power and authority decrees them, and we have no reason to believe that the members of our Board of Health have harder hearts than the rest of us.

If these cases were reported to the United States Public Service, the Federal Government would have to protect every State equally, and the United States ships could return the lepers to the place where they came from, without those vain and expensive endeavors to get rid of them by way of Van-

couver, whence, as the British steamers declined to receive them, they had to be brought back.

I may add here, that I mentioned this beginning of a leprosy condition after the puncture of a fish-bone, to Professor Putnam. He said that while he was helping Agassiz in his investigations on fish, the assistants very often received poisonous wounds, but that these poisonous wounds were always painful. It must be remembered that the wounded place in our leper was anesthetic. Professor Putnam is of opinion that the poisonous element in fish resides in the mucus; for when the bones had been washed with alcohol, or simply dried, no puncture had any poisonous effect.

I must say that it seems to me quite probable that the leper whom I have seen here, had already when he came in contact with that fish, at least the beginning of leprosy anesthesia.

Dr. Bristow, of Brooklyn, asked me how I could explain the fact that in my case the tuberculation appeared first on the face, while the inoculation had begun in the finger. I answered that the tuberculation occurring in the face and outer sides of the forearms, and on the back of fingers is supposed by Unna to be due to selection by the bacilli; they established themselves in those regions where the least motion is felt. The occurrence of tuberculation in the exposed parts of the body is the strongest argument for the theory of host-inoculation. Yours truly,

ALBERT S. ASHMEAD, M.D.

### The Warren Formula.

ROSLINDALE, MASS., March 29, 1895.

To the Editor:—Will you kindly give me the name of the writer of the answer to "Injections in Hernia," printed on page 418, March 16 issue of the JOURNAL? I want to learn the page in Heaton on the "Cure of Rupture" where that formula occurs. As a fact the formula is copied from page 65 of "A Plea for the Cure of Rupture," by Jos. H. Warren, A.M., M.D., LL.D. You will find other formulæ on page 57. Heaton used only oak bark, pure and simple. The formula that you print was first used by my father, Dr. Warren, and was an improvement on Heaton's crude method. Heaton's book was published in 1877. My father's books were dated 1880 and 1884, and were considered authoritative.

I fail to see how such a flagrant mis-statement as crediting the formula to Heaton could possibly have occurred, and I trust a correction will be made at an early date.

Yours respectfully, CHAS. EVERETT WARREN, M.D.

ANSWER.—The prescription mentioned was quoted from Marcy ("The Anatomy and Surgical Treatment of Hernia," New York, 1892, p. 275). He says: "Dr. Warren began operating upon hernia by the Heaton method soon after the author's death. He stated in a note to his second edition, that he is 'convinced the credit of the origination of the method belongs to Dr. Pancoast; that to Dr. Heaton is due the discovery of the exceptional value of the thick extract of the oak bark.' . . . He greatly modified and improved the instruments to be used, both needles and syringe, and changed somewhat the medicamenta employed. Among the recipes commended the following is preferred"—Then follows the prescription given in our issue of March 16, 1895. It is due to Warren to say that Heaton used the fluid extract of white oak bark alone. The alcohol, ether, morphia and tincture veratri viridis were added by Warren. In our answer to our Alabama correspondent we gave the formula without the slightest intention to detract from whatever of merit was contained in the additions mentioned, or the twisted needle of the Warren syringe. Only a part of the editor's library is in Chicago, and in the transfer of a working collection, both Heaton's book by Davenport, and Warren's book were left in his Washington library.

### Diphtheria Epidemic at Akron—Use of Antitoxin.

CLEVELAND, OHIO, April 1, 1895.

To the Editor:—Permit me to submit for the columns of Public Health in the JOURNAL the following item:

An outbreak of diphtheria has recently occurred in the Summit County Children's Home at Akron, Ohio. Dr. L. S. Ebricht, physician in charge of the Home, and Health Officer of Akron, diagnosed and isolated the first case March 21. This boy recovered after a severe illness of a week's duration. March 27 another boy was taken sick, and the next day the disease appeared in three girls. The Home contains sixty children varying in age from 2 years to 15 years, and fifteen attendants. March 30, after making a preliminary bacteriologic examination of one of the cases, I went to the Home with Dr. Ebricht and administered the antitoxin obtained from our (Wooster Medical College) diphtheria-immune horse. The boy who had been sick three days was dying of a profound toxemia, and lived but six hours after my visit. Therapeutic injections of antitoxin were given to the three sick girls at my first visit, also to a new case brought into the hospital March 31. Aside from these therapeutic injections, immunizing injections of the antitoxin were given to all the children and all the attendants in the Home (seventy in all).

Bacteriologic examinations showed diphtheria bacilli in all of the sick children. The four patients who received the therapeutic doses are doing splendidly. Fever and pulse much reduced and *membrane all gone* in all these cases forty-eight hours after the first injection. No new cases have developed in the last two days among the immunized individuals. Thus far we have been unable to trace the cause of this outbreak, which is entirely confined to the inmates of this institution. There seems but little doubt that the prompt and liberal use of antitoxin has saved the Home from a devastating epidemic of diphtheria. Very truly yours,

A. P. OEHLMACHER, M.D.

### No Smallpox at Little Rock.

LITTLE ROCK, ARK., April 1, 1895.

To the Editor:—In the issue of the JOURNAL for March 23, page 454, under the heading "Health Reports," it is stated that from February 1 to March 8, eighty-two cases of smallpox and fourteen deaths have occurred at Little Rock! The report was sent out from the latter place and the error doubtless occurred from that fact, while Hot Springs is the place where the disease has existed and the figures refer thereto. There is no smallpox in Little Rock, but we have the Legislature. Very respectfully, L. P. GIBSON, M.D.

### Cold in the Treatment of Pneumonia.

1829 SPRUCE STREET, PHILADELPHIA, PA.

To the Members of the Medical Profession:—My last paper on "Ice-cold Applications in Acute Pneumonia" gives a record of seventy-four cases so treated, and only two deaths.

Being desirous of making a full collective report on this subject, I take the liberty of asking those who have tried this measure to kindly give me the result of their experience with it. Full credit will be given to each correspondent in the report which I hope to publish.

THOMAS J. MAYS, M.D.

### Infantile Scorbatus.

BOSTON, MASS., March 11, 1895.

To the Editor:—In a recent number of your JOURNAL there is a report of a case of infantile scorbatus in which the infant was nursed until three months old, then fed on Condensed Milk and Mellin's Food, upon which she seemed to thrive till she was about a year old, when certain pathologic symptoms were observed. One of the five doctors under whose observation she now passed, made an attempt to change her diet to cow's milk, but its use was abandoned as it caused nausea and constipation. When sixteen months old she was first seen in consultation by the writer of the article, and the diagnosis of infantile scorbatus was made; at this time the diet was changed by him to fresh cow's milk, with no record of digestive trouble.

He says: "The child was put on fresh milk and a rational diet suited to her age. The attending physician gave a little lime water and cod-liver oil for the rachitis. Later, when she came under my immediate care, Thompson's Solution was given for the same purpose. She steadily improved, and would now make a splendid picture for an advertisement setting forth the fact that proprietary foods are always useless and frequently dangerous."

The sweeping statement in the last sentence of the above quotation is not borne out by the record of the case. The writer says earlier in the article that "proprietary foods mixed with water or condensed milk are the most common causes of this disease. Condensed milk alone and fresh milk unduly diluted have also produced some cases." He superseded the Condensed Milk and Mellin's Food with fresh cow's milk; but he entirely ignores, in his summary, the effect of the Condensed Milk, which elsewhere in his article he says will cause scorbatus, and casts the blame wholly on the proprietary (Mellin's) Food, which he nowhere shows to have been the cause of it. It should be further observed that the Condensed Milk, of itself an inadequate food, was "unduly diluted," half a fluid ounce being mixed with eight fluid ounces of water. This half a fluid ounce of Condensed Milk must represent but a small amount of milk, and probably not the total constituents of that small amount. Condensed Milk being usually deficient in fat, and moreover Condensed Milk is not fresh milk.

It was not the Mellin's Food, it was the lack of fresh milk that caused the disease.

We quote from those eminent authors, Dr. Cheadle and Dr. Barlow, to prove that Mellin's Food was not the cause; these authorities the writer of the article also has quoted.

Dr. Cheadle states his conclusions in reference to infantile scorbatus as follows, in his work entitled "Artificial Feeding and Food Disorders of Infants," third edition, page 216: "In no instance have I seen the disease arise in an infant at the breast, or when fed on an ample supply of good cow's milk. Oatmeal and water, bread and water, various patent farinaceous and desiccated foods, peptonized condensed milk, sterilized milk, pancreatized farinaceous food and milk, German sausage, bread and butter and tea, beef tea, gravy and bread, in most cases with no fresh milk at all, in a few with a very small amount only, are the dietaries on which I have seen scurvy develop, and, latterly, most often on the peptonized and pancreatized foods now so much in vogue."

Dr. Barlow, in the Bradshaw Lecture on Infantile Scurvy (the London Lancet, Nov 10, 1894), says: "Let us turn to the question of food. In the group which I have described, in no single case at the time of onset of the malady has the child been breast-fed. In the great majority, where complete details have been obtained, these infants are found to have been nourished on what may be called 'preserved foods.' In the front rank come the various proprietary infant foods, prepared by the addition of water to certain powders. Then come the different forms of condensed milk, and the proprietary goods made with condensed milk. Then come cases in which, either accompanied by proprietary food or not, fresh milk has been given, but with extreme dilution, during the later stages of infancy."

These quotations from these eminent authors fully sustain our position.

The Liebig formula is a formula for the extemporaneous modification of fresh cow's milk; Liebig utterly condemned the use of farinaceous foods and Condensed Milk. Mellin's Food, a true Liebig food is not a dried milk food; it is not a patent farinaceous or desiccated food; it is not a peptonized or Condensed Milk; it is not pancreatized; it is a preparation for the modification of fresh cow's milk. Our advertisement which has been running in your JOURNAL and other medical journals for some time, brings this prominently to notice. We have been compelled thus to emphasize this point on account of the great efforts that have been made to promote the use of Condensed Milk as an infant food. And we assert, and our assertion is borne out by facts, that infantile scorbatus, "even now comparatively rare," has only been observed to any degree where condensed and desiccated milk and milk foods and other forms of devitalized milk have been substituted for fresh cow's milk. The directions require the use of fresh cow's milk with Mellin's Food; only as a temporary expedient in case fresh cow's milk is not obtainable should the use of Condensed Milk ever be permitted.

In further confirmation of our position we quote from the report of a case of infantile scorbatus, by Prof. William C. Hollopeter in the Medical Bulletin, of Philadelphia: "The duration of the disease was one year, and this long period was consumed by reason of the irritable condition of the gastro-intestinal tract. The slightest change in the diet would provoke a sharp attack of diarrhea. I placed the child on freshly filtered milk, cream, and boiled water, equal parts, which she failed to digest. I then began with freshly peptonized milk, which did well for a short time. Finally I was compelled to resort to equal parts of filtered milk, cream and boiled water, with the addition of two teaspoonfuls of Mellin's Food to each bottle. This seemed to meet the necessities of the case exactly. Meat juice, 5j (4 gm.), t.i.d., and a salt bath every day were also ordered. Medicinally, I prescribed 2 grains (.12 gm.) of the ammoniated citrate of iron in freshly expressed orange juice. This was also too irritating to the bowels, but after reducing the dose so that he might receive 1 grain of the iron and a half drachm of the orange juice twice a day, a marvellously rapid improvement was seen, which soon terminated in complete recovery."

Dr. Cheadle says that fresh milk possesses, in addition to the other essential elements a mysterious anti-scorbutic element. Fresh milk, of necessity, is the antiscorbutic food of infancy. Imperative as its use is, Professor Hollopeter was unable to employ it in the case under his charge until he added Mellin's Food to the fresh milk, when all difficulty ceased. Mellin's Food, prepared with fresh cow's milk, contains the antiscorbutic element, and it will not produce scorbatus, but on the contrary will prevent it.

Respectfully yours,  
DOLIBER-GOODALE CO.

The Forty-sixth Annual Session of the AMERICAN MEDICAL ASSOCIATION will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9 and 10, commencing on Tuesday, at 10 A.M.



## ASSOCIATION NEWS.

**Secretary's Notice.—The Certificate System.**

PHILADELPHIA, March 28, 1895.

Each person when purchasing a ticket to Baltimore must pay full fare, taking receipt of the agent at the time; this signed by the Permanent Secretary at the meeting enables the purchaser to buy a return ticket for one-third fare. These certificates are not transferable, and should one be offered by any one not entitled to it, the Association will be required to pay the penalty. These are good but three days after the adjournment of the Association. The sale does not begin until three days before the meeting. Special arrangement has been made for the American Academy of Medicine, so that its members can obtain tickets early enough to attend its sessions, which begin May 4.

The following railroads have given excursion rates: Alabama Great Southern; Alabama Midland; Atlantic Coast Line; Atlanta & Florida; Atlanta & West Point; Brunswick & Western; Charleston & Savannah; Central Railway of Georgia; Cincinnati, New Orleans & Texas Pacific; East Tennessee, Virginia & Georgia; Georgia; Georgia Pacific; Georgia Southern & Florida; Jacksonville, St. Augustine & Indian River; Knoxville, Cumberland Gap & Louisville; L. & N.; Marietta & Northern Georgia; Memphis & Charleston; Morristown & Cumberland Gap; Nashville, Chattanooga & St. Louis; Pennsylvania; Port Royal & Augusta; Richmond, Fredericksburg & Potomac; Savannah, Florida & Western; South Carolina; Southern Railway and Western Atlantic.

Now we have all roads including those under the Western Trunk Line Passenger Committee. The New York & Boston Lines Passenger Committee have just agreed to a fare and a third. This includes Boston & Albany; New York & New England; New York, New Haven & Hartford; Old Colony; Fall River; Norwich; Providence; Stonington. The Boston Passenger Committee adds to these Boston & Maine; Central Vermont; Concord & Montreal; Fitchburg; Maine Central; Portland & Rochester.

The Trunk Line Association, includes the Grand Trunk Railway; New York, Connecticut & Hudson River; West Shore; N. Y. O. & W.; N. Y. L. E. & W.; Del., Lackawanna & Western; Lehigh Valley; Central of New Jersey; Philadelphia & Reading; Pennsylvania; Baltimore & Ohio; Chesapeake & Ohio.

W. B. ATKINSON, Secretary.

**Section on Neurology and Medical Jurisprudence.**—Daniel R. Brower, M.D., Chicago, Chairman; T. D. Crothers, M.D., Hartford, Conn., Secretary.

## HYPNOTISM.

1. Hypnotism; its Uses and Uncontrolled Abuses, by William Lee Howard, Baltimore, Md.
2. Medico-Legal Studies of Hypnotism, by Charles K. Mills, Philadelphia, Pa.
3. Medico-Legal Relations of Hypnotism, by Hon. Clark Bell, New York City.
4. Duplex Personality and its Relations to Hypnotism and Lucidity, by R. Osgood Mason, New York City.
5. Difficulties in Eliminating Fraud from Hypnotic Phenomena, by Charles W. Burr, Philadelphia, Pa.
6. Hypnotism in General Practice, by J. S. Eskridge, Denver, Colo.
7. Therapeutics of Hypnotism, by S. Allison Hodges, Richmond, Va.
8. Hypnotism in the Management of Inebriety, by T. D. Crothers, Hartford, Conn.
9. The Psycho-Physics of Sleep, by W. Xavier Sudduth, Minneapolis, Minn.
10. Hysterical Amaurosis and Pseudo-Meningitis, with Report of a Case Treated by Hypnotism, by Hugh T. Patrick, Chicago, Ill.

## ELECTRICITY.

11. Observations on some Characteristics and Relations of the Dynamic and Static Forms of Electricity, by A. D. Rockwell, New York City.
12. Treatment of Esophageal Stricture by Electrolysis, by W. S. Watson, Fishkill-on-the-Hudson, N. Y.
13. Sinusoidal Electrical Current and its Practical Uses, by J. H. Kellogg, Battle Creek, Mich.

14. Electro-Therapeutic Technique in the Treatment of Neurasthenia and Nervous Prostration, by G. Betton Massey, Philadelphia, Pa.

15. Electricity in the Treatment of Ocular Neuralgia, by Horace M. Starkey, Chicago, Ill.

16. Electricity in the Treatment of Exophthalmic Goitre, by Robert Newman, New York City.

17. Electric Light Bath; its Uses in the Treatment of Diseases, by J. H. Kellogg, Battle Creek, Mich.

18. Electricity in the Treatment of Chronic Neuritis, by James C. Gill, Chicago, Ill.

## EPILEPSY.

19. On the Relation of Sex to the Prognosis of Epilepsy, by William Browning, Brooklyn, N. Y.

20. The Medical and Surgical Treatment of Children before the Epileptic Habit is Fixed, by E. D. Ferguson, Troy, N. Y.

21. Therapeutics of Epilepsy, by Horatio C. Wood, Philadelphia, Pa.

22. Practical Treatment of Epilepsy, by Frederick Peterson, New York City.

23. The Value of Craniotomy in Epilepsy and Imbecility, by Charles L. Dana, New York City.

24. The Technique of Craniectomy for Epilepsy and Imbecility, with exhibition of New Instruments, by Seneca D. Powell, New York City.

25. Reflex Causes of Epilepsy, by Wharton Sinkler, Philadelphia, Pa.

26. Epileptoid Attacks of Reflex Crises Curable by Surgery, by Robert S. Morris, New York City.

27. Supplementary Treatment of Epilepsy, by A. N. Williamson, New London, Conn.

28. Relations of Food to Epilepsy, by Edward M. Schaeffer, Baltimore, Md.

29. The Limitations of Surgical Operations as a Means of Relief in the Cure of Epilepsy, by Thomas H. Manley, New York City.

30. Some Non-Medicinal Suggestions for the Treatment of Epilepsy, by Samuel J. Fort, Ellicott City, Md.

31. A Remarkable Case of Epilepsy, by W. S. Whitwell, San Francisco, Cal.

32. Solanum Carolinense in the Treatment of Epilepsy, by C. S. Barber, Brooklyn, N. Y.

33. Moral Treatment of Epilepsy, by H. M. Bannister, Chicago, Ill.

34. Surgical Treatment of Epilepsy, by Albert Vanderveer, Albany, N. Y.

35. Disorders of Sleep and Automatism in Epilepsy, by Sanger Brown, Chicago, Ill.

## OTHER PAPERS.

36. Notes on the Nature and Treatment of Chorea. Based on Seventy-five Cases in Private Practice, by A. D. Rockwell, New York City.

37. Suggestive Criminality, by Arthur McDonald, Washington, D. C.

38. Transcendental Therapeutics, by Richard Dewey, Chicago, Ill.

39. Some Atypical Forms of Tabies, by Theodore Diller, Pittsburg, Pa.

40. Diagnosis in some Forms of Nervous and Mental Diseases, by Irving C. Rosse, Washington, D. C.

41. Reflex Neuroses, by James K. King, Watkins, N. Y.

42. Post-Active Treatment of Narcotic Habitues, by J. B. Mathison, Brooklyn, N. Y.

43. Paranoia Differentially and Medico-Legally Considered, by C. H. Hughes, St. Louis, Mo.

44. Migraine, its Causes and Radical Cure, by J. B. Kellogg, Battle Creek, Mich.

45. The Neurotic Element in Pulmonary Consumption, by Thomas J. Mays, Philadelphia, Pa.

46. The Degenerate Ear, by Eugene S. Talbot, Chicago, Ill.

47. Right Hemiplegia and Aphasia—a Case, by H. M. Lash, of Indianapolis, Ind.

48. Early Recognition and Proper Management of the Mentally Disturbed, by W. S. Watson, Fishkill-on-the-Hudson, N. Y.

49. Alcoholic Coma coming under Police Care, by L. D. Mason, Brooklyn, N. Y.

50. The Responsibility of Opium, Chloral and Cocain Inebriates, by T. D. Crothers, Hartford, Conn.

51. Notes of an Epidemic of Acute Anterior Poliomyelitis, by C. S. Caverly, Rutland, Vt.

**Section on State Medicine.**—Liston H. Montgomery, M.D., Chicago, Ill., Chairman; Charles H. Shepard, M.D., Brooklyn, N. Y., Secretary.

## PAPERS FOR AFTERNOON SESSION—TUESDAY, MAY 7.

1. Address by the President of the Section, by Liston H. Montgomery, Chicago, Ill.
2. Physical Training in Childhood and Youth as a Preventive of Disease, by C. F. Ulrich, Wheeling, W. Va.
3. Hygiene of the Eyes and Ears in Schools, by B. Alex. Randall, Philadelphia, Pa.
4. Anticipative Treatment of Disease, Organically, Functionally and Specifically, by W. G. A. Bonwill, Philadelphia, Pa.
5. Municipal Hygiene, by Geo. T. Maxwell, Jacksonville, Florida.
6. The Proper Relations of National, State and Municipal Quarantine, by Jerome Cochran, Montgomery, Ala.
7. Sanitation, by Archelaus G. Field, Des Moines, Iowa.
8. Depopulation of Civilized Nations, by James W. Cokenower, Des Moines, Iowa.
9. Tuberculosis and Its Prevention, by Chas. E. Winslow, Albuquerque, N. M.
10. Prevention of Tuberculosis by Feeding, by E. Cutter, New York City.
11. The Use of Vaccine Serum in Variola, by Llewellyn Eliot, Washington, D. C.
12. The Necessity for Increased Hospital Accommodations for the Treatment of Contagious Diseases in Large Cities, by Benjamin Lee, Philadelphia, Pa.

## AFTERNOON SESSION—WEDNESDAY, MAY 8.

13. The Bath in Modern Medicine, by Chas. H. Shepard, Brooklyn, N. Y.
14. A Practical Demonstration on the Natural Facilities for Water Contamination, by R. Harvey Reed, Columbus, Ohio.
15. Importance of State Government Control of Artificial Agencies that may be Productive of Noises, by Augustus P. Clarke, Cambridge, Mass.
16. Reform in Medical Expert Testimony, by S. S. Herrick, San Francisco, Cal.
17. The Gold in Garbage, by Douglas H. Stewart, New York City.
- 18 and 19. No titles given. Drs. Cressy A. Wilbur, Lansing, Mich.; F. E. Stewart, Detroit, Mich.
20. Observations on Hydrophobia and the Pasteur Treatment, by Antonio Lagorio, Chicago, Ill.
- 21, 22 and 23. No titles given. Drs. Granville P. Conn, Concord, N. H.; John L. Davis, Cincinnati, Ohio; W. C. Woodward, Washington, D. C.

## AFTERNOON SESSION—THURSDAY, MAY 9.

24. Symposium on Alcohol: N. S. Davis, Chicago, Ill.; T. D. Crothers, Hartford, Conn.; J. H. Kellogg, Battle Creek, Mich.; I. N. Quimby, Jersey City, N. J.; W. B. French, Boston, Mass.
25. Danger of Alcohol in the Grip, by Chas. H. Shepard, Brooklyn, N. Y.
26. Acute Alcohol Insanity as Distinguished from Delirium Tremens, by John Morris, Baltimore, Md.
27. The Influence of Alcohol upon Urinary Toxicity, by J. H. Kellogg, Battle Creek, Mich.
28. Report of a Series of Psychologic Tests, Showing the Effect of Alcohol in Moderate Doses upon the Nervous System, by Drs. David Paulson and Howard F. Rand.
29. The Treatment of Typhoid Fever without Alcohol, by W. H. Riley, Battle Creek, Mich.
30. Six Grave Cases of Typhoid Fever successfully Treated without Alcohol, by Kate Lindsay, Battle Creek, Mich.
31. Alcohol in La Grippe, by C. H. Shepard, Brooklyn, N. Y.
32. Influence of Alcohol on the Blood, by Geo. W. Burleigh, California.
33. Fatality of Surgical Operations in Alcoholism, by I. N. Quimby, Jersey City, N. J.
34. Some Factors in the Solution of the Alcoholic Problem, by F. W. Grosvenor, Buffalo, N. Y.
35. Alcoholic Intolerance and Predispositions, by T. D. Crothers, Hartford, Conn.
36. Alcohol Anesthesia, by L. D. Mason, Brooklyn, N. Y.
37. Does Alcohol ever Act as Food or as a Generator of any Natural Force in the Living Body? by N. S. Davis, Chicago, Ill.

**Section on Obstetrics and Diseases of Women.**—Franklin H. Martin, Chicago, Chairman; X. O. Werder, Pittsburg, Secretary.

## PRELIMINARY PROGRAM, SESSION 1—MAY 7, 2 P.M.

Chairman's Address, Treatment of Fibroid Tumors of the Uterus, by Franklin H. Martin, Chicago, Ill.

1. The Method of good Operations and bad Fibroids, by Joseph Eastman, Indianapolis, Ind.
2. Advantages of Abdominal Extra-Peritoneal Fixation of Pedicle in Hysterectomy for Fibroids, by Joseph Price, Philadelphia, Pa.
3. Technique of new Method of Abdominal Hysterectomy, by Nicholas Senn, Chicago, Ill.
4. Technique of Supra-vaginal Hysterectomy, by B. F. Baer, Philadelphia, Pa.
5. Present Status of Treatment of Fibroids of the Uterus by Electricity, by A. Laphorn Smith, Montreal, Canada.
6. Abdominal Ligation of the Uterine Arteries for Fibroids, by Byron Robinson, Chicago.
7. Vaginal Ligation of Broad Ligaments for Fibroids, by C. C. Frederick, Buffalo, N. Y.

Discussion.

## SESSION 2—MAY 8, 11 A.M.

8. Hysterectomy for Pelvic Suppuration, by J. M. Baldy, Philadelphia, Pa.
9. Indications for Total Hysterectomy, by Augustus P. Clark, Cambridge, Mass.
10. Total Hysterectomy by a new Vagino-Abdominal Method, by Albert H. Tuttle, Boston, Mass.
11. Vaginal Hysterectomy, by Edgar Garceau, Boston, Mass.
12. The Treatment of the Stump in Oöphoro-Salpingotomy—a new Method, by L. H. Dunning, Indianapolis, Ind.
13. The Treatment of Inflammations of Uterine Appendages, by Augustin H. Goelet, New York, N. Y.

## SESSION 3—MAY 8, 2 P.M.

14. Hysterectomy for Puerperal Infection, by Reuben Peterson, Grand Rapids, Mich.
15. Suppurative Forms of Ruptured Tubal Pregnancy, by Joseph Price, Philadelphia, Pa.
16. Ectopic Gestation—Its Early Diagnosis and Treatment, by S. L. Jepson, Wheeling, W. Va.
17. Diseases of a Reflex Nature Arising from Pathologic Conditions of the Uterus and Appendages, by W. H. Humiston, Cleveland, Ohio.
18. Two Interesting Cases of Pelvic Surgery, by H. R. Holmes, Portland, Oregon.
19. Subject not announced. By Eugene Boise, Grand Rapids, Mich.

## SESSION 4—MAY 9, 11 A.M.

20. Suspensio-Uteri—the proper Method of Performing It and Its Results, by Howard A. Kelley, Baltimore, Md.
21. Vaginal Fixation in Retro-Fixation of the Uterus, by X. O. Werder, Pittsburg, Pa.
22. Ovarian Dermoids—with Cases, by J. E. Cowles, Los Angeles, Cal.
23. The Treatment of Hemorrhagic Conditions of the Uterus by Zinc Amalgam Cataphoresis, by G. Betton Massey, Philadelphia, Pa.

## SESSION 5—MAY 9, 2 P.M.

24. Symposium: (a) The first American Symphysiotomy, by George M. Gould, Philadelphia, Pa.; (b) Symphysiotomy, by Hugh Hamilton, Harrisburg, Pa.; (c) Porro Operation vs. Symphysiotomy, by Byron Robinson, Chicago, Ill.; (d) Discussion.
25. The Therapeutic Action of Chloroform in Parturition, by Bedford Brown, Alexandria, Va.
26. Original Studies on the Obstetrical Forceps with Mechanical Demonstrations, by J. J. E. Maher, New York, N. Y.

## SESSION 6—MAY 10, 11 A.M.

27. The Vaginal Route for Operations on the Pelvic viscera, by Tod Gilliam, Columbus, Ohio.
28. Subject not announced. By E. E. Montgomery, Philadelphia, Pa.
29. Subject not announced. By John Milton Duff, Pittsburg, Pa.
30. A new Self-Retaining Perineal Retractor, by A. E. Rocky, Portland, Oregon.
31. Subject not announced. By Llewellyn Eliot, Washington, D. C.
32. Episiotomy, by Frank A. Stahl, Chicago, Ill.

A few changes will be made in the above program. Those reading papers will be limited in time to twenty minutes, those taking part in the discussions to five minutes each. Those presenting papers will do well to prepare very short abstracts containing the gist of the paper, which may be given to the reporters of Eastern journals for publication.

FRANKLIN H. MARTIN, Chairman.

## SOCIETY NEWS.

**The Nu Sigma Nu Fraternity** will hold its thirteenth biennial convention May 13, 14 and 15 at Minneapolis with its University of Minnesota fraters. The Association has a dozen chapters located in the different medical universities and a membership which includes more than a thousand prominent physicians. It originated at the University of Michigan, the parent chapter being at present at Ann Arbor. The object of the fraternity is the intellectual and moral advancement of medical practitioners and the elevation of the standard of the medical profession. The last convention was held during the progress of the World's Fair at Chicago when the following grand officers were elected: President, Dr. John L. Irwin, Detroit, Mich.; Vice-President, Dr. James T. Christison, St. Paul, Minn.; Secretary, Dr. Thad H. Walker, Walkerville, Canada; Treasurer, Dr. F. G. Stubbs, Chicago, Ill.; Historian, Dr. Ransom J. Parker, New York City, N. Y.; Guard, Dr. John H. Macready, Cincinnati, Ohio. Elaborate preparation is being made by the twin cities for the entertainment of the delegates.

**Philadelphia Pathological Society.**—At the semi-annual conversational meeting of the Philadelphia Pathological Society, to be held on Thursday, April 25, at 8:15 P.M., in the hall of the College of Physicians, northeast corner of Thirteenth and Locust Streets, Dr. George Dock, of the University of Michigan, will deliver an address entitled "Trichomonas as a Parasite of Man." Members of the profession are cordially invited to be present. **AVOUSTUS A. ESHNER**, Secretary.

**Association of American Medical Colleges.**—The sixth annual meeting of the Association of American Medical Colleges will occur at the Rennert, Baltimore, Md., at 2 P.M., Wednesday, May 8, 1895.

## BOOK NOTICES.

**Degeneration.** By MAX NORDAU. Translated from the Second Edition of the German work; 8vo, pages 560; cloth. New York: D. Appleton & Co. 1895.

This work is one of the healthiest tonics of the present century. It is seldom a book is written with such originality, with such keen insight into poor, weak and erring human nature, and although the tendency of the book is distinctly pessimistic, yet it is as well that the full measure of the degeneracy of the present age should be exposed and made clear, as that a foul ulcer or sinus should be probed to its extremity in order that a cure may be effected. Nor is it fair to charge this author with being an unreasonable cynic, for "the plain dealing remonstrances of a friend differ as widely from the rancor of the misanthrope as the probe of the surgeon from the dagger of the assassin."

The work is divided into five books—Book I, *Fin-de-siecle*; which comprises four chapters, as follows: I, the Dusk of the Nations; II, the Symptoms; III, Diagnosis; IV, Etiology. Book II, *Mysticism*, containing six chapters, namely: I, the Psychology of Mysticism; II, the pre-Raphaelites; III, Symbolism; IV, Tolstoism; V, the Richard Wagner Cult, and VI, Parodies of Mysticism.

Book III on Ego-Mania has five chapters, as follows: the Psychology of Ego-Mania, Parnassians and Diabolists, Decadents and Aesthetes, Ibsenism and Friedrich Nietzsche. Book IV on Realism, has two chapters: Zola and his School; and the Young German Plagiarists. Book V, the Twentieth Century, has two chapters on Prognosis and Therapeutics.

It is impossible for an educated man, especially if he be a physician with a metaphysical turn of mind, to begin reading this book without perusing it to the end, as not only is it very interesting reading, but it presents old facts and new theories with such wit and wisdom as to keep one's interest throughout. We can not refrain from giving an extract from this highly original and very timely work. Page 7:

"Let us follow in the train frequenting the palaces of

European capitals, the highways of fashionable watering places, the receptions of the rich, and observe the figures of which it is composed.

"Among the women, one wears her hair combed smoothly back and down like Rafael's Maddalena Doni in the Uffizi at Florence; another wears it drawn up high over the temples like Julia, daughter of Titus, or Plotina, wife of Trajan, in the busts in the Louvre; a third has hers cut short in front on the brow and long in the nape, waved and lightly puffed, after the fashion of the fifteenth century, as may be seen in the pages and young knights of Giovanni Bellini, Botticelli and Mantegna. Many have their hair dyed, and in such a fashion as to be startling in its revolt against the law of organic harmony, and the effect of a studied discord, only to be resolved into the higher polyphony of the toilet taken as a whole. This swarthy, dark-eyed woman snaps her finger at nature by framing the brown tones of her face in copper-red or golden-yellow; yonder blue-eyed fair, with a complexion of milk and roses, intensifies the brightness of her cheeks by a setting of artificially blue-black tresses. Here is one who covers her head with a huge heavy felt hat, an obvious imitation, in its brim turned up at the back, and its trimming of large plush balls, of the sombrero of the Spanish bull-fighters, who were displaying their skill in Paris at the exhibition of 1889, and giving all kinds of *motifs* to modistes. There is another who has stuck on her hair the emerald-green or ruby-red *biretta* of the mediæval traveling student. The costume is in keeping with the bizarre coiffure. Here is a mantle reaching to the waist, slit up on one side, draping the breast like a *portiere*, and trimmed round the hem with little silken bells, by the incessant clicking of which a sensitive spectator would in a very short time either be hypnotized or driven to take frantic flight. There is a Greek *peplos*, of which the tailors speak as glibly as any venerable philologist. Next to the stiff monumental trim of Catharine de Medici, and the high ruff of Mary, Queen of Scots, goes the flowing white raiment of the Angel of the Annunciation in Memling's pictures, and, by way of antithesis, that caricature of masculine array, the fitting cloth coat, with widely opened lapels, waistcoat, stiffened shirt front, small stand-up collar and necktie. The majority, anxious to be inconspicuous in unimaginative mediocrity, seems to have for its leading style a labored rococo, with bewildering oblique lines, incomprehensible swellings, puffings, expansions and contractions, folds with irrational beginning and aimless ending, in which all the outlines of the human figure are lost, and which cause women's bodies to resemble now a beast of the Apocalypse, now an arm-chair, now a triptych, or some other ornament.

"The children, strolling beside their mothers thus bedecked, are embodiments of one of the most afflictive aberrations into which the mind of a spinster ever lapsed. They are living copies of the pictures of Kate Greenaway, whose love of children, diverted from its natural outlet, has sought gratification in the most affected style of drawing, wherein the sacredness of childhood is profaned under absurd disguises. Here is an imp dressed from head to foot in the blood-red garb of a mediæval executioner; there a four-year-old girl wears a cabriolet bonnet of her great-grandmother's days and sweeps after her a court mantle of loud-hued velvet. Another wee dot, just able to keep on her tottering legs, has been arrayed in the long dress of a lady of the First Empire, with puffed sleeves and short waist.

"The men complete the picture. They are preserved from excessive oddity through fear of the Philistine's laugh, or through some remains of sanity in taste, and, with the exception of the red dress coat with metal buttons, and knee-breeches with silk stockings, with which some idiots in eye-glass and gardenia try to rival burlesque actors, present little deviation from the ruling canon of the masculine attire of the day. But fancy plays the more freely among their hair. One displays the short curls and the wavy double-pointed beard of Lucius Verus; another looks like the whiskered cat in a Japanese *kakemono*. His neighbor has the *barbiche* of Henry IV., another the fierce mustache of a lansquenet by F. Brun, or the chin-tuft of the city watch in Rembrandt's 'Ronde de Nuit.'

On ego-mania, the author pays his respects to Oscar Wilde as follows:

"The ego-mania of decadentism, its love of the artificial, its aversion to nature, and to all forms of activity and movement, its megalomaniacal contempt for men, and its exaggeration of the importance of art, have found their English representatives among the æsthetes, the chief of whom is Oscar Wilde.

"Wilde has done more by his personal eccentricities than by his works. . . . It is asserted that he has walked down Pall Mall in the afternoon dressed in doublet and breeches, with a picturesque biretta on his head, and a sunflower in his hand, the quasi-heraldic symbol of the aesthetes. This anecdote has been reproduced in all the biographies of Wilde, and I have nowhere seen it denied. But is a promenade with a sunflower in the hand also inspired by a craving for the beautiful? . . . Be that as it may, Wilde obtained, by his buffoon mummery, a notoriety in the whole Anglo-Saxon world that his poems and his dreams would never have acquired for him. . . . Oscar Wilde apparently admires immorality, sin and crime. . . . The aesthetes carry themselves as if they were the soul of humanity and make a parade of their contempt for the Philistine. They belong, however, to elements of the race which are most inimical to society, insensible to its tasks and interests, without the capacity to comprehend a serious thought or a fruitful deed. This rabble, which claims for itself a top place in the scale of intellectual rank and freedom from the restraint of all moral laws as its most noble privilege, is certainly baser than the lowest scavenger. Ego-maniacs, decadents and aesthetes have completely gathered under their banner this refuse of civilized peoples, and march at its head."

Had Nordau access to the court papers and to the Marquis of Queensberry in advance of the recent *denouement*? It seems very unlikely; but after all it is critical science which has enabled him thus early to point out the fact that persons of Wilde's stamp are not only "degenerates" but "perverts." We repeat, as it was said in the beginning, that this book will prove to be one of the most healthy tonics to offset the insidious invasions of the false theories of a degenerate age.

## PUBLIC HEALTH.

**Disposal of Garbage.**—There is promise, in the increased attention now being paid to the disposal of garbage by sanitarians, physicians and engineers, of a satisfactory solution of the vexing problem. Recent papers by Drs. Thomas H. Manley and Douglas H. Stewart, of New York City, as well as the paper on the "Collection and Disposal of the Refuse and Garbage of Large Cities," presented by Mr. W. F. Morse at the Montreal meeting of the American Public Health Association, clearly indicate the lines on which this solution must be attained. Possibly Dr. Manley is a little optimistic in his trust that the individual may be educated out of his indolent and thriftless habits and so be made to do any important share of the work necessary for the inoffensive disposal of the waste and refuse his daily life creates. But the effort is certainly worth trying, whether it succeeds in making "this material, now treated as offal and a nuisance, a source of revenue to every householder," or not.

**Mortality by Influenza in New York in February.**—The monthly *Bulletin* of the New York State Board of Health charges 3,000 deaths to la grippe in the present epidemic. Of this number 1,600 deaths are estimated in the month of February, and 1,400 in January, or 57 each day in the second month against 45 each day in the first month. A like mortality is predicted by the reporter in March. The mortality by influenza is partially masked under an excessively high total by consumption, whose mortality is always accelerated and intensified by that other cause. Deaths from old age as is usual in epidemic winters were precipitated; the enormously large death rate in old people has been repeatedly commented upon as a feature of the epidemic prevalence of influenza in London and Glasgow in the present winter. There was a great increase in the respiratory deaths, and also in that "waste-basket of causes," the unclassified. Of this latter, some of which was influenza doubtless, the total for February was 1,621 in a total of 10,771 deaths; a plan of statement

that leaves every subject of comparison dubious and debatable.

**Stringent Rules Governing the Pollution of Streams.**—The New York State Board of Health has passed certain regulations that have operated very favorably for the protection of the water supply of Brooklyn. As a consequence, the agricultural use of quite a large acreage has been restricted at Springfield on Long Island. The farmers having grievances on this account will sue the city of Brooklyn for indemnification for the lost use of their farm lands that border on that city's water courses. The rules of the State Board were put in force in August, 1894; the particular clause in those rules which seems to have aroused a feeling of antagonism among the Long Islanders is one which prohibits the fertilizing of land within fifty and one hundred feet of the streams. The enforcement of this law will throw into disuse large tracts of land which have heretofore been cultivated as vegetable gardens by the tenants of the houses. This means a great depreciation in the value of the property, the owners say, and they are inclined to question the power of the city to practically condemn the land without the payment of damages. The interested parties are considering the matter with a view of petitioning the authorities to so amend the objectionable law that their tenants may continue in the same old way so far as concerns the cultivation of their gardens.

**Beef vs. Horseflesh.**—What is termed a "beef famine" is now impending in this country, simultaneously with which it is noted that hundreds of thousands of wild horses are roaming our Western plains wasting the grazing needed for cattle. These animals have little or no market value—\$2 being the highest quoted price—and yet the consumption of horseflesh is increasing so rapidly in Europe that worn-out horses for which butchers formerly paid only from \$5 to \$10 are now worth \$45 to \$50. Mr. E. W. Tingle, United States Consul at Brunswick, Germany, sees here a great opportunity for American packers. Upward of 20,000 horses are annually slaughtered for sausage meat in the Paris abattoirs alone. These animals are carefully examined by competent veterinary authority and only absolutely healthy ones are accepted. The *chevaline*, or horse sausage, has become so popular that the *Commite d'Hygiene* of Paris has been appealed to, to discriminate against its sale by some form of label. The *Commite* has adopted a method devised by two German chemists, MM. Edelmann and Brautigan, of distinguishing between the *chevaline* and ordinary sausage. This consists in adding to a bouillon of the sausage meat, acidulated with a 5 per cent. solution of commercial nitric acid, a few drops of iodized water or Gram's solution, which are allowed to flow down the sides of the tube containing the bouillon. With the horse bouillon there is formed a violet-red-brown ring, which is not developed in veal, beef, mutton, pork, dog or chicken bouillon. As determined by this test, all horse sausages will be henceforth labeled accordingly, but it is not believed that the label will diminish the popularity of the *chevaline*. The proper place for its manufacture is, however, as Mr. Tingle might have suggested, in our Western States where wild horses multiply so rapidly that stallions are declared to be *feræ nature* and may be shot down on sight.

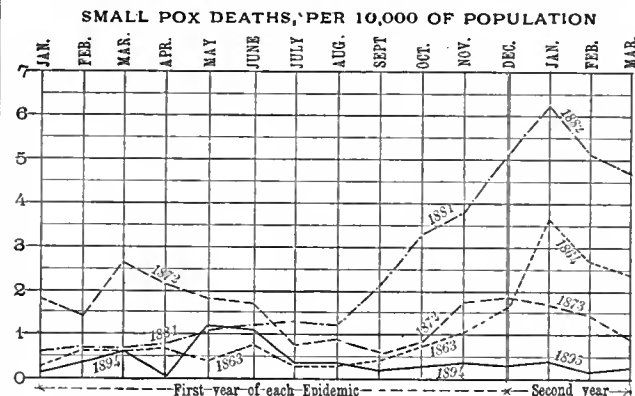
**Winter Mortality of Chicago.**—Dr. A. R. Reynolds, Health Commissioner of Chicago, compares the mortality of the winter quarter of 1895, ended March 31, with the mortality of the corresponding period in previous years. The comparison shows an increase of 27 per cent. in the total mortality of 1894. The total deaths from all causes during the quarter were 6,648—an annual rate of 16.62 per thousand of 1,600,000 population; the average death rate of the corre-



sponding quarter for the previous ten years, 1885-1894 inclusive—was 19.10 per thousand; the lowest in 1894—13.08 per thousand; the highest in 1891—23.40 per thousand. Acute lung diseases, complicated with influenza, are responsible for the increased death rate. This group, pneumonia, bronchitis and influenza, shows an increase of 143 per cent., as compared with the winter quarter of 1894, and pulmonary consumption shows an increase of 12.5 per cent. The Commissioner says that the prevalence of influenza has been more general than is indicated by the number of deaths (142) returned as from that cause. To its complications are to be attributed the great severity and fatality of pneumonia and bronchitis, as well as a large number of non-fatal cases of illness of masked or obscure symptoms which have affected the tone of the general health of the community and especially of the aged and enfeebled. It is, however, the unusual seasonal influences which have caused the increased death rate, rather than the prevalence of influenza. The mean temperature for the month of January was 6.8 degrees lower than the average January temperature of the previous twenty-five years, and the extremes ranged between 9 degrees below zero to 51 degrees above. During February the deficiency in temperature and the range of extremes was still more marked; the mean temperature was 10.7 degrees below the normal, the accumulated deficiency of daily mean temperature at the close of the month was 50.4 degrees, and the extremes ranged from 15 degrees below zero on the 8th of the month to 61 degrees on the 28th—a range of 76 degrees. More than half the month was cloudy or partly cloudy, with an excess of humidity. During this month the deaths from pneumonia rose in number from 163 in January to 444, or nearly one-half of the total number for the quarter.

Concerning smallpox, Dr. Reynolds says: "With the close of the first quarter of 1895, it seems to be entirely safe to say that the fourth serious—and at one time the most threatening—visitation of smallpox upon Chicago is at an end. The disease has steadily declined since June, 1894, that is to say, from a period within thirty days after the great vaccination campaign was fairly inaugurated. That work is now conceded, both in this country and abroad, to be one of the most signal triumphs of preventive medicine on record, and a feat of sanitary administration without a parallel in respect of magnitude and diversity of population dealt with, of successful avoidance of overt opposition to the enforcement of health ordinances and regulations, and of direct results in the prompt check and ultimate suppression of the ravages of a pestilence. In many respects there is a striking parallel between the four great smallpox epidemics in Chicago—the first beginning in December, 1862, and continuing to June, 1864; the second beginning in October, 1871, and continuing to January, 1874; the third beginning in April, 1880, and continuing to June, 1883; and the latest beginning in June, 1893, and now substantially at an end. The features common to these epidemics are the great historic events, involving large movements of population, transient or permanent, which occurred at the corresponding periods, as when, in 1862, during the Civil War, Chicago received large numbers of Confederate prisoners and of immigrants, both of which classes repeatedly introduced the smallpox contagion; again, in 1871-72, when the rebuilding of the city after the Great Fire attracted thousands of immigrants, both domestic and foreign; again, in 1880, when there began the heaviest immigration movement in the history of the country; and, finally, in 1893, the World's Fair year. Preceding each of these epidemics there had been periods of entire freedom from the disease, and the few scattering cases which broke these periods were readily dealt with and created no alarm, so that vaccination became more and more neglected and the aggregation of susceptibles larger and larger until the explosion ensued. In neither of the first three epidemics was it found feasible to secure vaccination on any adequate scale—in fact, Dr. Rauch, in his "Sanitary History of Chicago," says there was no provision for gratuitous vaccination in the epidemic that began in 1862, and that "the neglect of this precautionary measure was the cause of the daily increase of cases which continued for nearly two years after." And again, in speaking of the epidemic of 1871-74, the same eminent authority shows that it was not until "January, 1874, that the diminished susceptibility of the population and the amount of vaccinal protection which had been secured resulted in a marked decrease." In the last preceding epidemic, that of 1880-83, greater effort was

made to secure vaccination, but only 48,900 vaccinations were performed in 1881 and 110,540 in 1882—or a little more than 28 per cent. of the population in the two years. It was not until the National Board of Health undertook the inspection and vaccination of every unprotected immigrant arriving in Chicago that this epidemic was materially checked in January, 1883. Last year a total of 1,069,500 free vaccinations were performed—586,000 in the month of May. The accompanying diagram shows the result:



The solid black line indicating the course of this epidemic, shows the highest mortality in May, 1894, when there were 253 deaths, or 1.61 to each 10,000 of population. The decline since then is striking when compared with the broken lines indicating the course of the previous epidemics at corresponding months. The slight increase shown in January was caused by importations from Roby, the drainage canal and other points outside the city; that shown in March, by a colony of negroes from Tennessee and by refugees from the South.

As an epidemic, smallpox ceased in Chicago within thirty days after it became possible to secure an adequate supply of pure and efficient vaccine.

Comparative figures of the four epidemics:

Epidemic of	Highest Monthly Mortality.	Death per 10,000 of Population.
1862-64 . . . . .	January, 1864	3.66
1871-74 . . . . .	March, 1872	2.64
1880-83 . . . . .	January, 1882	6.15
1893-95 . . . . .	May, 1894	1.61

Mortality at the close of the first quarter of 1895, and for corresponding periods:

March, 1864,	2.46 deaths per 10,000 of population
" 1873,	0.95 " " "
" 1882,	4.67 " " "
" 1895,	0.22 " " "

## MISCELLANY.

**Neurological Infirmary at Flushing, N. Y.**—The following named physicians have formed a syndicate for the purpose of establishing at Flushing, Long Island, a hospital to which they can send their patients—Drs. E. G. Janeway, F. S. Dennis, J. D. Bryant, W. T. Bull and E. M. Hamilton. The start will be made with rooms for thirty patients, under the personal charge of Drs. Killilea, Constable and Burchard. The nervous diseases will have the first claim upon the institution.

**Lay Comments on a Lithopædion.**—A surgical operation was recently performed at the Religio-Medici General Hospital at X—, for the removal of a lithopædion from an adult male. The operation was successful as to the delivery by laparotomy, of the fetal remains, but the parent did not survive. Two ladies traveling in one of our public conveyances were overheard discussing the singular operation. One of them remarked: "So odd, was it not, and in a young man, at that." "Yes," replied the other in a subdued tone of voice, "and a bachelor too."

**Dentists' Relations Not Confidential.**—During the trial of the case of *The People vs. Stonewall J. De France* for forgery,

the defense attempted to raise a question of identity, for which purpose they showed that the teeth of the accused were entirely different from those of the person committing the forgery as alleged. In rebuttal, a dentist of Detroit was cited who testified that subsequent to the date of the forgery he had inserted three false teeth in the place of two incisors for De France. The case was carried up on appeal to the Supreme Court of Michigan, on the ground that the trial court had erred in admitting the dentist's testimony, claiming that his knowledge was privileged as between physicians or surgeons and patients. The Supreme Court affirmed the verdict of conviction and held that the terms "dentist" and "physician or surgeon," as the latter are used in the statute covering this point, are not interchangeable and that a dentist's relations with his patient can not be considered confidential as is the case with a physician or surgeon.

**Quackery in China.**—In the far-off province of Yun-nan of southwestern China there are divisions in medical practice not unlike those America and Europe know. There are "regulars" and there are quacks—and it is difficult to tell which of the two are the more unsafe. A missionary writes to one of our cotemporaries: "Quack doctors are commonly to be met with at every fair and on every market day, and they interfere not a little with the regular and resident practitioners of the city. So far as the people are concerned it makes but little difference which of them treats their cases, for the local and the itinerant doctors are alike ignorant of the first principles of anatomy, physiology or medicine."

**Legislation Against Coroners in New York.**—Although the present constitution puts it in the power of that State Legislature to wipe out the old and much abused coronial system, very little progress has been made. A bill has been introduced and shelved at the instance of the present officers, on the ground that the latter should have an opportunity to "examine" the bill. The bill, if accepted, will be very far from satisfactory to the reform element that has in view a complete substitution of the old system, by another resembling the medical examiner system of Massachusetts. There are now four coroners for New York County, with a salary of \$5,000 and \$3,000 for expenses. If the new plan is adopted there will be, after the term of the present officers shall have expired, one coroner at \$10,000 and a like amount for expenses and clerk hire. The most important feature of the bill is one that authorizes the coroner to appoint six qualified physicians as medical examiners at salaries from \$3,000 to \$5,000. Coroners' juries will be abolished. An inquest will be held by the coroner with a stenographer present to take down the evidence.

**Ambulance Cars on Trolley Lines.**—Dr. Z. Taylor Emery, Health Commissioner of Brooklyn, it is reported purposes to add a trolley service to the very ample ambulance system of that city. As we believe, Dr. George Homan, Health Officer for St. Louis, has been the first to secure that public service for a city. He attempted to induce the Legislature to pass a law providing for the service, but when this effort failed he succeeded in interesting the officers of the railroad companies in the subject. As a result a trolley car has been equipped as an ambulance and it will soon be running on schedule time over all the trolley lines in the city. It is not intended that the car should take the place of the emergency ambulance service. A large proportion of hospital patients are transferred from houses and could await the arrival of the car on its schedule time. The transfer can be made by the car much more comfortably than by the ordinary ambulances. The St. Louis car is thirty-three feet long and is divided into two compartments by a movable partition. It is lighted and heated by electricity and con-

tains reclining chairs, stretchers and such surgical appliances as may be needed, and is manned by a trained nurse and a surgeon. Dr. Homan believes the car will give great satisfaction not only to the hospitals, but to the people who are compelled to use it.

**"Hobbies."**—We presume medical journals, like everybody else, have the right to ride hobbies; but when one is ridden to such extremes as our Pittsburg cotemporary does, that of advertising in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, it makes us very weary. We could have some patience with our neighbor's crotchets so long as he practiced what he preached. But now that he is advertising Fairchild's "Panopepton," "Baker's Codliver Oil," "Mackintosh Supporters," "Alloinum," Marchand's "Peroxid," Fehr's "Compound Talcum," Boehringer's Cocain," Parke, Davis' "Kola Cordial," together with patent adjustable eyeglasses, mineral waters without end, Hoff's "Extract of Malt" liquors, wholesale and retail, private maternity retreats, etc., etc., all excellent in their way, but no better or no worse than many of those advertised in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, we think it is time to let up on the old "chestnut" of advertising in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*.—*Cleveland Medical Gazette*.

**Did Marie Stuart Have the Influenza?**—Nothing reconciles your true Briton to any physical affliction so thoroughly as that he shall have shared it in common with royalty. The recent prevalence of influenza in England and Scotland has caused a search to be made for illustrious sufferers from the malady, the latest result of which is that Mary, Queen of Scots, had an attack in November, 1562, of a distemper "which no doubt was influenza." It was thus described by Thomas Randolph in a letter to Cecil: "May it please your Honours, immediately on the Queen's arrival here she fell acquainted with a new disease that is common in this town, called here the New Acquaintance, which passed through her whole Court, neither sparing lord, lady, nor damoiselle, not so much as either French or English. It is a pain in their heads that have it, and a soreness in their stomachs, with a general cough that remaineth with some longer, with others shorter time, as it findeth apt bodies for the nature of the disease. The Queen kept her bed six days. There was no appearance of danger, nor many that die of the disease, except some old folk. My Lord of Murray is now presently in it; the Lord of Liddington hath had it." It may be that the "New Acquaintance" was, in fact, influenza, but Hirsch makes no record of the disease in England until 1688. There was, however, a general diffusion of influenza in Europe in 1557 and in Italy in 1562. Mary left France for Scotland in August, 1561, and it might be presumed that she brought the disease with her if it were not that Randolph asserts that the "New Acquaintance" was already common in Scotland before her arrival.

**An Areopagus Needed.**—Reviewing Dr. H. M. Bannister's authorized translation of "A Practical Manual of Mental Medicine," by Dr. E. Régis, the *Dublin Journal of Medical Science* discloses in its prefatory remarks, an unusually intimate acquaintance with matters and things American. Referring to the fact that this volume is the first instance of a work treating of mental alienism, written by an alienist, translated by an alienist and, under the direction of an alienist, printed and bound by the insane—the inmates of the Utica Insane Asylum—the *Journal* says: "Recently there has been, at the Utica Asylum, one of those crises which periodically disturb the government of all such places. The lay committee and the medical staff having differed—as we understand, originally on the subtle and difficult question of how far it was the medical superintendent's duty to keep the committee men supplied through the winter with flowers and grapes grown in the asylum greenhouses—it was decided by the more powerful party that changes must be made, and one of these has been to suppress the Utica press, to force the *American Journal of Insan-*

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, APRIL 20, 1895.

No. 16.

## LECTURES.

### LECTURES ON INTRACRANIAL SURGERY.

V—BRAIN TUMOR AND ITS SURGICAL TREATMENT.

BY EMORY LANPHEAR, M.D., PH.D.  
ST. LOUIS, MO.

Operation for brain tumor is certainly an enticing one—the possibilities are so great. The first inducement is the fact that the result from the expectant plan is invariably fatal, generally within two years; the sometimes wonderful changes apparently wrought by internal medication are deceptive—they do not prolong life; and this is believed by some to be true even of syphilitic intracranial growths. A second incentive is that in most instances the almost exact position of the neoplasm can be determined by the well-formulated principles of cerebral localization. And the third is that in a large percentage of cases the growth is situated within reach of the surgeon's knife. The objections to operative treatment are: 1, the possibility of erring in the selection of the point for trephining; 2, the recurrence of the disease; and 3, the high mortality.

While it is possibly true, as Agnew said, that "the results of operations for extirpation of brain tumors can not be considered as particularly brilliant," yet from a study of the cases I have operated on and from the excellent results in the work of many other surgeons, I am compelled to agree with the statement of Bartlett, of Philadelphia, that "in the absence of any reliable cure for brain tumor, one is not justified in waiting long for results if the symptoms are such as to enable him to locate the lesion," providing that it be accessible.

As to the question of location, according to M. Allen Starr, about one-third of all cases occur in the basal ganglia, internal capsule, corpora quadrigemina, crura, pons and medulla, and so are inoperable. Of the remaining two-thirds a considerable percentage must be amenable to surgical treatment. In only four out of seventy-two operations collected by Knapp, the tumor could not be removed. In all the cases I have examined, in only one was I satisfied the growth could not be reached. But even if one should err in attempting to locate the tumor and it should not be found, a large opening in the skull and dura will afford much temporary relief if the dura be not tightly sutured and the fragments of bone be not replaced. Thus in a case reported by Fischer, of Breslau, much improvement occurred from such an operation. And in one of double trephining by Kocher, of Berne, to relieve symptoms when localization was impossible (the only pronounced features being choked disc, deterioration of vision, headache and unsteady gait) an opening was made anteriorly in the frontal region with some bulging of the dura, and one posteriorly just below the tentorium cerebelli

where a hernia cerebri formed which was removed by a Volkmann's sharp spoon and the wound closed; union by first intention was secured; four days after the operation the congestion of the discs had entirely disappeared and sight had improved; seven weeks after operation the general condition was much better than it had been, the gait was steadier, the headache gone, etc. To be sure death ultimately resulted in both cases, but the patients were given a short respite and their final days rendered less painful.

If the tumor can be located I believe the indications are to remove it even though it gives but transient relief. Some cases have been *cured* beyond any question, and the cerebral functions, strange as it may seem, restored after removal of even large intracranial growths. For example, Dr. H. H. Mudd, of St. Louis, has reported a case in which an immense echinococcus mass was removed from the brain of a girl 12 years old, the diseased mass being larger than a hen's egg and located in the motor region, reaching from the convexity to the lateral ventricles; after shelling out the tumor the wound was irrigated and the scalp sutured; the hole, large as it was, soon closed up and the motor disturbances disappeared, viz., the tremor and hemiparesis accompanied by hemianopsia and choked disc. In one of my cases I removed a tumor springing from the dura, almost as large as the one just mentioned, and the brain tissue appeared so greatly altered that it seemed as if there never could be restoration of function; yet the symptoms entirely disappeared in due time. Bremer explains the return of function after such colossal defects by the assumption that "the fibers of the corona radiata are not destroyed, but merely pushed asunder; though perhaps the myeline sheaths of these fibers are atrophied by pressure the more resisting axis-cylinders preserve their continuity and so complete regeneration can occur."

Cerebral tumor is of much greater frequency than is generally supposed. Many hundreds of cases have been recently published; Knapp, of New York, alone having compiled more than eleven hundred records of cases and this is a very incomplete report.

The question of fatality is an important one, for while the patient knows that death is inevitable without operation, he is anxious not to have his days cut short by an ambitious surgeon; yet wishes to avail himself of any possibility of cure. What are the chances of life and death? Of seventy-two cases operated on, according to Knapp's figures forty-one recovered and thirty-one died from the operation; in seven cases, (Horsley six, Knapp one) of trephining for relief of pressure alone there was no death. The death rate in Knapp's statistics is 43 per cent., but this is much higher than would be shown by recent cases if collected. The mortality under our present improved technique I place at about 30 per cent., and with increased experience we can reduce this. Of

twenty-eight cases of trephining for deep intracranial troubles in my own work five died—a fatality of less than 18 per cent.; while in my eight cases of tumor operated upon there were two deaths<sup>1</sup>—a mortality of 25 per cent. While this looks like a formidable death rate it must be remembered that nearly if not quite 100 per cent. die if not subjected to operation.

#### VARIETIES.

Most brain tumors are either syphilitic or tubercular—occurring as gummata or caseous masses respectively, the latter chiefly in young subjects. Other forms more rarely met are osteomata, fibromata, gliomata, sarcomata, carcinomata, cholesteomata and cysts. Tumors other than those just mentioned are very rare, but occasionally cysts of the arachnoid, hydatids, plexiform angio-sarcomata, endotheliomata, etc., are met. The combined tables of Starr, Birch-Hirschfeld and Bernhardt give 1,098 tumors of which there were

Tubercle . . . . .	371
Glioma . . . . .	165
Sarcoma . . . . .	162
Gumma . . . . .	69
Cysts . . . . .	47
Carcinoma . . . . .	28
Glio-sarcoma . . . . .	18

Myxomata, neuromata, osteomata and other rare growths complete the list. Special consideration of some of these varieties is necessary before proceeding with the discussion of the general features of tumor.

1. *Gliomata*.—These growths, if not very vascular, may be removed easily. They are almost always found in the gray matter. If thoroughly extirpated recurrence is not probable and all symptoms may disappear. Thus P. Postemski, of Rome, on May 24, 1891, exhibited to the Royal Academy at Rome a case upon which he had successfully operated some months before; all the symptoms were gone and the woman was (apparently) restored to health.

2. *Fibromata*.—Fibromata, though rare, are always easily accessible as they spring from the meninges; and can therefore be readily extirpated. In the few cases I have been able to discover in recent literature, success has been the result invariably.

3. *Carcinomata*.—Carcinomata are not infrequently met in the brain; they are attended with just as great danger of return after removal as in any other part of the body. They commonly have a mass of hyperemic and softened brain tissue around the morbid growth, but in spite of this they may be cut away, the adjacent tissue being cleaned out by a Paquelin cautery. Personally I have met but one case of carcinoma of the brain; it was so extensive that I did not dare remove it, and I believe it was good surgery to leave it untouched, though the patient lived less than six weeks.

4. *Cysts*.—Cysts are comparatively rare. They can ordinarily be removed without difficulty, though in a case in the practice of Dr. John Punton, of Kansas City, (reported in the *Kansas City Medical Index*, February, 1893) operated upon by myself, there was not sufficient integrity to the cyst wall to allow of removal; the cyst was therefore simply opened and drained. And experience of numerous operators has shown that opening and draining cerebral cysts

gives almost as good results as does similar treatment in cerebral abscess.

5. *Gummata*.—Concerning syphilitic growths Horsley remarks: "Cerebral gummata should always be removed—iodid of potassium palliates but does not cure them"—a statement in which all who have studied the subject must concur. The assertion of Agnew may be taken as especially applicable to this class of cases: "The triumph already achieved by the conjoined labors of the neurologist and surgeon may be the harbingers of still greater ones in the future." I have operated twice for syphilitic intracranial growths—with two successful results. One case which I saw in consultation with the late Dr. J. W. Jackson, Chief Surgeon of the Wabash Railway system, gave all the characteristic signs of cerebral gumma, including choked disc, paralysis, etc., and recovered under the long-continued use of more than two ounces of iodid of potassium daily and prolonged residence at Hot Springs, Ark. There is a possibility of a wrong diagnosis in this case, but I was sufficiently certain of the existence of the tumor and its location that I would have operated had consent been obtainable. I believe yet, that operation would have been better treatment, for though several years have elapsed without any return of cerebral symptoms, there is quite a probability of trouble for this patient in the future.

6. *Sarcomata*.—Sarcomata found within the cranium are either of the spindle-celled or myeloid varieties. They may spring from the diploë, widely separating the tables and at last breaking through with much suffering, especially if the growth be directed inward. In most instances they develop in the dura mater; the question of extirpation in such cases is of vital importance and is still undecided. They frequently perforate the cranium and spread beneath the scalp, giving a distinct pulsation in the mass, reducibility when small and a characteristic sharp opening in the skull. I believe excision to be the correct thing, the only question which arises being justifiability in advanced cases; and here the subcutaneous injection of the toxins of the streptococcus of erysipelas and of the bacillus prodigiosus, as advised by Colley, certainly should be practiced when extirpation is found to be impossible. But increasing experience in cerebral operations and (particularly) observation of several cases of extensive destruction of the dura, lead me to the conclusion that we may safely remove a much larger portion of the dura than we are wont to believe. I have taken away an area one and one-half by three and one-half inches without apparent ill effect. If the scalp and periosteum can be brought over the hole in the skull so as to completely close it, the brain gets on very well—in certain parts of it at least. In view of which I am of opinion that operation for sarcomata might be successful in more cases than now reported were surgeons less saving of the dura; and even should permanent paralysis result, such a termination is far better than death from the neoplasm.

7. *Osteomata*.—Those concerning us in our study of cerebral surgery are of the inner table or diploë (enostoses). As a rule they are of slow growth and may be left alone; but if serious symptoms arise, as a displacement of the eyeball from osteoma of the frontal sinus, or indications of intracranial pressure, they must be removed.

8. *Tubercle*.—This is the form of tumor generally

<sup>1</sup> One was a cyst of the arachnoid, with hemiplegia and imbecility; from the Indian Territory, referred to me by Dr. O. W. Krueger. The second, sarcoma of the dura, from Dr. J. H. Thompson, of Kansas City. Reports will be published later.



found in childhood and is, it is asserted, the most frequent of all intracranial growths. Dana says it is most often located in the cerebellum. The tubercular tumor is usually irregularly round in shape and varies from one to two inches in diameter, of a grayish-yellow color, not of itself vascular but frequently surrounded by inflamed or even softened brain tissue. These growths are often connected with the central parts of the brain but are also not infrequently developed in the meninges in the parietal region. In a fairly large percentage of cases they are within the safe area of surgical work.

9. *Enchondromata, Lipomata, Angiomata and Neuromata.*—These forms are all rare and demand no special consideration. When accessible they are to be removed just as would be the case if situated in any other part of the body.

#### SYMPTOMS.

The importance of thoroughly understanding the symptoms of brain tumor can not be over-estimated by the student, because the diagnosis as well as the location of the disease must be determined by a proper interpretation of even the most minute signs. And the greatest diversity of symptoms can not but be noted in different cases, since the characteristics must vary according to the location of the tumor, its rapidity of growth and the age of the patient—so the physician must be careful not to be led astray. It is my design to merely call attention to the most prominent features of the trouble as manifested by its development in different regions.

Generally, when the lesion originates in the frontal lobes the patient first notices a headache which gradually becomes more intense and is persistent; later, the exacerbations assume an agonizing character. Then follows stupor, disturbed sleep, loss of memory, and optic neuritis—sometimes with vomiting; these are associated with more or less pronounced psychical disturbances, *e.g.*, lack of judgment. Yet the frontal convolutions belong to the "latent areas" and so sometimes very grave conditions may exist without marked manifestations.<sup>2</sup> When the tumor has developed sufficiently to encroach upon the motor or speech areas, focal symptoms such as convulsions, paresis or aphasia are added. With the pain there is some local tenderness of the scalp and cranium.

When the tumor is situated in the mid-brain the symptoms are apt to be quite different. There may be the same mental hebetude and tendency to stupor with occasional irritability or childishness, but in addition thereto there will be evidences of more or less profound irritation of the motor centers, yet strange to say, symptoms of interference with speech are not likely to arise when the tumor is located near the speech center; in fact, as a rule, disturbance of speech in cases believed to be tumor are to be regarded as pointing to the pons or medulla and the gray matter at the origin of the cranial nerves rather than to the speech center. The peculiar disturbance of speech consists, in such cases, of a tendency to confluent articulation—that is, to run the syllables together. Jacksonian epilepsy is the chief distinguishing symptom of brain tumor of the central region; when associated with choked disc a mistake in diagnosis is impossible; the tumor is situated at

or near the center, presiding over that part of the body first involved in the spasm. There is frequently a feeling of numbness or prickling in a particular spot preceding a general convulsive seizure—an *aura epileptica*—always felt in the same part; or a general convulsion may invariably begin with a contraction of a certain group of muscles; or the spasmodic contraction may be limited to a few muscles, without unconsciousness, the affected area increasing as the tumor develops. Here diagnosis is easy; or at least such cases *always* demand exploratory trephining; and reference to the picture to be shown when discussing surgical localization—representing the various functions of the numerous gyri of the mid-brain—will show the exact location of the lesion (tumor or other local disease) which can be readily determined by external measurement.

Tumors growing in the posterior parietal region are commonly unaccompanied by marked symptoms until far advanced, though if the supramarginal gyrus be implicated there may be some disturbance of the muscular sense; and word-blindness may appear when the angular gyrus and the inferior lobule are involved. In addition to these there will be the usual disturbances of consciousness and symptoms discoverable in the eye, presently to be mentioned.

Tumors lying near the occipital lobes—so as to press upon or involve the cuneus and first occipital convolutions—give rise to homonymous hemianopsia, while if they exert their influence chiefly in the direction of the angular gyrus, word blindness may accompany the half vision; and if the parietal lobe be also implicated there may be added hemianesthesia and hemiataxia.

Tumors located in the temporal area can not as a rule be diagnosticated (or at least the situation decided upon). The exception is that if the neoplasm be in the left hemisphere and affect the posterior part of the first and the upper posterior part of the second temporal convolution, word deafness will be a symptom which will correctly indicate the point to be exposed by operation.

Tumors of the corpus callosum and of the optico-striate region present a slowly progressive hemiplegia in addition to general pressure symptoms, and are beyond reach.

Brain tumor may give a slow and soft pulse from the general intracranial pressure, or from irritation of the vagus center.

Disturbances of consciousness have already been alluded to, but deserve further consideration. In tumors which grow with great rapidity the stupor or mental hebetude may speedily develop into coma; but in cases more inclined to chronicity a condition of semi-stupor is frequently a prominent symptom—suggesting thrombosis and hence not characteristic of tumor; deep stupor or even coma is quite common in the last stages when the surrounding cerebral substance is becoming softened, or when an anemic condition of the brain is produced by pressure on important blood-vessels or by their involvement by disease progression. In such cases the eye symptoms in conjunction with the peculiar mental trouble will enable the physician to recognize the character of the trouble. But in the earlier stages a different kind of stupor is occasionally met, not dependent upon severe structural changes in parts of the brain other than those immediately involved in the growth; in which cases the somnolent condition is due to general cere-

<sup>2</sup> Illustrating this point, I may mention a case in which I evacuated an abscess involving a large part of the frontal lobes, yet there was no evidence of mental disturbance save a tendency to somnolence.

bral hyperemia; it may or may not be associated with general convulsions. It is liable to appear suddenly, disappearing in a few hours; or it may continue for several days and then subside gradually. Wood records a case of glioma of the brain in the history of which he says: "He had been for some days absolutely comatose, passing his discharges involuntarily and was thought to be dying; a few hours later he walked to the clinic room in a distant part of the hospital."

As already observed, the cranium may be sensitive to pressure as elicited by a gentle stroke of the finger or percussion hammer, or even to pressure with the fingers. The latter I have noted in a number of cases; it corresponds to a circumscribed pachymeningitis with more or less osteitis and is generally indicative of a lesion accessible to the knife.

Migraine is sometimes a symptom of brain tumor; it comes on as a unilateral headache, with intervals of extreme variability accompanied by disturbances of the stomach, tinnitus aurium, considerable dilatation of the pupil of the affected side; in the interval there is apt to be quite an amount of headache, non-migrainous in character.

Chief among the symptoms of brain tumor are those connected with the eye—in fact not at all infrequently the patient first learns of the existence of any head trouble upon consulting the oculist for disturbance of vision. Tumors located at the base of the brain or at the posterior end of the internal capsule or about the optic thalamus—all beyond the possibility of surgical treatment—give rise to most marked interference with sight, while the same is true if they affect the occipital lobes; the manifestations peculiar to tumor situated in the last named region, are such as to enable us to positively locate the disease. Disturbance of the cortical cells of the cuneus, for example, gives a blindness of the outer half of the retina of the same side and the inner half of the opposite side; but if there be homonymous hemianopia with motor paralysis of only one eye, according to Noyes, the location can not be determined.

"Nystagmus, unilateral or double, permanent or temporary, exhibiting itself with other convulsive or paralytic symptoms, indicates cephalic lesion. In general, this will be at the base or on the convexity behind the fissure of Sylvius (region of the angular gyrus). In the former case (when at the base) it will be complicated with paralysis of the motor nerves of the eye or of the optic nerve; in the latter case (when at the convexity) there may be epileptic attacks, hemiplegia, etc., but we can not always venture on an exact localization." (Robini.)

Mydriasis, moderate in degree, may be due to intracranial pressure acting as an irritant to the pupil-dilating center, according to Raehlman, though Leber claims that the mydriasis is sometimes a true paralysis."

Papillitis is frequently associated with brain tumor, generally with dominant infiltration (choked disc). Both optic nerves are commonly affected when the inflammation is due to intracranial growths, though cases of one-sided neuritis have been recorded in undoubted brain tumor; notably cases of Reich, Hughlings Jackson, Pooley, Parinaud and Gowers—in each of which the tumor was upon the side opposite to the papillitis; but usually monolateral papillitis is a condition dependent upon some local cause in the orbit, erysipelas, etc., while bilateral papillitis

will nearly always be found to be due to a tumor in the brain when it can not be traced to injuries of the skull or meningitis—conditions easily recognizable under ordinary circumstances. Cerebellar tumors particularly, tend to the development of papillitis; and the tumor need not be larger than a small cherry to cause the ocular trouble—so say Reich, Edmunds and Anneske. It most often appears late in the disease; indeed most authorities regard its onset as an indication that death will close the patient's existence within a few weeks unless operation is resorted to, but Matthewson has recorded a remarkable case in which it persisted for three years. Choked disc, then, may be regarded as an almost unmistakable evidence of the existence of an intracranial neoplasm, though exactly how it is produced is still an undecided question. Gowers says: "Distension of the sheath may perhaps intensify the process otherwise set up, leading to retention or augmentation of fluid in the lymphatic spaces in the nerve fluid which may in some cases possess an irritative quality." In 1881, Leber suggested that the fluid coming down the sheath provokes the trouble by its chemically irritating properties, and Deutschmann in 1887 injected the bacillus tuberculosis into the cranial cavity of rabbits producing papillitis and vaginal distension, while with innocuous fluids no results followed; as a deduction he maintains that the trouble originates in transmission of pathogenic elements from the neoplasm and that intracranial pressure has little or nothing to do with its production—the latter clause being in entire accord with the belief of almost every prominent ophthalmologist. Picque advances the idea that the trouble is due to the accompanying meningitis, the inflammation being transmitted to the papillæ by continuity of tissue, the intervention of "germs" being unnecessary—a theory supported by the fact that papillitis does not appear until very late in the history of deep tumors, not until the meninges are involved.

Atrophy of the optic disc may also be due to tumor, but not more than one-fourth of the cases—says Noyes—originate in this cause, so its significance is not so great as choked disc. However, it should always be looked for in making a diagnosis.

Hemianopia is usually not a localizing symptom of tumor for reasons already stated; yet it is a valuable factor in the problem of determining whether or not a tumor is operable. I quote from Seguin: "Lateral hemianopia with hemiplegia (spastic after a few weeks), aphasia (if the right side be paralyzed), and little or no anesthesia is quite certainly due to superficial lesion, implicating the motor zone and the gyri lying at the extremity of the fissure of Sylvius, viz., the inferior parietal lobule, the supra-marginal gyrus and the gyrus angularis. Lateral hemianopia without motor, or common sensory disorder, or any other accompanying symptoms, is due to a lesion of the cuneus only, or of it and the gray matter immediately surrounding it, on the mesial surface of the occipital lobe opposite the dark half-fields. Lateral hemianopia with loss of power in one-half of the body, especially if associated with impairment of the muscular sense, is dependent upon a lesion in the inferior parietal lobule and gyrus angularis with their subjacent white substance, penetrating deeply enough to sever or compress the optic fasciculus on its way posteriorly to the visual field." The existence of any one of the groups of symptoms

indicates surgical interference. There are many more symptoms of interest to the neurologist, but none, so far as I know, that can be of use to the surgeon, excepting a few which concern cerebellar tumors; these will be mentioned in the next lecture.

(To be continued.)

## ORIGINAL ARTICLES

### THE ARMY MEDICAL MUSEUM AND THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE.

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The Army Medical Museum, which has now a world-wide reputation, had its beginning during the Civil War. Surgeon-General Hammond, in a circular published in May, 1862, announced the intention of establishing an Army Medical Museum, and requested medical officers to collect specimens of morbid anatomy, medical and surgical, which might be regarded as valuable, together with projectiles or foreign bodies removed and such other matters as might prove of interest in the study of military medicine and surgery. Later circulars gave more explicit instructions regarding the collections to be made; and in a short time thereafter an immense amount of material illustrative of gunshot fractures and the lesions of camp diseases was sent to Washington from the field and general hospitals throughout the country. The work of preparing, arranging and cataloguing these specimens was carried on actively under the superintendence of Surgeon J. H. Brinton, U. S. Volunteers who was the first curator; and in April, 1867, the museum was opened to the public in the Ford's Theater building in which two years prior to this, President Lincoln was assassinated. At the same time a small number of copies of an illustrated catalogue was printed for use in the museum and for exchange with other museums and scientific bodies. The entire number of specimens then catalogued was 8,542. At this time also the museum and library received official recognition from Congress by the authorization of certain expenditures in their behalf among the miscellaneous expenses of the Medical Department.

The value of a printed catalogue to a museum is very great, as it is by its means that the collection is made available to scientific students, the majority of whom can not personally examine the specimens, and by diffusing a knowledge of the contents of the museum it leads to voluntary contributions to the collection. A full catalogue of this museum is a want that has long been felt. Partial lists have been published at times, as in 1876 a check list of the preparations and objects in the section of human anatomy for use during the International Exhibition, and in 1880 a list of the anatomic specimens for distribution among army medical officers and anatomic students and correspondents. The Surgeon-General has on several occasions urged the publication of a catalogue; in 1873 and again in his annual reports for 1886, 1887 and 1888. His want of success on these occasions no doubt accounts for the fact that no effort has been made recently in this direction. It is unnecessary to speak of the practical utility of the museum in these columns, for medical men can easily

appreciate this. To Army medical officers it affords a field of study indispensable to the acquirement of the fullest knowledge of the special duties required of them. The illustrations of military surgery and camp diseases contained in it have greatly promoted general professional knowledge on these subjects; and woodcuts of many of its specimens have found their way into works on military medicine and surgery. There is no doubt, however, that the educational value of the collection would be greatly enhanced by the publication of an illustrated catalogue. Much of the material for such a catalogue is already on hand.

As a knowledge of the existence and scope of the museum became diffused, many of the officers of the Army outside of those belonging to the medical department, and practitioners in civil life, sent contributions to it, so that the Surgeon-General was no longer able to speak of "the pardonable pride which he took in the reflection that this important collection had been accumulated through the unaided zeal and industry of the medical officers of the Army." Army officers sent specimens of natural history, stone implements and other objects of archaeological interest, all valuable as objects of exchange with other museums, while civilian practitioners sent specimens more strictly pertaining to the province of the Army Medical Museum. Exchanges have been made with the Smithsonian Institution, the Agricultural Department, the Museum of the College of Physicians, Philadelphia, of the New York Hospital, the Peabody Museum at Cambridge, Mass., the Blackmore Museum in England, the Anatomical Collection at Oxford, England, etc. To the energy and ability of Drs. Woodward and Otis, both of whose too short lives were mainly devoted to the building up of the Army Medical Museum and to professional work associated therewith, the Army Medical Department and the medical profession owe the successful issue of an undertaking which is now a credit to the country.

The Army Medical Museum was housed in the old Ford's Theater for over twenty years. The building was utterly unsuited for this purpose, even had the whole of its space been available for the display of the specimens. As it was, the museum was confined to the third floor, lighted mainly by skylights, the library being packed two and three rows deep on the shelves of the floor below, while the Hospital Records of the Civil War, with the clerks at work on them, occupied the ground floor. The growth of the museum, and particularly of the library during these years manifested the inadequacy of their quarters. In time there came to be no room for even the storage of books and specimens, not to speak of facility of reference or advantageous display. Moreover, the danger from fire was considerable, although the best care was taken by the officer in charge to prevent such a calamity. The building was closed in on three sides by inflammable tenements and sheds on property over which this officer had no control. Besides, the weak walls of the theater, which were cracked and markedly out of plumb on the east, suggested that in case of fire there would be an utter destruction as the walls would assuredly fall. A fire in 1875 in the adjoining buildings emphasized the danger to which the library and museum were exposed and recalled how the Smithsonian Institution suffered in 1865. The damage to the Patent Office in 1877 increased the anxiety for the safety of the collections in the Ford's Theater building so that in

1880 the President of the United States considered the subject of such importance as to embody a recommendation for a fireproof building in his message to Congress. He said:

"The collection of books, specimens, and records constituting the Army Medical Museum and Library are of national importance. The library now contains about fifty-one thousand five hundred (51,500) volumes and fifty-seven thousand (57,000) pamphlets relating to medicine, surgery and allied topics. The contents of the Army Medical Museum consist of twenty-two thousand (22,000) specimens, and are unique in the completeness with which both military surgery and the diseases of armies are illustrated. Their destruction would be an irreparable loss not only to the United States but to the world. There are filed in the Record and Pension Division over sixteen thousand (16,000) bound volumes of hospital records, together with a great quantity of papers, embracing the original records of the hospitals of our Armies during the Civil War. Aside from their historical value, these records are daily searched for evidence needed in the settlement of large numbers of pension and other claims, for the protection of the government against attempted frauds, as well as for the benefit of honest claimants. These valuable collections are now in a building which is peculiarly exposed to the danger of destruction by fire. It is therefore earnestly recommended that an appropriation be made for a new fire-proof building, adequate for the present needs and reasonable future expansion of these valuable collections. Such a building should be absolutely fire-proof; no expenditure for mere architectural display is required. It is believed that a suitable structure can be erected at a cost not to exceed two hundred and fifty thousand dollars (\$250,000)."

A bill authorizing the construction of a fire-proof building passed the Senate in 1883, and was favorably reported from the proper committee to the House of Representatives, but no final action was reached at that session. Ultimately, March 2, 1885, an appropriation of \$200,000 was approved; but as the original plans were based on an estimate of \$250,000 many changes had to be made involving a reduction in size and the omission of ornamentation. The site selected was in the Smithsonian grounds where they are traversed by Seventh Street, having as its neighbors on a line westward the National Museum, the Smithsonian Institution, the Agricultural Department and the Bureau of Engraving and Printing. The museum was opened to the public in its new quarters in February, 1888. On June 30, 1894, it contained 32,269 specimens; of which 12,249 were pathologic, 4,376 anatomic, 1,717 illustrative of comparative anatomy, 12,033 microscopic and 1,894 miscellaneous.

While the success of the museum was assured almost from the first by the inflow of specimens from the hospitals of the Civil War, the progress of the library was slow in its earlier years, and but for the unremitting care and able management of Dr. John S. Billings it would certainly have succumbed to some of the many accidents and harmful influences that are prone to assail the infancy of such undertakings.

The nucleus around which the library has been crystallized was the few books of reference and textbooks on medical subjects that had gradually accumulated in the rooms of the Surgeon-General's office. A catalogue published in 1865 contained the titles of only 1,800 volumes. As stated above, in 1867, certain expenditures were authorized for the library out of the appropriation for the miscellaneous expenditures of the Surgeon-General's Office. Since then, both the library and museum have met with kind consideration at the hands of the Appropriation Committee, the usual sum carried by the Army Appropriation Bill for the former being \$10,000, for the latter \$5,000. For the current year, however, the sum for the library

was reduced to \$8,000. One of the first special efforts of the librarian was to make the library as complete a storehouse of American medical literature as possible. To this end he collected and perfected the files of all the medical journals published in this country since 1798, making an index on cards of the subject titles of all the original articles found in them, for the convenience of those who desired to consult the literature of any special subject. The articles in current medical journals and volumes of transactions were indexed on reaching the library, and the work of completing a card index for all the volumes already accumulated was carried on as steadily and rapidly as was permitted by the clerical aid available for the purpose.

An alphabetical catalogue of authors was published in 1874, when the library contained about 25,000 bound volumes and 15,000 pamphlets. It was then the largest medical collection in this country. Its records show the friendly interest that was taken in its progress and work by physicians in all parts of the country, and testify that even then it succeeded in a most satisfactory way in meeting all the demands made upon it.

In 1887 the work of cataloguing the original papers in medical journals and transactions was completed for all that class of literature that the library then contained; and the classifying of the titles under the proper subject headings and combining them with the titles of books to form a complete index to the collection was also effected. During the previous year some copies of a specimen fasciculus of a proposed Index Catalogue were printed and distributed, in order to obtain the opinion of those competent to judge whether it was desirable that such a work should be published, and if so, to elicit criticisms and suggestions as to the form of catalogue that would be most acceptable and useful. The responses, consisting of letters, resolutions of societies and editorial and critical notices, were numerous and not only favorable to the general plan as proposed, but unanimous in the expression of the opinion that the whole work should be published as soon as possible, it being regarded as of the utmost value to medical writers and teachers not only of this country but of the world. Congress acted favorably on the proposition, and the result is that to-day the medical profession is enriched with a magnificent set of volumes of author and subject titles in a single alphabetical series which will shortly be completed by the issue of the last, the sixteenth volume. The first was issued in 1880, and every year since then, until last year, one volume was added to the set. The completed catalogue will contain about 170,000 author titles, the same number of subject titles of books, and about 525,000 subject titles of pamphlets.

When the first volume of the Index Catalogue was published the library contained 51,500 bound volumes and 57,000 pamphlets. Since then the number of bound volumes has been more than doubled and of pamphlets much more than trebled. The early volumes of the catalogue therefore show only one-half, or less than that, of the present wealth of the library. To remedy this, Congress has shown its appreciation of the work by authorizing the issue of a second alphabetical series, supplementary to the first, which will probably be completed in five volumes similar in size and style to those already issued. Meanwhile, as supplementary to the catalogue, the



sixteen volumes of the "Index Medicus," edited by Dr. Billings and his learned collaborator, Dr. Robert Fletcher, have been of the greatest value to the literary workers of the medical profession. It is greatly to be regretted that this monthly exponent of the progress of medical science may possibly die for want of financial support. Its condition has recently been noticed extensively in the medical journals. As its continuance is of importance to the whole medical profession, the present writer does not see why it should not be in order for the AMERICAN MEDICAL ASSOCIATION to come to its rescue and continue its publication from the office of the JOURNAL. In this way any financial loss would be generally distributed among those directly or indirectly benefited.

The Index Catalogue has given a wonderful impetus to medical literature and education in this country, as it has placed the valuable stores of the library within easy reach of those who are qualified to make use of them. Formerly, when any one desired to become acquainted with the knowledge already acquired by the profession on some special subject, he frequently gave up the effort at the outset as he appreciated the difficulties and oftentimes the impossibility of gathering together the various articles already published on the subject. The bibliography appended to a journal article was often to students of the subject the most valuable part of a contribution. Now, all this is changed. The student has merely to turn to the Index Catalogue and the desired literature is before him, with many hints to guide him in the selection of the volumes that bear especially on his inquiry. The volumes themselves may be obtained by applying through the custodians of public libraries; and in some cases books that can easily be replaced have been sent direct to the applicant on the deposit of a sum sufficient to cover their market value.

It has, however, been found needful recently to impose some restrictions on the loaning of books, particularly of standard authorities and volumes of journals that are in constant demand. As the number of readers in the library has increased, it has more frequently happened that requests for certain volumes could not be complied with on account of their absence on loan. The interests of those who come to the library to prosecute their studies should not be sacrificed for the sake of those who ask the library to come to them. To be able to accommodate both parties, Dr. Billings is endeavoring to procure duplicates of those standard works, journals and transactions that are in general request. Moreover, the wear and tear of years of use is beginning to tell on many of these and to render their duplication needful. Contributions of the character indicated would therefore be of much value; and the writer of these lines trusts that those who have read thus far will make a note of this and aid the library in this desirable extension of its field of usefulness. Its friends need have no hesitancy in duplicating works already on hand, as the spare copies can always be made of use in effecting exchanges.

It is time, however, to say a few words concerning the present quarters of the library and museum. The building is of red pressed brick, E-shaped, and severely simple in style. The main building fronts on B Street, the wings project into the mall. This is a mistake, as all the other public buildings in the vicinity front on the park. Hereafter when it becomes

needful to enlarge the establishment this mistake will no doubt be rectified. The main building is 125x55 feet, the wings each 60x131 feet. Under both is a basement eleven feet high which affords magnificent storage rooms.

The ground floor is traversed by a central corridor, clean, white, smooth and unadorned, on either side of which are doors leading into rooms of various sizes. On the western or left side of the entrance are rooms occupied by clerks of the Record and Pension Office of the War Department. On the right are the lecture rooms and sanitary laboratory of the Army Medical School, the work room of the pathologist and the chemical laboratory where guard is kept over the purity and strength of the medical supplies furnished to the Department. One of the rooms on this floor is given up to specimens of syphilitic disease unsuited for display in a museum open to all comers; another has been fitted up recently with various forms of stretchers, wheeled litters, cacolets, travois and other means of carrying sick or wounded men. Opposite the entrance a wide stairway of iron, carpeted with thin rubber, makes a semi-circular sweep to the second floor. The corridor of the main building on this floor opens on the west into the museum hall and on the east into the library, the rooms on either side being used by the clerical force of the latter. One large room adjoining the library is fitted up as a reading room for those making personal use of the books, and has on its shelves such works as are in everyday request. The floors throughout the building are of brick between rolled iron sheeting.

The rooms on the third floor are occupied by those connected with the work of the museum. The bacteriologic laboratory on this floor is well outfitted and has an excellent northern exposure for microscopic work. Such of the attics as are not required for photographic work are used as storerooms.

The whole of the eastern wing from the second floor level to the roof is occupied by the library. This fine hall, thirty-one feet to the eaves and forty-seven feet to the ridge, is lighted by high windows and skylights in the risers of the ridge. The south end of the hall near the entrance from the corridor presents a large floor space which supports only a few desks, chairs, revolving book stands and large tables for the convenience of visitors in consulting atlases and other large works of reference. On three sides the whiteness of the walls between the window spaces is relieved by large oil paintings of some former Surgeon-General of the Army,—Tilton, Lovell, Lawson, Finley, Barnes and Crane, with portraits also of Bichat, John Hunter, Morton and Physick, and many photographs and engravings. On the fourth, the north side, this clear space is closed in by what looks at first sight like a solid wall of books in red leather bindings. On closer inspection the wall becomes resolved into a three storied framework of perforated iron, each story seven and a half feet high and extending along the length of the wing to its northern wall. Narrow iron stairways permit of communication between the stories and narrow corridors between the sections of the structure, each section being fitted with adjustable shelves of hard oak, filled with books or with file cases containing pamphlets. The estimated capacity of the library is 179,000 volumes. On June 30 of last year there were supported on its shelves 114,567 bound volumes and 183,778 unbound pamphlets and papers. The former

comprised 72,090 medical works, 33,297 volumes of medical journals, 4,913 of transactions of societies, 1,663 of theses and 2,604 of pamphlets. The latter consisted of 56,218 theses and 127,560 pamphlets. The binding of these into volumes depends on the means available. In 1893, 630 pamphlets were bound into 128 volumes and last year 2,802 into 343 volumes.

These books are all devoted to medicine and its collateral branches. No purchase is made for the library of books belonging to general or miscellaneous literature. It has all the costly illustrated medical works and anatomic atlases. It has also a valuable collection of the medical classics and a number of the rarities and curios of medical literature; but the aim has ever been to make it a storehouse of the medical thought of the present day rather than a collection of works that are of interest only from a historical point of view. The library is by far the largest of its kind in the world. This is gratifying to us; but we can take a much greater pride in the thought that of all such libraries it is the one which is most available for and most used in the current work of medical progress.

The museum hall in the west wing has a floor and cubic space equal to that of the library, but the two halls differ widely in general appearance. The contents of the museum are disposed in open order as contrasted with the compact shelves, tiers and sections of the library. The specimens are arranged in glass show cases, each about twelve or thirteen feet long, two and one-half feet wide, and eight feet high, which project into the body of the hall from the side walls, but with ample space for light and movement between adjacent cases. On the third floor level is a gallery which projects beyond the ends of the show cases below, but does not interfere with the light from the skylights in the ridge. The gallery is reached by a stairway at each end of the hall, as well as by a door opening from the corridor of the third floor of the main building. Some flags are draped from the face of the gallery, conspicuous among which is the hospital flag of all the armed nations of the world, the Red Cross of the Geneva Treaty.

The first thing the visitor must do on entering this hall is to record his name on the visitor's book. In 1893, 85,000 persons did this; last year 50,000. Most of these were merely sightseers; but the interested and appreciative student is always among them.

One would suppose that when over 32,000 specimens are the subject of inspection and report, it would be difficult to select the materials for a short journal article concerning them; but a very brief examination of the hall shows that the system adopted in the display enables the observer not only to appreciate the museum in its entirety, but to select the case in which he will probably find some particular object of his search.

The center of the floor space has along its length a number of flat-topped glass cases in which are displayed surgical instruments of all kinds, but in particular those intended for military service. Various miscellaneous objects are also on exhibit here. The series of microscopes is one of much interest as showing the evolution of the instrument from its earliest days. Models of military hospitals, hospital trains and steamboats bring to mind the busy days of the Civil War; while near by are tube cultures of the various bacteria the study of which has had such

a wonderful influence on the progress of surgery since those times of active service. A fine series of urinary calculi, models of the common and harmless and of the poisonous mushrooms, and life-size models of the anatomy of the horse are prominent among the objects displayed, as are also a collection of medical medals and a series of delicate longitudinal and antero-posterior sections of the human embryo prepared by Dr. Wm. M. Gray, the microscopist of the museum.

It is, however, in the display cases projecting from the side walls that the systematic methods of the museum are seen to the best advantage. In illustrating any part or organ of the human body its normal development is shown first and then the abnormal deviations that are occasionally found, with specimens from the domain of comparative anatomy that throw light on the deviations. These are followed by illustrations of its anatomy and physiology, and lastly of the diseases and injuries to which it is specially subject. The cases are numbered in arithmetical sequence. Case No. 1 and those immediately following it contain specimens illustrative of the organism as a whole, beginning with the formation of the ovule in the ovary, following its progress to the formation of the embryo in the uterus, and thereafter showing the gradual development of the latter, with many side lights on the subject from comparative embryology. The abnormal developments are then shown, such as hydrocephalus, spina bifida, extroversion of organs and various monstrosities. Next come the anatomy and physiology of the perfected system, and then illustrations of general morbid conditions such as tuberculosis, cancer, septicemia, syphilis, alcoholism, fevers, etc., and lastly general injuries, as from crushing, explosions, and exposure to heat and cold. The various anatomic regions and organs are then taken up, one after the other, and each has its medical connections illustrated by specimens showing its development, abnormalities, anatomy, physiology, morbid conditions and injuries.

In the gallery is a series of show cases, like those below, in which are exhibited the missiles, weapons, fractures, excisions, amputations and other specimens of the war. In fact, the museum of the old Ford's Theater building may here be recognized, while that on the floor of the hall is relatively a new institution. The gallery contains also many specimens of comparative anatomy, a magnificent collection of skeletons and crania, some frozen sections of the brain and dissections of other parts of the body preserved in alcohol, and many beautiful wax models of diseases of the skin.

It is, however, so difficult to convey a well defined idea of the wealth of the museum by mere written words that this article had better be closed with the suggestion that the members of the Association take advantage of the meeting in Baltimore to come to Washington and inspect for themselves.

THE forty-sixth annual session of the AMERICAN MEDICAL ASSOCIATION will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9, and 10, commencing on Tuesday, at 10 A.M.

Blank Applications for membership in the ASSOCIATION at the JOURNAL office.

## THE MEDICAL TREATMENT OF CANCER OF THE LARYNX.

Read by invitation before the Philadelphia Chapter of the Alumni Association of the Jefferson Medical College, March 12, 1895.

BY E. L. VANSANT, M.D.

ADJUNCT PROFESSOR OF DISEASES OF THE THROAT AND NOSE IN THE PHILADELPHIA POLYCLINIC; SURGEON TO THE THROAT, NOSE AND EAR DEPARTMENT OF THE HOWARD HOSPITAL; PHYSICIAN TO THE PHILADELPHIA HOSPITAL.

The medical treatment of carcinoma of the larynx, with our present knowledge is necessarily a palliative one. Still, efforts to find some drug or method of treatment that would retard or cure the malignant growth have been unceasing. Among the many remedies that have been so used may be mentioned arsenic, iodoform, ergot, mercury, sulphide of calcium, tincture of thuja occidentalis (*arbor vitæ*), chian, turpentine and condurango. Injections of pyoktanin or the anilin colors and, more recently, a 2 per cent. solution of carmine, dissolved in a 3 per cent. solution of soda. None of these have, however, stood the test of time and, although some of them do much good in improving the systemic condition and alleviating some of the symptoms, still no purely medicinal treatment has, as yet, been proved to be of curative value.

A plan of treatment that perhaps deserves fuller mention is the comparatively recent one with the toxins of erysipelas, either used alone or in combination with the toxins derived from the bacillus prodigiosus.

This treatment, which originated from clinical observations of the antagonistic action of accidentally acquired erysipelas upon malignant growths, lupus and syphilitic lesions, has been considerably experimented with, and a number of favorable results in cases of inoperable malignant growths have been reported. In the early trials of this treatment, the plan adopted was to excite an artificial erysipelas in the vicinity of the growth by making inoculations of the erysipelas streptococci. It was found, however, very difficult to produce an erysipelas by such inoculations, nor was the danger attending an attack of erysipelas a slight one. I need hardly call your attention to the fact that erysipelas of the larynx is so grave a disease, that for this form of cancer at least, such treatment would be reprehensible.

Further experimentation developed the fact that injection of the toxins derived from bouillon cultures gave quite as good results as inoculation with the living cultures, and further, that the activity of such toxins was greatly augmented by adding toxins derived from cultures of the bacillus prodigiosus.

I will not dwell upon the laboratory methods by which such toxins are obtained. At first the germs were developed in separate bouillon cultures, then filtered, a small quantity of thymol crystals being added to the filtrate, which was kept in a cool dark place until used. Later the streptococci were allowed to grow for ten days, then the bacillus prodigiosus added, and allowed to develop two weeks longer; the filtrate from this mixed culture being used. Still later, the cultures instead of being filtered were subjected to a sufficiently high temperature (58 degrees C.) to kill the germs, though not high enough to produce much chemie change in the toxalbumins. The injection of the products from this last-mentioned method are said to have a better effect than when the cultures were filtered.

Treatment by these double toxins is now carried

out by the hypodermic method. In a recently published case,<sup>1</sup> 15 minims of a solution were injected every other day, and the dose gradually increased to 40 minims. The injections may be made into the arm, leg or buttocks, and produce local redness, swelling and pain which may persist from twelve to twenty-four, or even thirty-six hours. The temperature after each injection usually rises, and may reach 103 to 105 degrees F. Nausea, chill and vomiting at times follow the injections.

This treatment has now been applied to a number of cases, and the reported results in some of them have been marvelous, the injections being followed by rapid breaking down and disappearance of the humors, and, although a large per cent. of even the greatly improved cases have recurred, still a few seem to have been permanently benefited.

I have not been able to find any record of carcinoma of the larynx treated by this method, but several cases of sarcoma involving the tonsils, palate and part of the larynx have been reported as successfully so treated, the growth largely disappearing, and the general condition of the patient greatly improved.

For much of our recent information, and for most of the experimentation with this treatment in this country, we are indebted to Dr. William B. Coley, of New York, who has formulated the following conclusions in regard to it:<sup>2</sup>

1. The curative action of erysipelas upon malignant tumors is an established fact.
2. This action is much more powerful in sarcoma than carcinoma.
3. This action is chiefly due to the soluble toxins of the erysipelas streptococci, which may be isolated and used with safety and accuracy.
4. This action is greatly increased by the addition of the toxins of bacillus prodigiosus.
5. The toxins, to be of value, should come from virulent cultures and should be freshly prepared.
6. The results obtained from the use of the toxins are so nearly, if not quite, equal to those obtained from an attack of erysipelas that inoculation should rarely be resorted to.

In spite of the very favorable opinion of the curative action of erysipelas upon malignant tumors, expressed by Dr. Coley, it is my conviction that, as yet, the results of the erysipelas treatment are not sufficiently successful to warrant its preference in laryngeal cancer, over early and thorough surgical procedure, and that at present its use should be restricted to cases that may be termed inoperable.

The medical treatment of laryngeal cancer being then largely a palliative and symptomatic one, we will consider the treatment of the different symptoms, and when we reflect that so many of the cases when seen by us are inoperable, and that a large per cent. recur after operation, it will be seen that such symptomatic treatment is of the greatest importance. By it we may, at least, hope to alleviate the patient's suffering and prolong his life.

For the purpose of better considering the medical treatment, I will divide the cases of cancer of the larynx into two classes or groups: The first class comprises those cases beginning at some point outside of the larynx proper, it may be the tonsils, base of tongue, pharynx, esophagus, or even the thyroid

<sup>1</sup> New York Medical Record, No. XLVI, 1894.

<sup>2</sup> The Journal of Laryngology, Rhinology and Otolaryngology, vol. IX, No. 1, page 51.

gland, and then later extending into and involving the larynx; such cases are termed extrinsic or pharyngo-laryngeal. The second class will comprise those that begin within the larynx itself and are termed intrinsic or endo-laryngeal.

In the first class, the pharyngo-laryngeal, painful and difficult deglutition, slobbering of saliva, and pain, which also radiates to the ear, are apt to be the earliest and most urgent symptoms; while dyspnea, loss of voice, cough, etc., may not be present until late in the course of the disease.

In the second class, the endo-laryngeal, dyspnea, dysphonia and cough are apt to be the first symptoms, and dysphagia may not occur until the growth extends to the surrounding parts.

As regards the treatment of dysphagia, if ulceration be present, treatment addressed to the healing of such ulcers is indicated. This will consist of careful cleansing of their surfaces by means of antiseptic washes or by swabs moistened with disinfecting and cleansing solutions, such as hydrogen dioxid, weak solutions of carbolic acid, permanganate of potash, etc. After thorough cleansing, the surface of the ulcers may be touched with nitrate of silver in solution, or dusted with iodoform, calomel or other detergent powders. Recently I have had good results from the use of acetanilid; with it not only have the ulcerated surfaces been reduced in size, but considerable relief from pain has been obtained. Cleansing the throat with warm alkaline sprays or washes, and applying solutions of cocain, by means of sprays or swabs some five to ten minutes before eating, will often so relieve the dysphagia, that the patient may enjoy a fair meal. We begin preferably with a weak solution of the cocain, say 2 per cent. to 4 per cent., and increase the strength of the solution as found necessary; frequently we must resort to solutions of 10 per cent. or even stronger in order to obtain the desired local anesthetic effect.

Insufflation of morphin, or morphin mixed with the subnitrate of bismuth, powdered starch or other such excipients will give some relief from pain and permit of swallowing. Dusting the throat with powdered formanilid or swabbing with a 10 per cent. to 20 per cent. solution of the same is said to produce a considerable local anesthesia which is quite lasting.<sup>3</sup> At times it will be found necessary to resort to rectal feeding, the patient not swallowing anything but the necessary fluid. Rest thus given to the throat for a few days, especially when associated with appropriate local treatment, may greatly relieve the dysphagia.

A procedure that I have frequently advised, and which is usually attended with marked success, is for the patient to place a glass of milk or broth on the floor, or upon a low stool, and then lying prone upon a lounge to suck the fluid up through a tube. At times the patient has found that by sitting in a chair and placing the glass upon the seat of a chair in front of him, he could by leaning forward swallow the fluid through a tube very comfortably. With the appearance of dysphagia the patient should confine his diet to semi-solid and fluid foods. Efforts to continue the deglutition of solids will lead to increase of the difficulty, and hasten the tendency to the inflammation and ulceration. Food should be predigested by the addition of peptonizing powders. Peptonized milk is especially useful. Raw eggs can usually be

swallowed even when the dysphagia is severe. Sucking of ice pellets is grateful to the patient. The use of the esophageal tube for feeding is attended with the danger of accidentally perforating the esophagus, and if resorted to, should be used with great care. In cases involving chiefly the tonsils and base of tongue, feeding through the nose may be practiced, peptonized fluids being passed to the back of the pharynx through tubes introduced through the nostrils.

Dyspnea as a symptom is usually an early one, particularly so in the endo-laryngeal cases, and even in the pharyngo-laryngeal group may be noticed before dysphagia. For the treatment of this symptom, rest will be found to be of great value, for even comparatively slight exertion greatly increases the embarrassment to the breathing. At times the dyspnea is associated with and chiefly due to the accompanying edema of the glottis. Here applications of a 20 per cent. oily solution of menthol, inhalations of steam vapor medicated with benzoin, chloroform, menthol, etc., may be used. Scarification of the edematous parts with the laryngeal lancet should not be delayed, but should be performed early; such scarification may be followed by endo-laryngeal application of menthol solutions, inhalation of medicated vapors, the continuous use of the cold coil around the neck, and the administration of pilocarpin as necessary.

When the dyspnea is due to mechanical obstruction caused by the growth; preliminary to the medical treatment, removal of part of the growth may give marked relief both to voice and respiration. Tracheotomy, even, must at times be resorted to. If the pressure is against the trachea, the position of the patient may have an influence upon the dyspnea; the patient will soon find in which position he is the most comfortable, and should be encouraged to remain so. Strychnin seems to give relief in certain cases.

Aphonia must be treated upon the same plan as the dyspnea. Hoarseness is usually a very early symptom, and the patient should give the vocal organs as much rest as possible. Sedative inhalations can be used here with advantage. The following formula can be recommended:

R. Tinct. benzoini compositæ.  
Tinct. opii camphoratæ . . . . . aa fʒi.  
Chloroformi . . . . . ℥ xx.

M. Sig.: Add a teaspoonful to a pint of water at 150 degrees F. and inhale vapor.

The medicated hot water is to be placed in a pitcher or bowl inclosed with a funnel-shaped paper or a folded towel. Vinegar and paregoric, a dessert-spoonful to a tablespoonful of the former with one-half teaspoonful of the latter to a pint of water at 140 to 160 degrees F. and inhale vapor.

R. Acid acetici . . . . . ℥ xxx to xlv.  
Tr. opii camph . . . . . ℥ xv to xxx.

Mix and add to a pint of water at 150 degrees and inhale.

Where obtainable a steam atomizer can be used to make these medicated vapors, or the medicine may be placed upon a sponge in a bottle which is placed in hot water. Nebulized balsams can also be recommended. Strychnin is also valuable in dyspnea and may be used hypodermically.

Pain which is a most constant symptom is usually of an acute, lancinating character, and is often reflected to the ears. For its relief, applications to the larynx of morphin, cocain, iodoform, acetanilid, etc., may be used. Warmth applied to the neck

<sup>3</sup> Medico-Medizinische Presse, 1893. No. 10.



gives some relief, as do ointments and liniments containing belladonna, chloroform and aconite applied externally. Hot instillations into the ear of pure water, or warmed solutions of cocain, morphin, atropin, etc., dropped into the ear, aided by hot moist or dry external applications give relief to the severe earache.

Cough may not be so prominent a symptom as to demand special treatment. The sedative inhalations of benzoin (compound tincture) associated with laudanum, chloroform or conium or the local applications of morphin, and cocain usually give relief. If necessary, morphin and codein may be given internally. For the excessive saliva, antiseptic and astringent mouth-washes and gargles, or the administration of a small amount of atropin may be recommended.

The general symptoms associated with cancer of the larynx are those usually found in malignant cachexia. Rest, abundant feeding and fresh air are needed. Constipation being the usual condition must be relieved by enemata or mild cathartics. Avoidance of tobacco and ardent spirits is important, not only for the general condition but also on account of their local irritating effect. The same may be said of impure or dust-laden air. The patient should be in a pure fresh atmosphere as much as possible, and if exposed to dust or impure air should breathe through a respirator. Arsenic, cod-liver oil, iron and tonics are indicated. The mild Zittman's decoction of sarsaparilla has been recommended. In the later stages, anodynes give great comfort to the patient; the hypodermic use of morphin, or morphin with atropin is usually the best method to administer them.

A treatment that is more of a surgical nature, but which should only be intrusted to the skilled hand of the laryngologist, is the attempt to destroy the growth, or relieve urgent symptoms by intra-laryngeal operation, and more particularly by the use of the electric-cautery. When the growth is quite local, and there is no infiltration of the adjoining lymphatics, good results may be expected from a thorough destruction of the growth and the surrounding tissue by intra-laryngeal methods; such destruction may be best performed with the electro-cautery, or the use of the cautery after the removal of the growth with the laryngeal knife or forceps.

In advanced cases with much infiltration of the surrounding parts, intra-laryngeal removal of parts of the growth may prolong life and lessen the severity of the symptoms quite as much as can be expected from extra-laryngeal operations in such cases.

Following such intra-laryngeal destruction of small local growths, or after the graver operations, medical treatment upon the lines already laid down must be continued for some time in order to obtain good final results.

#### THE EARLY SYMPTOMS, DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS OF CARCINOMA OF THE LARYNX.

Read by invitation before the Philadelphia Chapter of the Alumni Association of the Jefferson Medical College at a meeting held March 12, 1895.

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There is nothing in the development of laryngeal cancer which gives rise to symptoms differing in any notable way from those which characterize the onset of a benign growth. Impairment of the voice is the

first symptom which manifests itself, and even this may be absent for a considerable period, especially in those cases that begin in the ventricular band. There, then, as the infiltration increases, the voice becomes weaker until there is complete aphonia.

Probably the next symptom to develop is dyspnea. Particularly is this so, if the case is entirely intrinsic, while in the case of an extrinsic cancer, dysphagia may develop owing to the mechanical obstruction in the esophagus. As a direct result of this condition, salivation becomes a prominent symptom in a large proportion of the cases.

As regards the involvement of the lymphatic glands of the neck in cases of intrinsic cancer; as long as the growth is confined to the larynx proper, there is no glandular enlargement. This is almost without an exception. While in extrinsic growths or those which involve the epiglottis, the ary-epiglottic folds or the arytenoids, glandular involvement is an early symptom at about four or six months. Then about this time new symptoms develop. The most important is ulceration and hemorrhage.

Ulceration is due, in part, to attrition to which the growth is subject in the functional movements of the parts, but more undoubtedly to the increased cell proliferation, which occurs with its increased size. Before ulceration sets in the secretions while increased, are comparatively normal, and may give rise to a slight irritation and perhaps cough. After ulceration sets in the secretions become somewhat excessive, and consist of necrotic tissue and pus cells. At the same time a characteristic odor of cancerous ulceration becomes apparent in the patient's breath. This is decidedly fetid, and is usually recognized by a peculiar musty smell. Sometimes the first suspicion of cancer may be excited by this odor. These are all of the early symptoms of a malignant growth of the larynx, excepting pain which is not a constant symptom, and in some cases it is actually absent. It is more prominent in extrinsic cancer than in intrinsic. It is sharp in character, and usually radiates toward the ear.

In diagnosing a case you have to consider heredity, sex and age. Heredity exercises the same influence in laryngeal cancer as in any other region of the body. It occurs principally in the later years of life; and is much more frequent in the male than the female.

On laryngoscopic examination there is nothing in the general appearance of carcinoma in its earlier stages which renders it possible to make an absolute definite diagnosis; this is the time when the patient first complains of an impairment of the voice. Impaired motion of non-paralytic character leads to a suspicion of malignant infiltration, especially if any evidence of infiltration is apparent. A few months from this time the laryngoscope will show to the trained eye a thickened mass; irregularly outlined, soft in consistency, in color about the same as the healthy portion of the larynx, and with a broad base. As the case advances from this stage the diagnosis becomes easy. The voice becomes gradually aphonic, owing to the increased tumefaction, for it is to be borne in mind that the disease consists in a cell infiltration which burrows broadly and deeply into the surrounding parts. The growth gradually enlarging, encroaches on the lumen of the larynx. The progressive development of all symptoms, together with the lancinating pains shooting toward the ear, and

the cachexia with the glandular enlargement in the very late stages, should enable one to recognize the true character of the disease.

In the differential diagnosis, there are three affections of the larynx that produce impairment of the voice which can be distinguished from cancer without the use of the laryngoscope, viz., acute and chronic laryngitis and nervous aphonia. Acute laryngitis, by the sudden loss of the voice. The chronic, by the difference in the tone. In some portions of the day the voice is almost normal, while at another time in the same day, the voice is aphonic. This will also occur in some benign growth such as polypus, which has a pedicle. This growing above the cords, while remaining in that position causes little or no hoarseness; but occasionally it will drop down between the true cords and while there causes complete aphonia.

In hysterical aphonia the voice is lost, and the patient simply communicates in a whisper; there is no break in the tone. In all other cases of impairment of the voice, you will have to depend upon inspection of the larynx. By the laryngoscope all forms of paresis of the larynx can be eliminated, for in these cases there is no tumefaction, the aphonia being due to a fixed position of one or both true cords. By the same means all benign growths can be readily distinguished; their color, shape and general outlines differ from a malignant growth; also a benign growth springs from the surface or mucous membrane, and does not cause an increase in the size of the part from which it grows, or cause surrounding inflammation or infiltration. This leaves two affections yet to consider, and are the two from which it is difficult to make a diagnosis. These are tuberculosis and syphilis of the larynx. Tuberculosis occurring the most frequently we will consider first.

The first symptom we have is an impairment of the voice, cough, with increasing symptoms as the case advances. The first manifestation in the larynx is unilateral. The most frequent site of primary invasion is upon the arytenoid cartilage or commissure; the next, ary-epiglottic fold and epiglottis. A moderate amount of tubercular infiltration seems to cause a certain amount of tumefaction, which interferes with circulation, producing a moderate amount of edema with a dull gray color, and profuse secretions. When existing, there are two positive conditions in tubercular laryngitis that can not be mistaken for any other affection—the turban-shaped epiglottis and the club or pyriform arytenoids—these conditions are not caused by any other affection, but unfortunately they are frequently absent. The ulceration of tuberculosis is not a deep ulcer, has a ragged uneven edge—worm-eaten as it were—difficult to detect the outlines; hemorrhage unusual; the whole larynx becomes anemic.

The larynx may be invaded by any form of syphilis, from the primary lesion to the deep ulcer of the later stages. The usual affection is the third stage, and of that we will speak. Impairment of the voice is the first symptom; pain in this affection depends on the location of the lesion. If the soft parts only are affected the pain is not marked. If the epiglottis or posterior portion of the arytenoids is the seat of lesion, the pain is great on swallowing.

In the superficial ulcer of syphilis we have a distinctly yellow purulent discharge, a slightly rounded elevation without swelling. In the deep ulceration,

we have all of the features of the superficial ulcer exaggerated, with its sharply cut edge, a marked injected areola surrounding it, and a profuse discharge of pus and necrotic tissue.

When a gummy tumor forms in the larynx, whether single or multiple, we are in doubt as regards the diagnosis. This presents itself in the form of a smooth, symmetrical, rounded tumefaction, which is ordinarily covered with healthy mucous membrane; it appears somewhat suddenly, and when it has attained its full size remains stationary unless ulceration occurs. This may occur in any portion of the larynx and varies in regard to size. The rapidity of the development of the growth, together with the subjective symptoms and the clinical history should give rise to a suspicion of syphilis, but by inspection of the larynx we may not be able to make a definite diagnosis. The administration of iodid of potassium will, in a few days, determine whether we have a gummy tumor to deal with. This is a test that all laryngologists will often be compelled to resort to before a decided opinion is given.

In summing up, we have as distinguishing points, the age of the patient, tubercle occurring early and cancer late in life. In the very large majority of instances, a tubercular process in the larynx succeeds or accompanies a similar process in the lungs.

Heredity exercises the same influence in laryngeal cancer as in any other region of the body, and on inspection we have in lupus the irregular contour, highly injected membrane but no ulceration, no secretion of pus and no exfoliation of necrotic tissue.

In sarcoma, we have a distinct tumor with, perhaps, an eroded surface, but no distinct ulcerated surface with pus secretions.

In carcinoma, we have a hard nodular tumor, with a ragged ulceration, the edges of which are not sharp cut, a tendency to slight hemorrhage and no well-marked areola.

## CHRONIC GASTRITIS AND ITS TREATMENT.

Read before the Louisville Academy of Medicine, April 1, 1895.

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We have to-night for consideration "one of the best nourished and most widely prevalent diseases in the world." The subject is too large to review in all its details, in a paper that would interest the members of this society, and it will only be my aim to present a synopsis, hoping that the discussion, by those interested, will bring out the most salient points. This subject could scarcely be introduced without some reference to the abuse of the terms, dyspepsia and indigestion, by the medical profession in general. We who pretend to be precise in our technical phrases would be highly amused at our antiquated brother who talks of "lung fever" and "the dropsy" or the "weed in the breast," to his reverential hearers with all the wisdom of a "Sir Oracle." Yet we precise men walk into the sick chamber, feel the pulse, look at the tongue, get the subjective symptoms and with the most profound gravity answer the patient's query: "Oh, you have a case of indigestion," and prescribe pepsin or pancreatin or such. How horrified we "higher standard of medical education" men would be to hear our professional brother tell the mother, in answer to the question as to what was the

trouble with her child, say, "O, he's sick," and yet this response would have just as much meaning and be just as concise in its application in this instance as the term indigestion applied to some disease of the gastro-intestinal tract. Dyspepsia and indigestion are not diseases but symptoms of disease.

We only refer to such methods in order to arouse the interest of the profession in this large field of special work, hoping that they may either acquaint themselves with it properly or place it in the hands of those who are capable of diagnosticating this large variety of diseases in a scientific manner.

*Etiology.*—The causes of chronic gastritis are very numerous. It may result from the acute and sub-acute forms when they are frequently repeated. Irritants act more readily when the mucous membrane has been altered by changes in the circulation or the condition of the blood, the mucous membrane thus being rendered more sensitive than it is normally. These changes in the circulation may be produced by all processes which lead to venous congestion of the stomach; such as affections of the liver, spleen, heart and lungs. Tuberculosis, also of the kidney and uterus.

Chronic gastritis may be caused also by direct local irritation as a consequence of cicatrices and neoplasms or irritating substances which are brought in contact for a long time with the gastric mucous membrane as large, half-digested and insufficiently insalivated morsels of food, or from putrid material in the mouth, due to carious teeth or inflammation of the gums, or the muco-purulent matter from pharynges being swallowed. To this category also belong tobacco juice, concentrated alcoholic beverages, condiments; also toxic substances, like trichinæ and larvæ. Then there are certain causative elements which circulate in the blood and are excreted in the stomach; for example urea and the products of intestinal putrefaction. Of the above etiologic factors the most important are those irritating substances taken into the stomach.

*Pathology.*—The mucous membrane has a yellowish-gray or slate-gray color, it is usually thickened and covered with a delicate layer of mucus. The portion of the stomach usually involved is the pylorus, but may be the entire mucous membrane. The sub-mucosa and muscularis may also be thickened and the latter especially at the pylorus may cause hypertrophy with consecutive stenosis. The minute anatomy of the process is that of a parenchymatous and interstitial inflammation. The glandular cells are in part destroyed, partly granular and partly shriveled. The superficial layer of the epithelium of the mucosa is loosened and is sometimes found in the wash water after lavage.

As the disease advances it finally causes retrogressive changes in nutrition, which are at first manifested in a progressive fatty degeneration of the glandular cells, and which finally cause complete atrophy of the mucous membrane, a point emphasized by Lewy, which must finally lead to a total destruction of the secreting parenchyma with all its consequences. The process progresses from above downward, and first obliterates the orifices of the ducts. The stomach as a whole is enlarged; its walls appearing thinned.

Another form of anatomic change is characterized by a marked activity of the interstitial connective tissue and leads to its hypertrophic prolifera-

tion, which proceeds from the base of the glands upward toward the lumen. Finally, the parenchymatous cells having been deprived of their nutrition, undergo atrophy. Here the organ is not enlarged *in toto*, but at times may be small and cirrhotic.

Another change arises from the villous outgrowths from between the small depressions in the gastric mucous membrane; this gives rise to the polypoid outgrowths from it, usually the size of a milium to a pea, and arranged alongside of one another in large numbers.

*Clinical History.*—Chronic gastritis presents itself in two clinical forms which are easily differentiated; chronic simple gastritis and chronic mucous gastritis. The differentiation really depends on the results of the chemic examination of the stomach contents. The patient usually complains of a dry, pasty or salty taste which is often communicated to the food during mastication. The tongue is usually coated at the base, where the reddened, swollen papillæ project above, while the edges bear the impression of the teeth. The lips are usually dry and chapped. Belching is very frequent; the gas being either odorless or having an effusive, sour smell and disagreeably rancid taste. It is frequently accompanied by the regurgitation of the gastric contents, having a sour and disagreeable taste; these regurgitated masses often imparting a burning and scratching sensation along the esophagus. When this is limited to the lower portion of the esophagus it is termed cardialgia.

When these sour regurgitations occur it is important to distinguish sharply between those due to the products of fermentation—namely, acetic, fatty and lactic acid, and such as owe their taste to an over secretion of hydrochloric acid, the former condition indicating chronic gastritis and the latter being classed with the gastric neuroses.

Vomiting is an irregular occurrence. I have noticed numerous writers in periodical literature mentioning vomiting as an attending symptom of chronic gastritis; but such is not the case. Nausea is a much more frequent symptom.

Shortly after eating there is a sense of oppression or a "bloated feeling" with slight soreness in the epigastrium; the latter becoming a pain only on pressure. The patients frequently complain that the food remains abnormally long in the stomach, and such may really be the case when these conditions are combined with weakness of the gastric muscular wall—atony of the stomach. The latter condition permits decomposition to take place in the ingesta; the carbohydrates ferment; the albuminoids putrify. This may really lead to a true gastrectasis.

Constipation generally exists. Occasionally diarrhea and constipation alternate.

The patients have the sensation that the evacuations are incomplete and suffer much from flatulency and rumbling in the abdomen.

We notice a diminution of mental activity, disinclination to bodily exertion, languor during the day, headache or a feeling of oppression in the head, and a morose, irritable disposition with a feeling of heaviness in every limb. Sleep is deep and long but not refreshing. Just here permit me to say that I have very little confidence in the so-called cases of "walking typhoid fever," and believe that the true condition of these cases is one of a low form of chronic

gastritis in which retrogressive changes in the nutrition of the stomach itself have taken place.

A peculiar condition first described by Trousseau is the *vertigo gyrosa* or gastric vertigo. I have now under my care a lady who suffered from frequent and severe attacks of vertigo due to chronic gastritis. These would occur without the loss of consciousness at almost any time. For a while she could not incline the head forward at all without one. Then they have come on while in bed; "the room whirling around and the ceiling moving," as she said, until she would cry out with fear. These symptoms have almost entirely left under hydrochloric acid, strychnia and lavage.

The first stage of chronic gastritis is atrophy of the mucous membrane or anemia of the stomach, *i.e.*, a condition in which complete destruction of the glandular parenchyma has taken place and has been designated as *phthisis mucosa*. After a time so severe a disturbance of the nutrition is developed that the patient dwindles away and finally dies of marasmus.

**Diagnosis.**—We have, first, to differentiate chronic gastritis from other diseases and then to distinguish one variety from another. Idiopathic gastritis can only be diagnosed after ulcer, carcinoma, dilatation, neuroses or the acute gastric disorders have been excluded, and this after a careful examination with the aid of all our modern diagnostic resources. Our only positive means of diagnosis is the examination of the stomach contents. It has been found best to make this examination after the patient has taken what is called the test breakfast. Ewald's test breakfast consists of a roll and a cup of coffee. It seems to me better to substitute water for the coffee. The gastric contents are obtained from one to eight hours after the meal, according to what we wish to test for. For instance, the secretion of hydrochloric acid is at its height about one hour after eating. At that time in simple chronic gastritis we find the amount of hydrochloric acid lessened. Pepsin and rennet are small in amount, but form propeptone and peptone; usually contain lactic and fatty acids. The mucous form differs from the simple in the abundance of mucus present so that acetic acid gives a marked mucin reaction, acidity always low. Hydrochloric acid usually absent. When atrophy has taken place the stomach contents contain after the test breakfast, neither mucus, hydrochloric acid, pepsin or rennet. Where there is muscular weakness of the gastric wall it is determined by the salol test.

The chemic differentiation of carcinoma and atrophy where there is no tumor, swelling of the lymphatic glands, cachexia or hematemesis is more difficult. Ewald refers to one important point, namely, the bloody color of the stomach contents due to the presence of altered blood pigment.

**Prognosis.**—Chronic gastritis is a disease of long duration. Even when the disease is apparently cured the organ is left so sensitive as to predispose to a fresh attack. Then the disturbances of nutrition and the consequent deterioration of the tissues render the system less resistant toward other poisons particularly tuberculosis. To make the chemic diagnosis more plain let us briefly rehearse the tests. Say we have the stomach contents from a patient suffering with chronic gastritis.

We first filter, then, with blue litmus test for acidity. It may turn either red or present no change. If it

turns red we next test for the kind of acid. We use Congo paper knowing that if free hydrochloric acid is present we will get a sky-blue color. In this case there is no change. We try again with Gunzburg's reagent by placing a few drops of filtrate on a porcelain dish, then adding the reagent and heat. If HCl this will turn bright red. Still no change. Then we test for lactic acid with neutral ferric chlorid solution and find it present by the deep canary color given by heat. If butyric acid is present this same reagent gives a tawny color. If the stomach secretes pepsin and rennet we will find here peptones and propeptones indicated by an intense purple red on the addition of cupric sulphate, the so-called biuret reaction. For the motility we use the salol test, and for the absorptive power the iodine and starch test of the saline and acute articular rheumatism. Ewald says that a large number of the cases which are usually said to have died of old age perish from gastric atrophy.

**Treatment.**—In the treatment of this disease we should endeavor to replace the deficient supply of gastric juice; stimulate the depressed functions of the organ and counteract the irritant substances introduced from without. The administration of hydrochloric acid not only replaces the deficiency in this secretion, but it prevents organic fermentation, thus filling two offices at once. It should be given to its chemic effect. Usually 10 drops after eating, in as little water as the patient will tolerate and if necessary repeated two or three times at intervals of fifteen or twenty minutes.

Pepsin should only be administered in those cases in which its absence can be positively proved, and then dissolved in a solution of hydrochloric acid fifteen to twenty minutes after eating. We doubt the efficiency of pancreatin and have had no occasion to use papoid.

To stimulate the activity of the organ, lavage stands pre-eminent, except when dilatation has taken place. The douche should be combined with this; *i.e.*, after the wash water runs clear, a quantity of medicated solution may be left behind. Caution must be used in this, as serious toxic effects have been reported.

Lavage not only stimulates the gastric functions, but removes the irritant substances which would otherwise lie in that viscus and decompose or ferment, thus aggravating the disease.

It has been proved that chlorid of sodium in the blood increases the secretion of gastric juice.

Nux vomica has excellent claims for this purpose, also the bitters, quassia, gentian, etc. The carminatives are abused in this respect. The regulation of the diet and mode of eating require the most careful attention of the physician, but these would furnish separate chapters in themselves. So with the use of the numerous mineral waters. Carious teeth should be removed. The bowels which are nearly always constipated must be kept open. As the disease nears a cure this symptom gradually leaves. In this connection I wish to call attention to the most excellent results I have obtained from the use of one or two drop doses of Fowler's solution one hour or so before each meal. The mode in which it acts I do not know, but possibly by stimulating the secretions, gastric and intestinal.

Finally, out of door exercise in this, as in the successful treatment of all chronic diseases plays a most important and excellent part. Of the agents employed for this purpose the bicycle for either men or women is the one *par excellence*. It develops the mus-



cles, stimulates the secretions, furnishes the best means of oxydizing and enriching the blood and to a great extent overcomes the constipation.

## DISCUSSION.

DR. J. B. MARVIN—The essayist has presented this interesting subject so clearly and with such easy diction that I fear he has glided over some of the points without emphasizing them enough. There are one or two points as to the causation; I believe he mentioned all save one. Certain conditions of the buccal and naso-pharyngeal cavities are frequent causes of chronic gastritis, and the latter will not receive benefit until the naso-pharynx and mouth have been put in good condition. I think that the naso-pharyngeal catarrh causes chronic gastritis often and not the reverse as believed by many. The essayist said nothing of the various bacteria found in the stomach and they may cut a figure in these cases. A case should never be classified until we have examined other important organs, heart, liver and lungs, and especially the kidneys. Chronic interstitial nephritis is a most frequent cause of gastric catarrh. Diabetes frequently causes gastric catarrh. It has been my misfortune to see cases who came for treatment of their stomach trouble and who had sugar in their urine. Another point is, I doubt if any case of chronic gastric catarrh fails to present evidences of malnutrition. There is a close connection between the stomach and bowel. I always put the question, and generally answer it in advance, if there is constipation, and a gastritis does not improve until the bowels are improved. They go hand in hand. I think a line should be drawn between gastric catarrh and the so-called nervous gastritis or gastrectasis. We frequently see most marked reflex nervous symptoms in chronic gastric catarrh. Those who have read Bouchard on "Auto-Intoxication," and those who have not, will be repaid by doing so; will remember he accounts for these nervous phenomena by auto-intoxication. The essayist said nothing of the chemic tests which we use in all cases at the Kentucky School Dispensary. These are best applied after a test breakfast has been given, consisting of tea, without milk or sugar, or warm water may be substituted, with a roll; or we can use this test breakfast alone and it tells us a great deal. In acute gastric catarrh the pain comes on quickly. In chronic gastritis if due to a hypersecretion, it comes on several hours after, and if due to deficient secretion we have pain, a sense of weight and fermentation. As to treatment we hardly know what to do. We begin to question whether the stomach tube does good or harm. It makes them think of their stomachs, and they may begin to use the tube themselves to their own detriment. But it is an excellent remedy; the benefits are so quick and striking that it forms a valuable part of our treatment. It is not well to pet the stomachs with peptonized milk and predigested foods; they do more harm than good. The stomach must be made to work; it needs a stimulant and exercise as it is degenerated. One of the hitters not mentioned and which far surpasses all others in my estimation is condurango. It is used in a fresh infusion. These cases need muriatic acid, and nearly all will object to acid; they complain of sour stomach, and can not understand why they must take acid, and one has to resort to all sorts of devices to make them take it.

DR. J. B. BULLITT—I wish to say a word in regard to exercise of the stomach. A rather singular method which I have heard of from one source is this: You take a stomach tube open at the end, and not at the sides, and pass it into the stomach. When the end reaches the stomach, a contraction is caused, and a gush of fluid takes place; if the tube is withdrawn slightly and again pushed in, another contraction is produced. This procedure is called, gastric gymnastics; chronic atonic conditions of the stomach and dilatation are said to be much benefited by these gastric gymnastics.

DR. CHAPMAN—I am glad Dr. Marvin emphasized two points; one that chronic gastritis is caused by naso-pharyngitis. I did not lay sufficient stress upon it. The nose and throat men are inclined to think that the pharyngitis is caused by the gastritis. As to the impression that lavage can prove harmful, I can heartily concur in that. It is a treatment which gives more relief, and comes nearer curing than any other agent that I know. But it does harm to continually introduce it as is done if the patient has one himself. As to the point mentioned by Dr. Bullitt in regard to stomach gymnastics, I always use a tube open at the end, and I nearly always fail to obtain the stomach contents, unless I have the patient press on his stomach or gag or cough. This is perhaps due to the tube being soft and compressible.

DR. J. M. RAY—I am sorry not to have heard the paper but I wish to speak of one point I heard in the discussion. That is in regard to naso-pharyngitis in relation to gastric diseases. I can not agree with the statement that so-called chronic naso-pharyngitis produces often chronic gastric disturbances.

There is only one form of muscular naso-pharyngeal disease accompanied by an increased secretion from the mucous surfaces, and that is acute coryza. The chronic form it is claimed by Bosworth, interferes with the function of the mucous glands and by hypertrophy obstructs drainage. So that secretions may become obstructed in the drainage and while there is apparently an increase of secretion there is really a diminution. The normal secretion is said to be about 1 per cent. in twenty-four hours. There is a red roughened granular condition found often in the pharynx that I believe is the result of gastric disturbances, but I can not see how nasal disease causes disturbances in the stomach. The idea seems quite prevalent especially among the laity that most of the ills of mankind are due to nasal catarrh. We all know that the great majority of nasal diseases are found to be due to local changes in the nose.

DR. CHAPMAN—In washing out stomachs I have found frequently, large quantities of muco-purulent material, often almost crusts, especially in the young who have naso-pharyngitis, who swallow it while asleep. These when in the stomach neutralize the stomach secretions, irritate the mucous membrane and undoubtedly cause chronic gastritis.

## ACUTE NEPHRITIS IN AN INFANT.

Read before the Chicago Pathological Society, Jan. 14, 1895.

BY ELIZA H. ROOT, M.D.

CHICAGO.

Mother's history: A. B., age 19, unmarried, primipara, admitted to Chicago Hospital for Women and Children, Jan. 25, 1894. Urine albuminous; legs edematous; purulent leucorrhea and urethritis. Specific taint denied. Albuminuria and edema disappeared under milk diet and Basham's mixture, and leucorrhea controlled by salicylic acid injections. Child born February 26, after a normal labor lasting twelve hours. February 27, decided albuminuria with puffiness of lids, which latter soon disappeared, the albuminuria, however, continuing for four or five weeks. On the tenth day temperature rose to 103 degrees F., from mental excitement over her child's condition, but promptly fell to normal. Mother left hospital March 13 in good condition except that the uterus was still large and congested. Her occasional visits to the dispensary for six weeks enabled me to confirm the absence of syphilis.

Infant's history: Male, weight nine pounds, well developed, urination from the first manifestly somewhat difficult and painful. The fourth day temperature rose to 102.5 degrees F., attended with incessant crying, and the appearance of a papular eruption, mainly on the neck and face. About the tenth day temperature rose to 103 degrees and later 104.5, only slightly reduced by wet pack or bath. Skin became dry and branny with fissures in axilla and groin and about wrists and ankles. During the last two days of the illness the temperature fell to normal and then to 96.5 degrees. Bowel movements became thin and greenish; eclamptic convulsions appeared and then paralysis of left leg. The child gradually became comatose and died March 10.

Post-mortem findings: kidneys were swollen and full of blood, presenting the appearance of acute inflammation. The vena cava ascendens, beginning at or near the junction of the renal veins was filled with coagulated blood having all the appearance of an ante-mortem thrombus. This thrombus was followed into the left common iliac, into the external and internal iliacs, thence to the deep and superficial

veins of the thigh and readily traced into their smaller tributaries. The presence of this thrombus accounts for the paralysis of the limb and the watery semi-transparent whiteness of the foot. The umbilical vein and arteries presented nothing unusual; liver and spleen large and filled with blood; lungs congested; pericardial sac filled with straw-colored fluid; no evidence of cardiac inflammation. Veins of the brain and its membranes contained dark blood but no thrombi. Ureters and urethra patent and normal; bladder empty; stomach and intestines normal; thyroid and thymus glands normal. Perirenal fat absent or nearly so, while subcutaneous fat was present in a very small degree. Microscopic sections of the kidney have been kindly made for me by Dr. Latham, who will present them for the inspection of the Society. They show the changes of a subacute nephritis. The question that has presented itself to my mind in considering the cause of renal disease in this case is, Was the disease due to septic infection, and, if so, how did it occur? The mother was unhealthy, as her history shows. She was considered an unclean case and extra precautions were taken against further infection. She was isolated, during the lying-in, to the extent of being assigned to the care of one nurse who cared for her and her child only. I can not disabuse my mind of the idea that the infective matter still remained somewhere in the parturient canal and that infection took place through the umbilical cord.

NOTE.—Since I read this paper I have seen two infants, hospital cases, in which I made the diagnosis of renal inflammation, acute; one a boy, the other a girl. Both infants presented symptoms similar to those described in the case reported, but not so severe, as both babies recovered. The dryness of the skin, its cracking in the creases of the flexures and the temperature were nearly the same as in report, except that recovery began when temperature reached normal. In the case of the baby girl we obtained enough urine to test for albumin and found it abundant, but not enough to determine quantity per volume. Both children were very ill. I expected both to die, especially the girl, as she was worse than the boy. The mother of the little girl was not so well generally as the other, and at one time, prior to delivery, had a small amount of albumin in urine. The other mother seemed quite well. Both had a normal lying-in and left the hospital well, the babies still showing the effects of their illness but bidding fair for full recovery. Both babies showed stigmata of faulty development in the bones of the head and the ears. Mothers presented no similar signs.

#### DISCUSSION.

DR. G. H. WEAVER—Dr. L. Emmett Hall, of New York, has written two articles on primary nephritis in infants. The first appeared in 1887; at that time he had collected from his own practice and that of his friends during eighteen months, eight cases of what he called primary nephritis in infants, whose ages varied from 2 days to 2 years. From the literature he collected eleven more, making nineteen cases. He concluded that primary nephritis in infants is not a rare disease, but that it occurs quite frequently, although not usually recognized. Five years later, in 1892, he reported two additional cases, being all that he had seen in five years, so he then modified his first conclusion, and says that primary nephritis in infants is rare and occurs infrequently.

The symptoms he described in this condition are as follows: Continuous fever of an irregular type, generally quite high; dullness and apathy with no focal symptoms of brain disease; marked anemia without emaciation, moderate gastro-intestinal disturbance in the early part, usually vomiting later and a tendency to diarrhea; and later a tendency to bronchitis. These cases all emphasize the fact that in cases of irregular fever in infants for which there is no apparent cause the urine should be examined, and that in case of convulsions in infants the urine should always be examined. In only a few cases was there marked diminution in the amount of urine observable. Dr. Root's case, it seems to me, might possibly belong in this class, the disease of the

kidney not having been caused by infection through the umbilical vessels. Changes in the liver would have been expected and changes in the vessels themselves if the infection had taken place in this way.

DR. ROOT—The temperature in this case was high and during the last two or three days irregular, as Dr. Weaver says, but there was a marked decrease in the flow of urine. No examination of the urine was made, for the reason that we could not secure a sufficient quantity of it.

DR. EDWIN HAMILL—In regard to the last point mentioned by Dr. Root, that of securing a sample of urine from a baby, by placing a flat sponge over the genitals, one may succeed very often in securing urine, without resorting to the use of the catheter.

## A CASE OF NEPHRECTOMY FOR SARCOMA OF THE KIDNEY.

Read before the Chicago Pathological Society, Jan. 14, 1895.

BY D. W. GRAHAM, M.D.

CHICAGO.

This sarcoma was removed from a child 18 months old. There was no history of injury or acute disease. About six months before the operation a tumor was discovered in the child's right side, which gradually enlarged. I saw the case the last week in September and told the parents I would operate if they desired it but did not offer them any encouragement. They declined the operation at that time but returned the middle of November with the request that I operate, even if the child died. I operated with a kind of protest, they knowing all the dangers.

At the time of operation the tumor filled the entire side of the abdomen extending down into the pelvis; it was of enormous size compared with the size of the child. I operated by what is called Langenbeck's method. The incision through the wall is made in the linea semilunaris. The colon is pushed toward the middle line, the peritoneum over the kidney and tumor is cut through and stripped off with the fingers, the tumor being thus enucleated. The pedicle consisting of the usual vessels and the ureter is isolated, the tumor freed from behind and the vessels secured. I will pass this tumor around. The kidney substance is at the upper end, the capsule seems to have been ruptured and the whole mass protruded downward. The mass seems to have come out as a fungus at the pelvis of the kidney, shooting out toward the mid-line of the body, and even surrounding the vena cava. The ureter ran across the tumor. The pedicle was secured in the usual way without great loss of blood. There was a good deal of hemorrhage but it came from the bed of the tumor, there being a good deal of venous oozing which could not be checked readily. For the age and size of the patient a good deal of blood was lost, although the absolute amount was small. The patient lived about four hours and died of shock. A diagnosis of sarcoma of the kidney was made before the operation, and the microscopic examination shows it to be sarcoma of the round-celled variety. The diagnosis was based chiefly on the age of the patient. There is no way of determining beforehand from the clinical symptoms whether a tumor of the kidney is carcinoma or sarcoma, but we know that malignant tumors of the kidney in young children are relatively much more frequently sarcomata rather than carcinomata. Dr. Bishop will describe the sections he has made.

#### MICROSCOPIC EXAMINATION BY DR. D. D. BISHOP.

Pieces were taken from the portion of the specimen which projects above the capsular-like structure and ex-

amed microscopically. In the main we might say the structure is that of a round-celled sarcoma. The cells are rather large, have large nuclei, some are elongated having the appearance of a so-called oat-shape cell which we see in some tumors. The structure is traversed in a gross way by broad bands of fibrous tissue showing well formed connective tissue in their interiors, but as we pass from the interior of these bands toward the tumor itself, the cells become of the same character as the cells in the tumor proper, indicating that perhaps these have developed by fibrillation and condensation of the tumor structure. There are numerous small blood vessels and these show a distinct endothelial lining and a slight amount of connective tissue wall. From the number of blood vessels and the fact that the round cells are arranged rather in groups about these vessels, one might think it likely that the tumor had its origin in the vascular system, and I consider that perhaps this was the fact, because in other portions there are distinct trabeculated areas in which there are rather large spaces and the trabecular walls are lined with endothelium, very much like other angiomata, so we may consider that it is probably an angio-sarcoma. It is interesting to note in all the sections prepared and examined, about twenty-five in number, that in no part of the kidney proper was there evidence of invasion of the sarcoma. The kidney was apparently pushed to one side by the process. The sections from the kidney proper, taken from the capsular-like portion show simply an atrophic condition of the glomeruli, some slight thickening of the walls, compression of the renal tubules and increase in the interstitial tissue. Considering the apparently profound changes and the size of the entire structure the kidney is really very little altered. The renal changes would not be considered very grave if found in a kidney not compressed by a tumor of this sort. In no portion of the structure were there found any of the striated muscle cells which are said to occur often in some congenital sarcomata of the kidney, the so-called myo-sarcoma. So it seems that we have not to deal with that variety of tumor, but a round-celled sarcoma probably developed in the course of the blood vessels.

#### DISCUSSION.

DR. GRAHAM—Many of these cases of sarcoma in young children are accounted congenital. There was a year of life elapsing between the time of birth and the time this tumor was discovered. There was nothing in the history or appearance of things that would lead us to believe that this was not a congenital tumor and I am inclined to think the disease was present at birth.

DR. E. R. LE COUNT—In reference to congenital sarcoma of the kidney of a malignant character, as reported by Dr. Graham, it is very probable that they have their origin in the remains of the Wolffian bodies, while with tumors that appear later in life there is a tendency to consider their origin as having some connection with remnants of the super-numerary adrenal glands.

DR. BISHOP—Dr. Le Count speaks of the Wolffian bodies in connection with these tumors, and I ought to add that in some of the sections are tubular-like structures lined with columnar celled epithelium, suggesting that they are the remnants of the ducts of the Wolffian body, and should not be overlooked, but they were so few in number and had no apparent relation to the tumor so were not considered as having any etiologic significance. The tumor perhaps, but not necessarily, occurred from that structure. I did not mean to say that this tumor was not in my opinion congenital. I simply stated that the striated muscle cells which are often present in such tumors were not present in this; a congenital tumor may be round-celled as well as any other variety.

#### A CASE OF TUBAL PREGNANCY.

Read before the Chicago Pathological Society, Jan. 14, 1895.

BY BERTHA VAN HOUSEN.

CHICAGO.

Mrs. S., aged 22, married three and one-half years had a miscarriage after being married five months. Three months after the miscarriage had an attack of pelvic inflammation, and a pyosalpinx on the right side was diagnosed by Dr. Bayard Holmes, who was caring for the patient at this time. She was confined to bed for six months at this time, and spent six

weeks of the time in Mercy Hospital. She improved while under hospital treatment and was told that she might fully recover if she continued the hot douches after leaving the hospital. Sept. 19, 1894, two years later, the patient came to Dr. Hickey-Carr complaining of nausea and with the history of having missed two monthlies. Examination of the pelvis showed the uterus enlarged and a mass was felt on the right side. Liquid diet was ordered; September 23, the patient was feeling well and took an eight-mile ride on the cable car. September 24, the following day at 3 A.M., she was seized with pain in the pelvis and a neighboring physician was called in. He gave her three doses of codeia  $\frac{1}{2}$  gr. each. At 8 A.M. on same morning Dr. Carr was called and found her still in pain; slight hemorrhage from the uterus but no sign of membranes, pelvic tenderness and the mass on the right more distinctly outlined.

September 24, 25, 26, patient kept in bed on liquid diet without anodynes and efforts made to move the bowels with calomel, castor oil, olive oil, glycerin and water enemas but with no success. Up to and including September 26, the fourth day of the attack, the pulse was 90 to 96, temperature 99 to 99 $\frac{1}{2}$ , and the pain constant. September 27, at 4 A.M., the patient had a third violent attack of pain and by 9 A.M. the pulse had risen to 120, temperature 100. Dr. Carr was obliged to leave the patient to attend court, and did not see her until 2 o'clock in the afternoon. At 1 o'clock she had been seized with pain and went into collapse. When Dr. Carr saw her at 2 P.M. there was dullness in the lower segment of the abdomen and the mass of the right was very indefinite. I saw the patient two hours later in consultation with Dr. Carr. The temperature was then 100, and the radial pulse 160. The patient was blanched and appeared to be sinking rapidly.

Ectopic gestation was suspected and an exploratory operation was decided upon; at 6:30 P.M. the patient was taken to the Chicago Hospital, a distance of four blocks from her home. Dr. F. Byron Robinson saw the patient at 8 P.M., confirmed the diagnosis and at 8:15 with the assistance and consultation of Dr. Robinson, I opened the abdominal cavity, the lower portion of which was packed with loose black clots of blood. These with a quantity of liquid blood were turned out, the appendages on the right side were removed, the cavity freely irrigated, glass drainage tube inserted and wound closed with silkworm gut. At 9 P.M., a few minutes after the operation the pulse was 152, temperature 101.4. From this time the pulse dropped until on the seventh day it did not go above 100. On the fourth day the decidua was expelled entire. Drainage removed on the sixth day and stitches tightened; the wound closed by figure 8 ligature and the patient left the hospital on the fourteenth day. I saw her last week and she asserted she had not been so well as now, since her marriage. Since the operation she has gained in weight, menstruates regularly, and is at all times perfectly free from pain.

The specimen is a very typical one and shows what a violent effort was made to accomplish tubal abortion during the four days before tubal rupture took place.

Such a mishap as this illustrates, fortunately does not occur every day, because nature has practically castrated such women by closing the tubes, or so modifying the secretion that conception can not take

place, but my reading leads me to believe that there are many undiagnosed cases. In fact, it does not seem to be the etiology, the pathology or the treatment that balks us in dealing with this condition, but the blunders in regard to it seem to be confined mainly to the diagnosis. Some of the most typical diagnostic points are well brought out in this history. Before rupture we have history of sterility and severe tubal disease; mass felt on right side; rapid increase in size of mass; symptoms of pregnancy; uterine hemorrhage. After rupture we have sudden pain and collapse; slight elevation of temperature; rapidity of pulse; physical signs of internal hemorrhage. To save a patient after such an accident as tubal rupture seems to me more good luck than good management, but to prevent such an accident from occurring is worthy of the most ambitious efforts.

In this case, salpingotomy should certainly have been performed after the first miscarriage two years ago, as earnestly advised by both Dr. Holmes and Dr. Carr. An infected and diseased tube can never be anything but a source of danger to a woman's health, both on account of its relation to the peritoneum and its inaccessibility to treatment; and for the same reasons I see nothing but salpingotomy that can be relied upon to permanently restore to health a woman with diseased tubes.

If, however, the patient does not give us the opportunity to remove the diseased tube before such a condition as ectopic gestation can occur, should a suspicion of pregnancy in the uterus prevent us from interfering with any mass that could be felt in the pelvis, the conditions that might most easily be mistaken for ectopic gestation are pyo- or hydrosalpinx or an exudation about the tube complicating normal pregnancy. If we had any one of these conditions without pregnancy, an abdominal section would certainly be indicated, and the co-existing pregnancy can not have any but a deleterious influence upon these conditions, by increasing congestion and stopping drainage through the uterus. The effect of any of these conditions upon pregnancy is to constantly threaten aborting before full term is completed, to cause rupture of the tube or prevent natural delivery at the time of confinement, and after the uterus is emptied to increase the danger of sepsis and pelvic peritonitis.

There are so few of even the most distinguished gynecologists who are able to make an accurate diagnosis of any pathologic condition in the pelvis, outside of the uterus, before an incision has been made in the abdominal wall, that the general practitioner in whose hands these cases first fall must feel himself very inadequate to meet the possible emergency. But every practitioner should be able to say whether the uterus was enlarged, and that there was a mass at one side and on finding such a condition should he not advise an exploratory operation at once? A few cases with personal responsibility in ruptured tubes has increased my courage in prompt action and my admiration for the judgment of the man who says conservative surgery means increased mortality.

#### DISCUSSION.

DR. E. F. GAVIN—I have been strongly tempted to suspect abdominal pregnancy of an ectopic nature in a number of cases of acute peritonitis in married women, and I think so-called cases of peritonitis are frequently cases of ectopic gestation.

DR. D. W. GRAHAM—This is a very good report of the case

and is sound teaching. I know the author of the paper is not the author of the last remark; that it is a quotation in regard to conservative surgery. I always feel like fighting when I hear the term used as it is used nowadays. Conservative surgery means that kind of surgery which will save the life or health of the patient. That is my definition of conservative surgery. I know the author of the paper did not use the term in an improper sense, but I want to protest against the phrase being employed every time we are discussing subjects which have to do with removing something from the body. It might be proper to say conservative treatment, or do-nothing treatment, or temporizing treatment, but conservative surgery means conserving the patient's life or health and all the organs compatible with these two conditions. I want to put myself on record as giving that interpretation to conservative surgery.

DR. J. L. McCOLLUM—I feel that too much can not be said in praise of this paper. I have had some experience in operative gynecology, and I must say that I indorse most heartily the ground the Doctor has taken in not hesitating to mutilate, as this method has been termed by a great many writers who cry out against the removal of the tubes. I have had a clinic in gynecology for the last six years and have had an opportunity to watch cases, some of them being under treatment for two years. I would have them discharged as cured but they would come back in a few weeks with the same trouble, which if not as bad was in the way of becoming so shortly. I can not see any reason why we should hesitate to remove the tubes after a reasonable course of treatment is unsuccessful.

DR. F. B. EARLE—I certainly think the author deserves congratulations, both on the paper and the result of her treatment. The diagnosis of ectopic gestation is very difficult before rupture of the sac; in fact, some authors state that it is impossible. However, when we have a history as in this case, of previous disease of the tube with probable occlusion we have one of the principal factors in the etiology. Amenorrhea and a period of sterility so frequently precedes ectopic gestation that the usual symptoms of pregnancy following a condition of that kind should always excite our suspicion. When there is a bloody discharge from the uterus with the negative symptoms of pregnancy, with a tumor presenting at the side of the uterus and pain at the site of the tumor, particularly if that tumor presents a soft boggy feeling, then there is every reason in the world to suspect extra-uterine pregnancy. As to treatment, there can be no doubt as to the indications when the diagnosis is properly made. The ovum at that site is of dangerous omen and the sooner it is gotten rid of the better. The use of electricity to destroy the ovum has many advocates but laparotomy is comparatively safe and inasmuch as it is, and may be called for even after death of the ovum, probably the best method is to resort to it as the primary treatment.

DR. BERTHA VAN HOOSSEN, in closing the discussion, said: I would like to say one word about conservative surgery. I suppose by conservative surgery we mean as simple an operation as possible to save the woman's life; that depends a good deal upon the judgment. I saw an extra-uterine pregnancy operated upon at the Post-Graduate Hospital; the patient had been consulted over by several doctors and each one proposed curetting, until it happened that one consultant thought it might be better to see exactly the condition inside the pelvis. Abdominal section was made and it was found that she had an ectopic gestation on one side and a very large pus tube on the other. I think if curetting had been resorted to it would have been what Dr. Graham would call conservative surgery.

### ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Continued from page 553.)

#### CHAPTER VIII.

Case of gastritis, fever and jaundice, resulting from exposure and bad diet. John Austin, age 16, laborer, admitted to Charity Hospital Nov. 30, 1876. Says that he had felt unwell for three or four days before admission. Complained



of loss of appetite and diarrhea. Ordered light diet and bismuth mixture.

R. Syrupi morphine . . . . . ʒiij  
Bismuthi subnitrate . . . . . ʒiij

℞: Sig., teaspoonful three times a day or every four hours if necessary.

December 4, temperature of the axilla 101.4. December 5, 101; December 6, eyes and skin decidedly yellow, patient complains of feeling very heavy and depressed. Morning pulse 82, respiration 18, temperature 99.8; P.M., temperature 100.5. December 7, morning, jaundice increasing, decided yellow color of conjunctiva and skin; pulse 72, respiration 18, temperature 99.5; evening, pulse 72, respiration 18, temperature 100.5. December 8, urine high colored and loaded with bile, albumin absent; chlorids abundant; yellow color of conjunctiva and skin. A.M., pulse 74, respiration 18, temperature 99; evening, temperature 100.5. December 9, morning, pulse 80, respiration 18, temperature 95.5; evening, pulse 80, respiration 18, temperature 101.5. December 10, evening, pulse, 76, respiration 18, temperature 102.6. Urine loaded with bile; skin yellow, hot and dry. December 11, morning, pulse 80, respiration 18, temperature 99; evening, temperature 102. December 12, morning, pulse, 80, temperature 100.5; evening, temperature 101.6. December 13, during the past four days quinin has been freely given, the bowels having been previously evacuated by a mercurial purgative. The depth of the color of the skin is now decreasing. Morning, pulse, 84, temperature 99.8; evening, temperature 100.5. Continued to improve and was discharged.

We observe in this case in which jaundice accompanied fever, perhaps of a malarial character, that on January 10, with a temperature of 102.6, the pulse was only 76 beats per minute.

#### PERNICIOUS AND CONGESTIVE MALARIAL FEVER.

The rate of mortality in my surgical practice has varied with the season, the type of the disease and the manner of admission of patients. When from such causes as scarcity of funds, the lighter cases of disease were treated as out-door patients, and only those seriously ill admitted, the rate of mortality among the cases treated in the wards was relatively increased. At the same time the number of out-door patients prescribed daily in the wards was greatly augmented. I have carefully excluded from the statistics recorded in my "Medical and Surgical Memoirs," those relating to out-door patients connected with the Charity Hospital, although during some seasons they have exceeded in numbers those actually treated in the wards. During the twenty-seven months of hospital service, preceding April 1, 1872, the total number of cases admitted into my wards in the Charity Hospital was 1,111; of this number 856, or 77.9 per cent. were discharged, and the deaths amounted to 106, or 9.4 per cent. of the entire number treated; during this period, also, a large number of the cases which terminated fatally were brought in moribund. During the six months ending April 1, 1873, the total admissions numbered 213; of this number 145, or 68 per cent. were discharged. The deaths amounted to 39, or 18.5 per cent. During the first period the deaths amounted to 1 death in 10.4 cases; in the latter period, 1 death in 5.46 cases.

During a period of six months, Oct. 1, 1873 to April 1, 1874 the total admissions numbered 517; of which 436 were discharged and 51 died; the deaths amounting to 1 in 10.13 cases, or 98 per cent. During this period more than one-third or 19 deaths were caused by yellow fever, many of which were brought in moribund, with jaundice and black vomit.

During a period of twelve months, Oct. 1, 1874, to April 1, 1875; Oct. 1, 1875, to April 2, 1876, 765 cases were treated, with 65 deaths, or one death in 11.8 cases, or 8.5 per cent.

I have selected the following cases from the clinical records of my wards, to illustrate the condition in which many of the patients entered, and the effects upon the rate of mortality:

*Case 1.*—Pernicious malarial fever (malarial coma). Unknown man, age about 35, entered Charity Hospital Oct. 17, 1872; died in six hours. Patient brought to the hospital in an insensible condition, from which he could not be aroused; rapid feeble pulse; skin sallow with a decided tinge of yellow; extremities cold, congested and mottled; lips and fingers purple; passes urine and feces freely in bed; head and trunk hot; temperature of axilla 103. Sinapisms and alcoholic stimulants failed to arouse the patient; large doses of quinin administered by enema have no effect.

Post-mortem three hours after death: Blood vessels of brain congested with dark blood; lungs and heart healthy; mucous membrane of stomach and intestines slightly congested; liver slate-colored on the exterior and bronzed within; abundant pigment deposits in portal capillaries; spleen enlarged and softened; splenic mud contained numerous pigment particles; kidneys normal; gall bladder distended with dark green bile; cavities of heart contained fibrinous clots; blood of liver of a dark purple color.

*Case 2.*—Pernicious malarial fever (malarial coma). F. F. Payne, age 32, native of Virginia, entered Charity Hospital Oct. 28, 1872, died October 29, twenty hours after entrance. Has been exposed in swamps of Mississippi River. Admitted in a comatose state. Rapid pulse, congested purplish extremities. When aroused by violent shaking, appears to be in a state of great agitation and gives incoherent answers. Passes excrements in bed. Sinapisms, alcoholic stimulants and quinin produced no permanent effects.

Post-mortem six hours after death: Heart and lungs normal; fibrinous clots in cavity of heart; liver slate-colored on the exterior and bronze within; spleen enlarged and softened; gall-bladder distended with dark green bile. Stomach contained a considerable quantity of greenish-yellow fluid resembling bile; numerous pigment granules were observed in the structures of the liver and spleen.

*Case 10.*—Malarial congestion or pernicious fever. Charles Smith, native of Switzerland, age 60; entered Charity Hospital Oct. 18, 1872, and died October 19. During the summer and fall has been exposed to swamps and marshes. Entered in a state of wild delirium. Rapid feeble pulse; rapid respiration; prostration of muscular and nervous forces; capillaries of extremities congested; head and trunk hot; temperature of axilla 103, which continued up to the time of death. Passed feces and urine in bed. Sinapisms, diffusible stimulants and quinin produced only temporary improvement and the intellect was restored but for a short time. Intense jaundice appeared before death, which occurred in thirty-six hours.

Post-mortem six hours after death: Surface golden colored; heart and lungs normal; liver slate-colored on the exterior and bronze within; much pigment in portal and hepatic capillary network. Gall-bladder distended with dark almost black greenish bile; spleen enlarged and softened; kidneys healthy.

*Case 3.*—Malarial, congestive or pernicious fever. John Kerrin, age 39, native of Denmark. Has suffered for some time with malarial fever, in a low, unhealthy, marshy location. Entered Charity Hospital moribund, pulseless, comatose, Feb. 9, 1873; died in twenty-four hours, Feb. 10, 1873. Diffusible stimulants, sinapisms and sulphate of quinia induced only temporary improvement.

Post-mortem examination: Heart normal; contained fibrinous clots; malarial liver, slate-colored on exterior and bronze within, loaded with black pigment; spleen enlarged, softened and loaded with pigment.

*Case 4.*—J. Duber; malarial fever and dysentery; native of Germany, age 45. Has been exposed in swamps and has been subjected to scant diet and bad water. Entered Char-

ity Hospital Nov. 12, 1872, and died November 19. Entered hospital in a most filthy and miserable condition; comatose; pupils contracted, pulse rapid and thread-like—so rapid and feeble that the number of beats are determined with difficulty. Bowels loose, passes feces and urine in bed. Has been sick for some time. Immense bed sores are forming over scapulars, sacrum and hips. Under the use of large doses of quinin and opium, carbonate of ammonia and alcoholic stimulants the patient rallied and at one time I entertained some feeble hope of his gradual improvement. The change, however, was only temporary, and death appeared to result chiefly from the profuse discharges from the bowels; patient died six days after entering the hospital.

Post-mortem six hours after death: Heart and lungs normal; liver slate-colored on exterior and bronze within with much black pigment; spleen enlarged and contained much pigment; ileum, colon and rectum much congested; numerous ulcerations in mucous membrane of colon and rectum. In the chronic dysentery of the Mississippi Valley and of the Southern States generally, I have found by post-mortem examination that ulcerations of the large bowels are almost always present.

*Case 5.*—Malarial congestive fever, with hemorrhage from the bowels. John Kelly, age 42, native of Ireland. Entered November 11 and died November 13. Cause of disease, exposure on banks of Mississippi and bad diet. Entered in a delirious feeble state with rapid feeble pulse; distended abdomen; enlarged liver and spleen; anemic, sallow, greenish-yellow malarial hue. Passes foul stinking feces in bed. On the night of the 12th the patient had a prolonged (congestive) chill, which was attended by a profuse discharge of fetid bloody matters in his bed. Quinin, opium, stimulants and sinapisms produced only temporary effects, and prolonged life only a few hours.

*Case 6.*—Malarial congestive fever and dysentery; profuse hemorrhage from bowels. F. Harrington, age 33, native of Ireland. Entered Charity Hospital Jan. 11, 1873, died January 21. Has been exposed to the prolonged action of malaria, cold, and wet, and bad diet in swamps along the Jackson R'y. Entered with feeble rapid pulse; sallow and anemic, jaundiced hue; liver and spleen enlarged; suffers with quotidian intermittent fever and painful chronic dysentery; discharges from bowels painful, frequent and loose. Under the free and continuous use of subnitrate of bismuth, opium and quinin, with milk and rice diet, there was marked improvement. On the night of January 18, patient had a prolonged and severe congestive chill attended with profuse hemorrhage from the bowels, which was followed by collapse and death.

Post-mortem six hours after death: Heart and lungs normal; liver slate-colored on exterior and bronze within, with much pigment matter; spleen enlarged; mucous membrane of large intestine ulcerated.

*Case 7.*—Pernicious fever and dysentery terminating fatally with profuse hemorrhage from bowels. Timothy Harrington, age 32, laborer; admitted to Charity Hospital Jan. 11, 1873. Patient states that he was taken two weeks ago with violent pain in the lower bowel, with frequent desire to go to stool, and great tormina and tenesmus. Bowels moved six or eight times in twenty-four hours. January 13, pulse 100, of good force and volume. Complexion anemic and greenish-yellow, spleen and liver enlarged and has been exposed to the action of malaria. Temperature 102 degrees. Applied blister on right iliac region for relief of pain. Administered 5 grains of quinin and 10 drops of the tincture of opium every three hours, until four doses were taken. Fever not affected by quinin perceptibly; patient restless and complains of pain in bowels. January 15, pulse 108, very feeble; patient feeble and weak. During the night of the 15th had a protracted and severe chill of the type ordinarily called congestive; extremities purple; pulse a mere thread. January 16, patient in a state similar to the cold stage of congestive fever; cold clammy sweat on the surface; complete prostration; pulse rapid and feeble; turpentine stupes and sinapisms were applied and quinin and alcoholic stimulants administered, both by the mouth and by the rectum. These measures brought on reaction and the patient appeared to be improving. The temperature of the axilla, however, during this period of depression and

coldness of the extremities was above the normal standard, as will be seen by the following record: January 13, temperature 102, pulse 100, respiration 18. January 14, temperature 100, pulse 99, respiration 17. January 15, A.M., temperature 101, pulse 86, respiration 19. January 16, temperature 101.5, pulse 108, respiration 18. January 17, temperature 102, pulse 88, respiration 23. January 18, patient vomiting large quantities of biliary matter and utterly unable to retain anything on his stomach; A.M., temperature 101, pulse 84, respiration 18. January 19, during the nights of the 18th and 19th the patient was again affected with a prolonged congestive chill, attended with profuse hemorrhage from his bowels. His bed was literally flooded by the hemorrhage from the bowels. Pulse 128, respiration 18, temperature of axilla 100. I examined the urine with great care and interest in the case, as it bore striking resemblance to some cases of malarial hematuria. The urine contained no blood corpuscles and no albumin, but abundant urea, urates and uric acid; was of a bright straw color, strong acid reaction; specific gravity 1025. January 20, temperature 100.5, pulse 120, respiration 20. Died January 20.

Post-mortem. Twelve hours after death: Heart and lungs normal; liver enlarged, slate-colored on exterior, bronze within, loaded with pigment particles; spleen enlarged and softened; mucous membrane of intestine congested; large intestine ulcerated.

*Case 8.*—Intermittent fever arrested by full doses of the sulphate of quinia. James Davis, age 25, native of England, has been exposed to the action of malaria in the swamps of the Red River. Entered Charity Hospital January 19, discharged Jan. 27, 1873. Upon entrance complained of pain in right side. Had severe chill during night of 21st. Bowels opened with 10 grains of calomel, combined with 5 grains of quinin and followed with 5 grains of quinin every two hours, until 20 grains were taken. Under the action of the quinin there was a rapid subsidence of the temperature. The quinin was continued; about 10 grains being administered daily for several days; no return of chill and fever. This patient had had chill and fever every alternate day up to entrance in hospital. The following observations illustrate the rapid fall of temperature under the action of quinin: January 21, 8 A.M., chill just passing off, temperature of axilla 106.3; quinin freely administered. At 8 P.M., temperature 102.3. On 22d, at 8 A.M., temperature 99.3; 8 P.M., temperature 99. On 23d, 8 A.M., 99.4; 8 P.M., 100. On 24th, 8 A.M., 98.5; 8 P.M., 98.4. On 25th, 8 A.M., 98.4; 8 P.M., 99.2. On 26th, 8 A.M., 99.4.

*Case 9.*—Congestive fever; loss of muscular power, general paralysis, loss of memory. Recovery. Peter O'Brian, age 41, native of Ireland, laborer. Enjoyed good health up to November, 1872, when he left St. Louis, Mo., where he had been employed as a ditcher, with the intention of settling in New Orleans. On his passage down the Mississippi River to New Orleans he was robbed and left destitute. After arriving in this city he was for nearly a week without shelter or sufficient food, and slept at night on the levee without covering of any kind, during cold and inclement weather. This exposure and want of food so reduced the strength of the patient that he was compelled to apply for lodging at the police station, where he was "very ill with chills and fever." From the police station he was transferred to the workhouse, in which place "becoming much worse," he was sent to the Charity Hospital. He was brought in January 12, 1873, in an insensible comatose state, with loss of speech and power of motion. Lay insensible in the bed, passing his urine and feces involuntarily. Could not be aroused. At times the patient appeared to suffer with true malarial chills, attended with shivering, depression of the temperature of the extremities, elevation of that of the trunk and congestion of the peripheral capillaries, and followed by general diffusion of heat and high temperature.

Regarding the chills, fever and coma of malarial origin and aggravated by exposure and starvation, I placed the patient upon a solution of quinin:

R. Quinæ sulph. . . . . gr. xxx.  
Acidi citrici . . . . . 5ss.  
Tinct. cinchonæ comp. . . . . f ʒviij.

Mix: Tablespoonful in wine glassful of water, every four hours; and ordered beef tea and milk punch, every two hours.

Under this treatment, the improvement was slow but gradual, and on January 7, he was able to give a

few coherent answers. The brain, however, was in such an enfeebled condition that he was able to give his name and answer a few questions, when his mind would wander and he would relapse into an unconscious condition. The quinin with tincture of cinchona and quassia, and the nutritious diet was continued, and on January 13, the thirty-second part of a grain of strychnia, in solution with the citrate of quinin and iron was administered three times a day.

R. Strychnia sulph. . . . . grs. ij.  
Acidi citrici. . . . . ʒij.  
Quinæ et ferri citrati. . . . . ʒiij.  
Aquæ destillatæ. . . . . f ʒviij.

Mix: Sig., teaspoonful three times a day.

This patient was carefully observed by the students of the ward, and was also at regular intervals brought before the entire class in the amphitheater, in order that the gradual improvement of the mental and muscular power might be noted. The patient slowly progressed to complete recovery and was discharged at the end of sixty days.

#### CHRONIC MALARIAL POISONING.

*Case 1.*—Great anemia; fatal results. D. Hoffman, age 28, native of Germany, came to this country two years ago. After remaining in New Orleans one month, went to Franklin Parish to work on a plantation. Was taken sick with chills and fever three weeks before entrance into the hospital, and during this time had little or no medical attendance and had but indifferent supplies of food: Entered Charity Hospital, Oct. 28, 1873. Pale, anemic; hands bloodless and when held up to the light resembled semi-transparent light yellow and greenish wax. Countenance pale, yellowish green, swollen and bloated. Lips and tongue pale like the face; tongue pale, large, flabby, with the edges indented by the teeth. Action of heart loud, rapid and irritable, with loud anemic murmur. The anemia in this case was as intense as in the most pronounced cases of chronic malarial poisoning in the Mississippi valley. Belly and lower extremities anasarca. October 29, 8 p.m., pulse 110, respiration 20, temperature 103.5. October 30, 8 a.m., pulse 104, respiration 20, temperature 101.5. October 31, 8 a.m., pulse 106, respiration 24, temperature 101.5; 8 p.m., pulse 106, respiration 24, temperature 101. November 1, pulse 100, respiration 20, temperature 101.5; 8 p.m., pulse 108, respiration 25, temperature 101.5. November 2, pulse 108, respiration 18, temperature 101.5; 8 p.m., pulse 100, respiration 20, temperature 100. November 3, pulse 116, respiration 28, temperature 101.6; 8 p.m., pulse 112, respiration 32, temperature 100. November 4, pulse 104, respiration 22, temperature 101. The patient complained of pain in the epigastrium and region of heart together with great dyspnea. The difficulty of breathing appears to be clearly due to edema of the lungs, induced by the watery condition of the blood, and is similar to the universal anasarca with which all parts of the patient appeared to be afflicted. The distress in breathing and the pain in the heart increased during the night, and was attended with great thirst. The patient died at 8 a.m., November 5. Death apparently due to edema of the lungs. The preceding changes wrought in the blood and textures by the malarial poison were the chief causes of death.

*Autopsy:* Two and one-half hours after death. Body warm and limber in *rigor mortis*. Exterior, full bloated anasarca appearance; cellular tissue infiltrated with yellow serum, color greenish yellow, resembles a Chinaman. Chest, lungs bloodless, pale, anemic; edematous. Heart enlarged, with dilatation of right auricle and ventricle; color of heart natural; when the textures of the heart were carefully examined under the microscope with magnifying powers of various degrees, the transverse striæ were found to be distinct and there were deposits of granular and pigmentary matter within and around the fibers of the heart as in yellow fever. Cavities of the heart distended with dark fluid blood. Specific gravity of blood 1023.3; specific gravity of serum 1017; solid matters in 1000 parts of blood 77.71; in 1000 parts of

serum, 60.94; 1000 parts of blood in the patient contained not more than 17 parts of red blood corpuscles in 68 moist blood corpuscles, while in healthy blood the moist corpuscles may reach 600 parts; the liquor sanguinis 400 parts. In the present case the liquor sanguinis was 932 parts in 1,000. Under the microscope, the colorless corpuscles were found to be greatly increased, relatively to the colored corpuscles. Abdominal cavity: Liver slate on the exterior, and bronze within. Under the microscope the liver cells were found to be loaded with dark pigment particles, which were also deposited in large numbers within and around the portal capillaries. When sections of the liver were made with Valentine's double-bladed knife and examined under the microscope, numberless dark pigmentary masses were seen both in the portal and hepatic systems of capillaries. Liver firm, evidently undergoing a hardness or cirrhotic change which appeared to be due to the action of malaria. Gall bladder distended with dark green bile, about two fluid ounces. Bile thick and ropy. Specific gravity of bile 1022. Solid matter of bile 1000 parts, 82.19. The bile was actually of very nearly the same specific gravity as the blood, and contained more solid matter. Spleen enlarged and loaded with dark pigment particles. Kidneys firm and normal.

In the preceding case quinin, nutritious diet and alcoholic stimulants were used but without avail.

*Case 2.*—Chronic malarial poisoning; intense anemia; jaundice; high temperature; anasarca; fatal issue. P. Eghart, age 25, laborer, native of Germany. Has been in Louisiana eight months. Has been living in a low swampy region. Has had chills and fever, with little or no medication and with scant supplies of coarse food. Entered the Charity Hospital on the evening of Nov. 22, 1873. November 23, pale, sallow and greenish-yellow complexion, bloated, swollen features; extremities edematous; scrotum swollen; feeble prostrated condition; great prostration of nervous and muscular forces; rapid feeble pulse; loss of appetite; anemia complete; lips and tongue pale; when hands are held up to the light they present a wax-like almost semi-transparent appearance; tongue pale, flabby and indented at the sides; urine high colored but free from albumin and casts.

Before coming to this country this patient followed the trade of architect and enjoyed good health. His present deplorable condition is clearly referable to the action of the malaria of the swamps.

November 24, 8 a.m., pulse 112, respiration 21, temperature of axilla 105 degrees, 8 p.m., temperature 104.8. November 25, continues in the same condition only apparently more feeble; can take but little nourishment. Quinin administered freely; 8 a.m., pulse 116, temperature of axilla 103; 8 p.m., temperature of axilla 104 degrees. November 26, delirium, great prostration, jaundice quite intense. Pulse rapid and feeble; skin hot and dry; tongue dry and pointed. Great thirst, nausea and vomiting. Can retain no nourishment on stomach. It has been difficult to introduce nourishment by the rectum on account of the irritable condition of the bowels. Urine high colored but free from albumin and blood. Chlorids present but diminished in amount. 8 a.m., temperature 102; 8 p.m., temperature 103. Died at 6 a.m., November 27.

*Autopsy* three hours after death: Body warm, limbs flaccid. Exterior, color of surface yellowish-green; lower extremities edematous; belly full. Thorax: Pericardium contained about two fluid ounces of golden yellow serum. Heart, of the normal deep color of this organ in health; perhaps it would be more accurate to describe the color as of a deep purplish red; muscular structures of the heart firm. Under the microscope the muscular fibrillæ presented a normal appearance, with distinct transverse striæ; and there was also a complete absence of the yellow granular molecular matter and oil

globules characteristic of yellow fever. Surely such cases as these now recorded, when the malarial poison has exerted its unobstructed action in healthy Europeans, must yield unexceptionable results in settling the character of the changes induced in the chemistry and minute anatomy of the organs by the malarial poison. Heart normal in size.

Microscopic and chemic examination of the blood from the cavities of the heart and from the vena cava:

Specific gravity of blood . . . . .	1021
Specific gravity of serum . . . . .	1015
Solid residue in 1,000 parts of blood . . .	73.00
Solid residue in 1,000 parts of serum . . .	58.00

The blood of this patient contained less than sixteen parts of dried colored blood corpuscles in 100 parts of blood. The true composition of the blood as compared with that of normal blood would be 64 parts of moist colored corpuscles and 936.00 parts of liquor sanguinis, against 600 parts of moist corpuscles and 400 parts of liquor sanguinis in healthy blood.

The blood from the cavities of the heart contained a large number of dark irregular masses of hematin of various sizes, from 1-2000 to 1-500 of an inch in diameter. These dark pigment masses were similar in all respects to those found in the textures of the liver and spleen. The blood also contained oil globules which accumulated upon the surface during the coagulation. Fibrin diminished, coagulum large and soft. Heart normal in size and structure. Lungs healthy with the exception of hypostatic congestion of dependent portions. Abdominal cavity: Stomach distended with gas, and pale; anemic in appearance. Contained a quantity of liquid deeply tinged by bile.

Liver: Enlarged and somewhat hardened; deep slate color on the exterior and bronze within. Liver cells contained but few oil globules, but on the contrary many dark pigment particles. Sections with Valentine's double-bladed knife, revealed under the microscope numerous irregular masses of dark pigment, deposited both in the portal and hepatic capillary network. The pigment was deposited on the walls of the veins and secreting structures as well as in the cellular interspaces. Gall bladder flaccid and contained about 50 grams of thin mucoid yellow bile, loaded with the desquamated cells of the mucous membrane of the gall bladder. Spleen, enlarged and softened, with numerous dark pigmentary particles. Kidneys, normal, with the exception of two slate-colored spots, about half an inch in diameter on each kidney. Discoloration due to deposits of black pigment particles.

Remittent fever. B. Casavan, age 27, laborer, native of France. Entered Charity Hospital Nov. 6, 1875. Patient entered with delirium and jaundice, and upon a superficial view resembled a case of yellow fever. November 7, 8 A.M., pulse 115, respiration 30, temperature of axilla 104.5. Tongue very red about the edges, furred in the center and cracked. Hemorrhage from both tongue and gums. Gums red and swollen. Upon inquiry I found that this patient had been working on the lower coast and had suffered with paroxysmal fever for about twenty days before entering the hospital. At 8 A.M., pulse 137, respiration 24, temperature 105.2. Notwithstanding the increase in the pulse, which differs from that of yellow fever, the appearance of this patient resembles closely that of yellow fever. A careful record of the pulse, respiration and temperature was kept and the urine examined daily; the case although presenting in its general features the appearance of yellow fever, was clearly not this disease, as shown by the following facts: 1, the temperature exhibited marked periodic depression and elevation as in

paroxysmal fever; 2, the urine was wholly free from albumin and casts and manifested periodic changes as in malarial fever depositing during the remissions heavy deposits of urates and triple phosphates. The fever was finally and completely arrested by sulphate of quinia and the patient discharged December 1. The following is the record of the temperature, pulse and respiration:

Date.	Pulse.		Resp.		Temp.	
	M.	E.	M.	E.	M.	E.
1873						
Nov. 7	115	137	30	34	104.5°	105.2°
8	117	133	31	37	102	104
9	96	102	27	36	102	103
10	96	90	28	30	101.5	102
11	96	90	17	26	100	101.5
12	84	...	30	...	101.5	...
13	90	96	30	30	102	101.2
14	102	96	30	24	103.5	103.5
15	80	90	18	30	100	102
16	80	80	21	21	101	103.5
17	90	...	24	...	102	...
18	78	...	21	...	101	103
19	80	...	18	...	100.5	...
20	75	...	18	...	101.5	102.2
21	82	72	24	22	100.2	100.6
22	82	...	18	...	100	101.2
23	84	...	20	...	99.5	102.1
24	84	...	...	...	99	101
25	82	...	18	...	100.2	...

#### PATHOLOGIC ANATOMY OF THE HEART IN YELLOW FEVER.

It appears to be well established that in malarial fever the pulse and temperature are subject to great and sudden variations, and that quinin has the effect of diminishing the frequency of the pulse, so that in many grave cases of malarial fever, the pulse especially when the patient has been treated with quinin falls to a very slow beat as in yellow fever. This will be illustrated by the following statement of cases, which I have selected, as it were at random without any reference to a special selection:

Remittent fever. Henry Bouteau. Entered Charity Hospital Sept. 29, 1873; native of Germany. Had been working in Red River rapids, and had suffered with intermittent fever for two weeks before entering hospital. Pale, anemic, had had chills every day. October 18 had a severe paroxysm of fever which is here recorded. Discharged cured October 27. Urine light color and without albumin. A.M., pulse 112, 80, 68; respiration 50, 47, 30; temperature 105.4, 100.5, 98. P.M., pulse 105, 85; respiration 47, 45; temperature 103.2, 101.

Remittent fever. I. Madden, age 22, native of Germany. Entered Charity Hospital October 1, with severe hemorrhage and high fever. Arrested temporarily by quinin. October 8, day of first observation recorded; headache, bowels constipated, tongue dry, furred, brown and rough like sandpaper. Quinin arrested the paroxysm and relieved the pulse and temperature. Urine contained bile but no albumin. A.M., pulse 94, 65, 67, 80; respiration 31, 22, 22, 20; temperature 100, 96.3, 98.7, 96.6. P.M., pulse 96, 75, 90, 64, 70; respiration 38, 28, 27, 23, 22; temperature 101, 103.6, 103.2, 98, 97.5.

Chronic malarial poisoning. L. Meyer. Entered Charity Hospital Oct. 3, 1873. Had been sick with chills and fever for two months before entrance into hospital. Entered in a state resembling congestive chill; delirious; rapid, feeble pulse. Disease arrested by quinin. Observations began October 8 and 9. Patient ordered quinin. A.M., pulse, 55, 50, 54; respiration 15, 15, 12; temperature 97.5, 97.8; 98.3. P.M., pulse 60, 61, 54, 53; respiration 18, 12, 15, 14; temperature 97.4, 98, 98.5, 99.

J. Kousben, age 30, native of Germany. Has resided in New Orleans three years. Occupation, brewer. Admitted Oct. 6, 1873. Sick for six days before entering hospital. Observations began on October 8. Entered with high fever, arrested by quinin. Tongue still furred; urine high colored but free from albumin. P.M., pulse 68, 72, 80, 78; respiration 18, 16, 15, 20; temperature 96.8, 98.5, 98.9, 99; pulse 76, 72, 72, 82, 74; respiration 18, 18, 16, 24, 20; temperature 97.4, 97.8, 99.4, 100.4, 94.

Remittent fever. R. Brethan, age 50, native of Germany, laborer. Resided in New Orleans three years. Had been sick for eight days with remittent fever. Entered with high fever; dry, rough, brown tongue. Urine red but free from albumin. Disease arrested by quinin, 20 grains every day. Recovered. A.M., pulse 74, 84, 66, 60, 68; respiration 18, 18, 17, 17; temperature 99.2, 100.2, 99.2, 99.6, 99.4; P.M., 76, 74, 68, 66,



70; respiration 20, 20, 22, 18, 17; temperature 98.72, 100.4, 100.2, 100, 99.8, 99.7.

Remittent fever. Convalescence. G. Peifer, age 33, laborer, native of Germany. Sick fourteen days before entering hospital. Resided in New Orleans fifteen years. Admitted Oct. 7, 1873. Had fever and dry furred tongue at time of admission, with great prostration; urine free from albumin. Observations began on next day, October 8. Quinin administered and with good effect. A.M., pulse 79, 74, 72, 68; respiration 15, 18, 16, 15; temperature 97, 98, 99.6, 98.8. P.M., pulse 96, 74, 72, 70, 66; respiration 18, 14, 15, 15, 14; temperature 98.3, 98.2, 98.5, 98.2, 99.1.

George Wilson, occupation wood chopper, age 20, native of New Orleans; attacked with dizziness, pain in head and fever Sept. 24, 1873. Entered Charity Hospital October 1. Complexion yellow, gums yellow, constipated, pain in epigastrium, brown furred tongue. Quinin arrested the fever. Observations began October 8, A.M., pulse 72, 71, 62; respiration 22, 23, 20; temperature 99.5, 97.5, 98.6. P.M., pulse 78, 67, 61, 66; respiration 22, 22, 22, 22; temperature 98.2, 98, 97.8, 98.5.

Remittent fever. F. McKenna, age 35, native of England, laborer. Attacked five days before entering hospital. Has resided in America one year; in New Orleans six weeks. Has been working on dredge boat. Admitted to Charity Hospital Oct. 13, 1873. On admission, high fever, brown, dry tongue. Observations began October 16, while patient was under the influence of quinin and he perspired freely. Quinin 15 to 20 grains daily. No albumin in urine. Discharged October 20. A.M., pulse 74, 62, 60, 57, 54; respiration 22, 14, 16, 18, 16; temperature 103.8, 99.4, 99.3, 97.25, 98. P.M., pulse 89, 60, 61, 56; respiration 22, 16, 18, 20; temperature 103.2, 90, 95.5, 99.

James Topliff, native of New York, age 30, clerk. Admitted Oct. 10, 1873. Resided in city one week. Disease remittent fever. Taken sick October 9. Urine light colored, no albumin. October 11, high fever, vomited green bile. Bowels opened with mercurials and fever treated with quinin, 15 to 30 grains daily. Observations began October 11. Discharged cured October 24. A.M., pulse 84, 72, 64, 88, 82, 60; respiration 14, 16, 16, 18, 20, 18; temperature 101.5, 100.7, 101, 103.1, 102, 98.4. P.M., pulse 80, 72, 72, 94, 78, 60; respiration 18, 17, 24, 14, 20; temperature 101.8, 101, 101.4, 105.7, 99, 98.4.

Remittent fever. John Gilmore, age 24, admitted to Charity Hospital Sept. 30, 1873. Had been sick two weeks before admission to hospital. Native of Ireland; has resided in Louisiana three years. Urine free from albumin. October 13 had a paroxysm of fever, which was arrested by quinin. Discharged October 27. A.M., pulse 100; respiration 22; temperature 104.8. P.M., pulse 96; respiration 22; temperature 103.8.

Remittent fever. George Letz, age 40, German; resided in New Orleans five years. Entered Charity Hospital September 29. Sick four or five days before entering hospital. October 3 had a paroxysm of fever. Quinin arrested the fever and reduced the pulse. A.M., pulse 82; respiration 22; temperature 102.4. P.M., pulse 90; respiration 26; temperature 104.5.

Remittent fever. J. Dudley, age 24, native of New Orleans. Has had malarial fever for three consecutive seasons. Has been working on a plantation on the Bayou Têche. Entered October 24. Observations began October 31. Very obstinate case. Quinin finally arrested the disease. No albumin in urine. Improved on quinin and iron. A.M., pulse 86, 76, 78, 98, 92, 92, 82, 70, 80, 76, 84, 84, 83; respiration 20, 20, 18, 25, 20, 16, 20, 16, 20, 20, 16, 22, 23; temperature 102.3, 99, 100.6, 101.5, 102.7, 102, 102.7, 100.5, 101, 102.5, 101, 102. P.M., pulse 84, 92, 78, 98, 98, 86, 82, 84, 92, 88, 87, 86; respiration 20, 20, 18, 25, 20, 24, 20, 16, 16, 20, 19, 20; temperature 101.4, 101, 100.8, 101.5, 102.5, 102, 102.7, 101, 102.5, 100, 102.

Chas Schmidt, age 42, native of Austria. Has had yellow fever. Entered Charity Hospital and observations begun Oct. 23, 1873. No albumin in urine; delirious; tongue red at tip and edges, dark brown in the center. Pain in head, bones and epigastrium. Discharged October 31. A.M., pulse 120, 78, 88, 80, 64, 66, 58, 68; respiration 46, 24, 30, 27, 22, 20, 18, 28; temperature 105, 99.2, 104, 100, 98.5, 97, 98.4, 98. P.M., pulse 110, 98, 84, 66, 64, 52, 62; respiration 30, 35, 28, 25, 22, 24, 20; temperature 103.9, 103.5, 103.5, 99.1, 97.5, 97.8, 97, 99.1.

Chronic malarial poison. Remittent fever. Charles Tinbers, age 21, native of France. Has been in New Orleans six weeks; sick two months before entering. October 2, had chill followed by fever. Severe headache, restless, pale and anemic. Urine red and free from albumin. Treated with full doses of quinin. Disease arrested November 5. Bile in urine; no albumin; specific gravity 1025. A.M., pulse 90, 88, 74, 72;

respiration 22, 25, 18, 16; temperature 103.8, 100, 101, 101.2, 98, 98.2. P.M., pulse 108, 92, 90, 80; respiration 44, 26, 24, 19; temperature 100.5, 98.4, 100.8, 98.

Intermittent fever. John Gilmore, native of Ireland. Entered Oct. 30, 1893. Had chills and fever five days before entering hospital. October 31, when record of pulse and temperature was begun, had a chill at 100 degrees, followed by high fever, and at 7 P.M. the temperature was 106 degrees, pulse 108, respiration 24. Sulphate of quinia was freely administered and the fever ceased November 13 and did not return. This was a clear uncomplicated case of intermittent fever. A.M., pulse 72, 73, 74, 80; respiration 18, 20, 22, 18; temperature 99.5, 100.4, 100.8, 98.8. P.M., pulse 104, 79, 72, 74; respiration 24, 23, 18, 18; temperature 106, 101, 100.6, 98.

Intermittent fever. Michael Dolan. Sick one week before entering hospital, Oct. 23, 1873. Observations begun October 26; general appearance anemic, pain in epigastrium. Had fever on 23, when entering. Quinin freely administered, arrested the fever. A.M., pulse 60, 54, 48, 52, 50, 60, 54, 58; respiration 28, 24, 26, 20, 24, 19, 18, 19; temperature 98.5, 98, 98.5, 98, 98.8, 98.6, 97, 98, 98. P.M., pulse 52, 52, 43, 48, 52, 56, 55, 52; respiration 24, 22, 30, 20, 24, 24, 24, 18; temperature 96, 98, 98.2, 99, 99.5, 99.2, 100, 98.5.

In many severe and fatal cases of yellow fever the respiration is often greatly accelerated, as in the following case which entered Charity Hospital Oct. 10, 1873. Had been sick for five days. At 6 P.M., shortly after entrance, pulse 84, respiration 48, temperature 102.4. Patient delirious, restless and vomiting black vomit; suppression of urine. Died next morning at 8 o'clock.

(To be continued.)

## PERITONEAL SUPPORTS—(LIGAMENTUM PERITONEI.)

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(Continued from page 546.)

It is likely that the meshwork of perforations in the great omentum is due to the arrangement of the blood vessel and an atrophy of the intervening space. In the horse the mesentery becomes thin and occasionally, Dr. Baker informs me, that a strangulated loop of intestine is found protruding through the perforated mesentery. In the dog I have found very thin, transparent areas, but never a perforation of the mesentery.

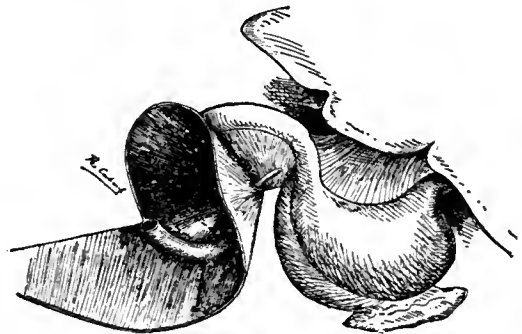


FIG. 7.—Shows the continuation of the different portions of the mesentery, (after Perignon).

A noticeable feature in the structure of the mesentery in general is the accumulation of fat. The fat formation is more apparent in animals than in man. Typical samples may be observed in the sheep or especially in the dog. The fat accumulates along the blood vessels and is in many animals quite ornamentally arranged in the great omentum. The color of the fat is white or yellow. In young fattening animals it is apt to be white, but senility increases the yellow color. In very early embryos no fat can be seen, even with a strong lens. Small accumulations

of fat may be observed in embryos in the last of the fourth month and afterward in limited quantities. It, however, does not readily accumulate until the last two months of pregnancy, when the infant, in general, acquires fat. The fat lobules are contained in the fibrous meshwork of the membrana mesenterii propria. The fat mainly accumulates at the base of the mesentery. In some cadavers the great omentum will reach, in places, three-fourths of an inch thick and covers the whole visceral organs from view like a thick quilt. In some cases on which I have performed laparotomy there was a mighty omentum which buried all viscera beneath it—and this is a great protector against general infective invasion of the peritoneum. Fat exists in the mesenteries in accordance with the conditions of the body elsewhere. Mesenteric fat appears and disappears with fat in the other portions of the body.

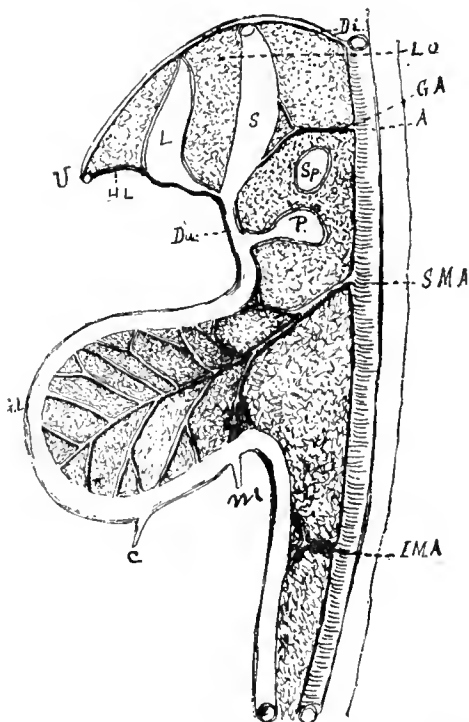


FIG. 8—Represents the three distinct divisions of the digestive tube each supplied by a distinct artery. S, stomach supplied by the gastric artery, G, A; G, L, the great intestinal loop supplied by the superior mesenteric artery, and I, M, A, the inferior mesenteric artery supplies the left half of the transverse colon and the descending colon; L, shows the growing liver; Sp, the spleen, and P, the pancreas; A, the aorta; C, cecum; M, Meckel's diverticulum; U, umbilicus; H, L, round ligament; L, O, lesser omentum.

A good view of the membrana mesenterii propria may be obtained by selecting a spare cadaver. After opening the abdomen, carefully tear off the epithelial layer from both sides of the mesentery. By a little patience one can easily peel off a thin layer of peritoneum from each side of the mesentery, whence will be left the mesenterii membrana propria, the middle layer of the mesentery, with all its essential structures—vessels, nerves, connective tissue and lymphatic glands. This middle layer may also be separated in two layers—one each side of the vessels and nerves. The layers seem to me not only to vary, from the amount of contained fat, but also that in a very spare individual much of the connective tissue is absorbed, and that with the regaining of the fat much more connective tissue reappears. The two layers of the membrana mesenterii propria decrease in size from the base of the mesentery up to the point of

divergence to embrace the bowel. At its base it consists of a dense thick mass of connective tissue bundles inclosing the vessels and nerves. Its thickness and rigidity supports the viscera and maintains definite anatomic and physiologic relations. It must exercise considerable influence in the caliber of blood vessels which pass through its meshes and fibrous layers.

The lymph glands are not visible in the mesentery of very young embryos. Some state that the glands first appear in the fifth month of fetal life. They appear, according to Toldt, in the middle of the fifth month. The glands lie about the middle of the mesentery and do not seem to produce manifest changes. They lie in a series in the mesentery. In adult man there are some one hundred and fifty. In the lower animals the glands do not assume the scattered and diffuse condition of man but accumulate into a few larger ones. In some, there may be one very large gland, and none, or scarcely any visible small ones. These mesenteric glands are beautifully shown in a six months infant, dead from some wasting disease.

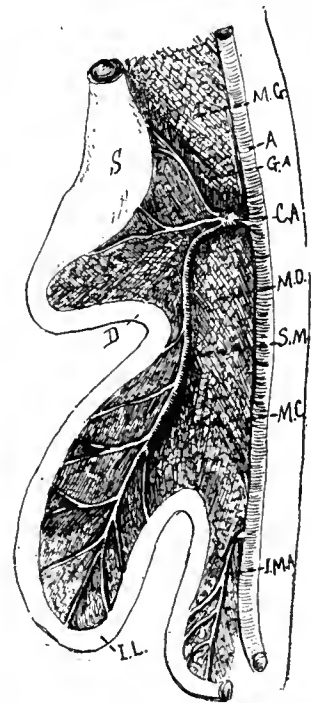


FIG. 9—Represents the mesentery suspending an advanced digestive tube. S, stomach; D, duodenum; S, M, A, superior mesenteric artery; I, L, intestinal loop; M, G, posterior mesogaster; C, A, celia axis; G, A, gastric artery; M, D, mesoduodenum; M, C, mesentery; I, M, A, inferior mesenteric artery; A, aorta. The mesentery, 3 divisions, with 3 arteria and divisions of the digestive tube, appear in this figure.

The two endothelial layers which cover the membrana mesenterii propria are very thin. One can separate them from the middle layer by careful dissection. These two thin serous layers consist of fibrous and elastic connective tissue covered by pavement or flat epithelium. The fibrous, elastic connective tissue which lies between the single epithelial layers and the membrana mesenterii propria does not have a specially definite arrangement for its fiber bundles. It connects the epithelial layer to the subserous beds of tissue. Toldt gives a simple layer of endothelial cells; immediately under the epithelium is a thin layer of fibrous connective tissue, mixed with fine elastic fibers; and an extremely delicate and loose subserous tissue which connects it to the membrana mesenterii propria. It may be observed that the

loose subserous tissue gives the shifting and sliding property to the serous layer. The peritoneum can glide on its soft elastic bed. Fat is rare in this serous layer.

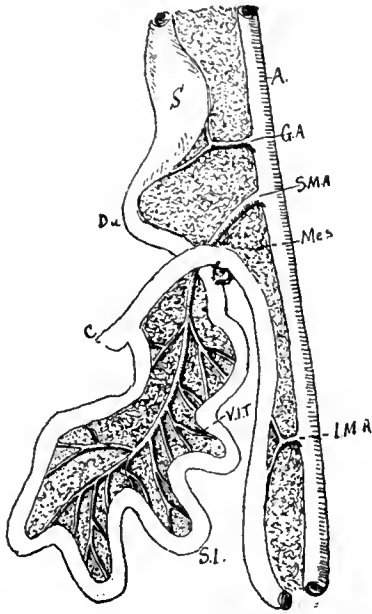


FIG. 10—Shows the mesentery with its three arteries and three parts of the digestive tract. The great intestinal loop, S, I, has rotated from left to right and the acquired mesenteries are beginning to arrive; the cecum, C, is on its travels to the right iliac fossa; the vasa intestinalia, V, I, T, now diverge to the left; Du, duodenum; A, aorta; G, A, gastric artery; Mes, mesentery; S, M, A, superior mesenteric artery; I, M, A, inferior mesenteric artery.

The mesentery is generally viewed as a double fold or duplication of peritoneum, and that as such it originated. But some authors think that the mesentery arose as an independent structure from the cells of the mesoderm adjacent to the vertebral column. The author who supports this view with the most originality, so far as we are aware, is Professor Toldt of Vienna. Toldt observes that nowhere in the development of the mesentery can one discover a process which can be indicated as a fold or duplicature. Nor can the formation of the primitive mesentery be looked upon as a passive extension of a peritoneal fold. Toldt says: "*Das Wachstum der Gekröse ist Viel mehr ein ganz actives; es schnert parallel mit dem Wachstum des Darmes fort und beide bedinger sich gegenseitig.*" (The growth of the mesentery is moreover an active process; it progresses parallel with the growth of the intestine and each limits the other). The advocates of the theory that the mesentery is an independent growth, put forth the idea that not only the development but also the structure of the mesentery favors its correctness. The structure of the mesentery consists of blood vessels, nerves and lymphatics, and these being the fundamental structure of the mesentery it speaks against the view of peritoneal folds or duplicatures. The claim is that no simple fold or peritoneum would always contain such fundamental structures. The distinct difference between simple peritoneal folds and such structures as mesenteries consists in their contents. The constant presence of distinct vital elements is in favor of an independent origin of the mesentery from the mesoderm. The structures of the mesentery may be designated as subserous tissue. Another point which may be of aid in supporting the independent origin of the mesentery is that a part of the intestine loses its free

mobility after early fetal development, as the duodenum, colon ascendens et descendens. The membrana mesenterii propria is the union of the vessels, nerves and lymphatics in a subperitoneal tissue.

Again, the theory of the independent origin of the mesentery may find support in the view that the great omentum has a similar histologic structure as the only primitive mesentery. The great omentum consists of a connective tissue layer covered on both sides with flat epithelial cells, exactly as the primitive mesentery was composed. The fibrous elements are relatively scarce the further one goes from the original mesenteric insertion line. However, the blood vessels are surrounded by fibrous bundles of connective tissue in the great omentum, but the quantity of fibrous bundles is more limited in distribution. It may be asserted that the connective tissue of the great omentum resembles and is analogous to the membrana mesenterii propria. So far as I am able to observe, this is a fact, but it is exceedingly thin, as Dr. Waite and I proved by actual observation on cadavers fitted for the work. The three theories as to the origin of the mesentery may be stated in short as: a, coalescence; b, displacement; c, independent origin from ridges of cells.

It may be stated in regard to the coalescence theory, that coalescence or union of surfaces by absorption on epithelial cells is at least not usual. The theory of displacement or readjustment is based on the fact that the viscera grew faster than their envelope, the peritoneum, and as far as the theory which attributes the origin of the mesentery to the heaped up ridges of mesoblastic cells situated on each side of the vertebral column, much may be said in its favor. The best sample to illustrate the displacement theory of the mesentery is that of the descending colon. The rapidly growing kidney pushes itself between the meso-colon-descendens and makes according to this view, the external layer of the meso-colon overlap the parietal layer; the folds disappear by coalescence of its epithelium. The advocates of this theory claim that a white line of coalescence can be found parallel to the descending colon, which, it is claimed, proves the correctness of the theory. Microscopic examination would not prove anything because after the coalescence there would be no epithelium left to tell the story of coalescence. This theory, which will be contested in the present work is also put forth in regard to the great omentum. The small pits and pockets found along the ascending and descending colons are referred to as proof of the coalescence theory. I have examined them and do not consider them due to formation of the mesentery by coalescence. I think they are due to old peritonitis. I have found such pockets which would admit the finger point, but sufficient evidence existed to demonstrate an ancient peritonitis. The displacement or readjustment theory of the mesentery has many points in its favor. It must be considered that the peritoneum and bowel develop, hand-in-hand. The peritoneum is an integral part of the viscera and grows with them. The essential condition of existing viscera is peritoneal covering. As the viscera grow irregularly the peritoneum will need readjustment. For example, the cecum grows rapidly while the appendix atrophies rapidly, hence here a vast readjustment of peritoneum is required and it is accomplished without a break in its surface. The typical readjustment or displacement of mesentery

is observed when the growing kidneys steal away and appropriate the meso-colon ascendens et descendens. When any viscus grows faster than its covering or faster than its adjacent neighbors, some form of readjustment or displacement must arise. It appears to me that the statement so generally made by writers that the change from primitive to secondary mesenteric insertions, as being wholly due to secondary coalescence is not all true, but that readjustment or displacement tells a large story. The mesentery may not be a conjoint visceral fold, but a neuro-vascular pedicle arising out of the collection of mesodermic cells situated immediately on each side of the notochord and finally becoming modified, being faced by epithelium.

It may be asked, Why is the mesentery inserted only on the dorsal wall? It is no doubt due to the immobility and rigidity of the dorso-abdominal wall. If the wall were movable no mesentery could insert itself. The liver and kidneys aid in immobilizing and fixing the mesentery. Whatever theory is held as to the development of the mesentery, this must be borne in mind, that the serous cavities are due to interstitial fluid pressure and independent action of the adjacent walls. Connected with visceral cavities are generally mesenteries, more or less complicated, whose insertions are on the most fixed walls.

The blood vessels of the mesentery are single large trunks at the roots. In fact, three blood vessels supply the whole digestive tract—the gastric supplies the stomach, the superior mesenteric supplies the whole of the small intestines, except the duodenum, and from the middle of the transverse colon to the cecum, and the inferior mesenteric artery which supplies the left half of the transverse and the descending colon. As the gastric reaches the stomach it divides, and supplies the smaller curvature and the esophagus. It does not make anatomic arches and loops. The superior mesenteric artery arises like the gastric as a single trunk, but it soon begins to branch. In early embryonic life, before intestinal rotation, the branches passed to the right, but after rotation the branches pass from the left side of the superior mesenteric artery. These branches, ten to fifteen in number, are designated the vasa intestini tenuis. Shortly after the branches of the superior mesenteric artery pass off from the main trunk they begin to anastomose with each other, forming arches and loops. In the vasa intestini tenuis, I have counted as many as five distinct series or rows of loops. The anatomic loops lessen in size as they approach the bowel and the artery rapidly lessens in caliber. The general number of anatomic loops is three or four, which wonderfully equalizes circulation for different sections of the digestive tube allowing unequal demands of blood. As the arterioles leave the anastomotic loops they run for a short distance parallel and on reaching the wall of the gut they bifurcate and encircle the bowel, making vascular rings. The vasa intestini tenuis supplies the mesentery itself with its glands and nerves.

The superior mesenteric artery offers many variations. I have seen it give a branch to the liver. It may take the place of the inferior mesenteric, as it does in many lower vertebrates. It may give branches to the stomach and spleen. Its vasa intestini tenuis may vary in number, size and loops. Hyrtl, in his "Lehrbuch," 17th Ed., 1884, describes a persistent amphalo-mesenteric artery. In this case

it supplied the rectus abdominalis, anastomosing with the deep epigastric, and finally passed into the suspensory of the liver along the round ligament. By care and patience, one can dissect out almost the whole of the superior mesenteric artery in subjects prepared for the work.

The inferior mesenteric artery arises from the abdominal aorta about one and one-half inches above its bifurcation. It supplies the large bowel from the middle of the transverse colon to the anus. It forms anastomotic arches, similar to the superior mesenteric, but less in number and fewer in series. The inferior mesenteric artery may vary in its points of origin. It may be entirely displaced by the superior mesenteric artery. Some anatomists note that it may give off a middle colic. It has been noted to give off branches to each umbilical artery. Walsham writes that the anastomosis between the middle and left colic arteries may be wanting, as is the normal condition in the ruminants and porcupine. "Quain" announces that it may give branches to the liver and kidneys, and Hyrtl saw it arise from the common iliac. A peculiar point in regard to the inferior mesenteric artery is that it has close relations with the rectum whose veins anastomose with the portal veins. Hence, blood from the rectum can go directly to the liver by way of the portal vein. The portal vein collects blood from the digestive tube and carries it to the liver. Now it is observed by all who pay especial attention to the peritoneum and its development, that blood vessels make various projecting folds in its mesenteries. The vessels project the peritoneum into a ridge, and accompanying this ridge are found corresponding depressions. The arteries which are manifest in their production of ridges in the peritoneum are the ileo-colic which produces the plicæ ileocecalis, superior and inferior. The ileo-colic sinistra and sigmoidea produce wide depressions between the large branches and also among its sigmoid vascular arcades. I have noted depressions one and one-half to two inches in diameter and nearly two inches wide in the vascular arches of the sigmoid. One could push this sac-like pouch toward either side of the sigmoid mesentery. Such wide depressions might have been produced by pressure, *e. g.*, the rapidly growing kidney at its lower end, by its projecting against the sigmoid mesentery. The long sigmoid might have been displaced against some round projection, *e. g.*, against the liver, a coil of intestine or the bladder, when the sigmoid mesentery was very thin, yielding and distensible. The gastric artery makes a very prominent fold of peritoneum projecting into the lesser omental cavity. This is no doubt what Huschke tried to describe as the gastro-pancreatic ligament or omentum. In one adult which Dr. Waite and I carefully examined, the fold over the gastric artery projected more than an inch into the lesser omental cavity. This fold gave a distinct border to the foramen of Winslow on the left.

(To be continued.)

**Ocular Diphtheria Treated by Antitoxin.**—Dr. Coppez, in a Brussels medical journal had a good result in one case: "The membranes," he says, "seemed to melt like a snowflake in a ray of sunlight." It may reasonably be expected that the invading progress of pseudo-membranous exudation may be early checked by this treatment. "Or, better still," says Dastot, "the last two stages of the malady may be suppressed—with all the dangers that attend them." Twenty-four hours should see the subsidence of all menacing symptoms.



THE  
**Journal of the American Medical Association**  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:  
PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,  
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.  
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, APRIL 20, 1895.

A PROPOSED STEP BACKWARD.

We are advised by a reliable authority that the College of Physicians and Surgeons of Baltimore, Md., have filed a proposed amendment to the constitution of the Association of American Colleges, which if adopted, would undo the good work accomplished at San Francisco, providing that graduates after 1898 shall have attended four courses of lectures, in different years, before receiving the degree of M.D. In view of the decided action taken upon this question by the AMERICAN MEDICAL ASSOCIATION at Detroit, and in fact since its organization, we feel it our duty to protest against the position taken by the Baltimore college. In this protest we believe we shall have the sympathy and support of 99 per cent. of the profession of America. There can be no doubt of the attitude of the profession to-day. This was well illustrated in the adoption of the RAUCH resolutions by the AMERICAN MEDICAL ASSOCIATION at Detroit, providing that parties holding diplomas of later date than 1890 must have attended at least four courses of lectures before receiving a degree, in order to secure membership in this ASSOCIATION. The resolution was adopted *unanimously*. The four-year amendment was adopted by the College Association at San Francisco by a vote of 17 to 5, and afterwards ratified by a unanimous vote. Minnesota has amended her medical law, requiring attendance upon four courses before admitting parties to an examination to begin practice. The Iowa Board of Health has adopted the four-year minimum of requirements, as well as several other States. The repeal of the San Francisco amendment will be far-reaching in its pernicious influences upon both the profession and the colleges. The present is

a period of evolution in methods of medical education in this country; all signs pointing toward an immediate solution of higher medical education in the United States. We had hoped to be soon relieved of the repeated jibes of the foreign medical press, that have for years taunted us upon the question of medical education. The JOURNAL appeals to the colleges of the country to immediately carry into execution the provisions of the four-year course. A failure to do so will result in humiliation and disgrace. It is needless to discuss this question from a professional standpoint as the arguments are one-sided. Upon investigation it will be generally conceded that no valid argument can be afforded in favor of a repeal of the present provisions of the College Association calling for attendance upon four courses of lectures before conferring the degree of M.D.

We can not believe that the better judgment of the College Association will permit this backward move; and as the statistics show that the colleges of the highest requirements are now having the largest and best classes, we think the matter of self-interest will have a powerful bearing in preventing such a catastrophe.

INSANITY AND LUNACY IN MASSACHUSETTS.

The statutes of Massachusetts are not clear in their use of words applicable to mental disease. They have, for example, provided for the treatment of the insane charges of the State at "Hospitals for the Insane" at Danvers, Northampton, Taunton, Westborough and Worcester. But they are under the government of a State Board of Lunacy. The hospitals are models of their kind and the State Board is a hard-working and efficient body, but the latter has not yet found its way clear to shake off the archaic name. The full title of this Board is "the State Board of Lunacy and Charity." Its membership is nine, and its members serve without salary. Its powers and duties are vast and far-reaching. In addition to the insane class, it has to do with almshouses, the State farm, three State schools, juvenile offenders, the boarding out of infants and other minor wards, non-settled paupers, pauper statistics, bastardy among the unsettled, immigrants falling into distress during their first year, and visiting the sick poor. The visitation of young girls boarded out in families, is conducted by eighty-one carefully selected lady visitors who reside near enough to their wards, to be cognizant of their needs and the manner of treatment; these ladies receive no salary. The board has been in existence about sixteen years, in which time there have been only thirty appointments, only two deaths and only nineteen resignations. It speaks creditably for a non-salaried board to show an average resignation list of only one and a fraction per annum.

### THE ADVANCE OF LABORATORY WORK IN AMERICA.

When LISTER visited the United States in 1876, and spoke on the subject of antiseptics at the International Medical Congress, there was no bacteriologic laboratory in this country. The impetus given to bacteriologic studies by the practical needs of surgery was first felt in Europe, but although there were many in the field, it was not until the improved methods of laboratory technique had demonstrated bacillus tuberculosis, and the comma bacillus, that the immense practical value of this department of science dawned on the medical world. America was fully aroused and almost simultaneously there sprung into existence laboratories in connection with Harvard, Johns Hopkins, the Hoagland in Brooklyn, the Carnegie, the Loomis, the Chicago Medical College and the Universities of Pennsylvania, and Michigan, and the medical colleges throughout the United States soon found it necessary to give instruction in bacteriology and to provide suitable equipment therefor.

Naturally, independent investigators were developed by the new and interesting fields of discovery that opened before the vision of the enthusiastic workers. STERNBERG of the Army, WELCH of Johns Hopkins, PRUDEN and BIGGS of New York, BELFIELD of Chicago, COUNSELMAN and SHAKESPEARE were among the earlier of the observers.

Europe, in advance in the original discovery, again led in the new chemico-departure made necessary by the investigations of METSCHNIKOFF and his colleagues, showing the life history of bacteria, and the pathologic changes produced by the microbic products. American bacteriologists in general were not well prepared for this chemico phase of the subject, but the name of VICTOR C. VAUGHAN stands pre-eminent among the first of our bacteriologic chemists. He was well prepared for this work, by his discovery of the tyrotoxicon and other ptomaines. To-day it is fair to assume that organic chemistry and bacteriology are as well understood in America as in Europe, and that there are a dozen laboratories in which any experiment made in Europe, may be tested with scientific exactness.

Nor is the work of our American laboratories merely imitative. We have passed beyond that stage and the original work of STERNBERG, KINYOUN, THEOBALD SMITH, CHITTENDEN, COUNSELMAN, ERNST, EINHORN, OHLMACHER, ABBOTT, MCCLINTOCK, LONG, GEHRMAN and others, is as closely watched in Europe, as we ourselves watch the European observers.

In the field of chemico researches in our laboratories outside of bacteriology, we have had many observers, but none who have conducted to a conclusion more painstaking investigations in physiologic chemistry and in pathologic substances than JOSEPH JONES, of New Orleans. We can not undertake to

mention all of the distinguished American workers in the wider field of general chemistry, such as SMART, of the Army, REMSEN, of Baltimore, HAINES, of Chicago, but in that field we may point with pride to a long list of expert chemists, and we venture to predict that before the end of a decade, the leadership in laboratory work will be held in the United States. Even as we write, there are more independent original investigators in Chicago alone than there were in the whole United States a decade ago.

The Vermont Microscopical Association announced recently that a prize of \$250 will be given by the well-known chemists, Wells & Richardson Company, to the first discoverer of a new pathogenic germ. We shall be disappointed if this prize is not awarded to one of our countrymen. C. SMITH BOYNTON, M.D., of Burlington, Vermont, will furnish any information concerning this prize, on application.

### THE NOMENCLATURE AND CLASSIFICATION OF DISEASES IN THE NAVY.

In our issue of March 23, we published the new official nomenclature and classification of diseases and injuries, directed to be used hereafter by the medical officers of the Army by order of the Surgeon-General, promulgated in Circular No. 3 of March, 1895. It is interesting to compare this with the nomenclature and classification which went into effect on January 1, of this year in the Medical Department of the Navy, by order of the Surgeon-General of the Navy, issued some months before, which we print in this issue.

The naval classification preserves the technical Latin and Greek nosological titles, carefully revised on the ground of facilitating statistical comparison with similar returns by foreign services. The Army system employs English, Latin and Greek designations indiscriminately. Thus, glycosuria, gout and scurvy appear among Army titles, the corresponding Navy names being diabetes, lithemia and scorbutus. Instead of measles and röteln in the general infectious class of the Army, the Navy has morbilli and rubella.

There are 330 titles on the Navy list against 249 in the Army, but as 19 of the latter are duplicated, appearing under different classes, and as 12 numbers are given to the expression, "other diseases of this class," there are really only 218 specified diseases and injuries in the Army nomenclature.

Class I, Parasites and Parasitic Diseases of the Navy list has not been retained by the Army, trichinosis being classed by the latter with the general infections and scabies and the dermatophyta with local infections. Carcinoma and sarcoma are placed among general infectious diseases in the Army list, and appear among cysts and new growths, Class XII, Navy list.

Venereal diseases, which the Army retains among the general infections, are transferred by the Navy to Class XI, entitled venereal diseases and diseases of the genito-urinary apparatus.

Debilitas senilis, hemophilia, purpura hemorrhagica and purpura simplex in the Naval Class III, of constitutional diseases of nutrition are not enumerated in the Army Class II, diseases of nutrition, general.

The several classes: IV, Diseases of the Nervous System; V, of the visual apparatus; VI, of the auditory apparatus; VII, of the olfactory apparatus; VIII, of the nutritive apparatus, with subsidiary classes 1, of the Digestive Apparatus; 2, of the Circulatory Apparatus—A, Blood Vessels; B, Lymphatics; 3, of the Respiratory Apparatus. IX, of the Motory Apparatus; X, of the Cutaneous Apparatus; XI, Venereal Diseases and Diseases of the Genito-Urinary Apparatus are all included by the Army in one general Class III, Structural and Functional Diseases of Organs, under the subordinate heads: A, Diseases of the Nervous System; B, of the Digestive System; C, of the Circulatory System; D, of the Respiratory Organs; E, of the Genito-Urinary System; F, of the Lymphatic System and Ductless Glands; G, of the Muscles, Bones and Joints; H, of the Integument and subcutaneous Connective Tissue; I, of Organs of Special Sense; (a) of the Eye, (b) of the Ear, (c) of the Nose.

Accidents and Injuries IV, and Unclassified, V, complete the Army classification, while the Navy has XII, Cysts and New Growths; XIII, Injuries; XIV, Extraneous Bodies; XV, Poisons; and XVI, Feigned Diseases.

A few other minor differences between the two may be indicated. Thus, nostalgia appears among diseases of the nervous system (Army) but it is not specified in the Navy, and directed to be included under the title, melancholia. Nausea marina, for which it is to be regretted the more exact title naupathia, has not been substituted, is classified with diseases of the nervous system by the Navy, and rabies with general infections, neither appearing in the Army classification. Insolation among general injuries (Army) is more appropriately classed as febris thermica and prostatic thermica among diseases of the nervous system (Navy), along with febris continua simplex and febris ephmera, which have no place on the Army list, except among fevers of undetermined causation in Class I, General Infectious Diseases. On the other hand, the Army places narcotic poisoning, acute and narcotic poisoning, chronic or drug habit among diseases of the nervous system, while they are not mentioned in the Navy list, but would by analogy be reported among other diseases of Class XV, Poisons. Cholera morbus and dysentery are classed as diseases of the digestive system (Army)

and among general infectious diseases (Navy). Cardiac irritability and cardiac degenerations are enumerated among diseases of the circulatory system (Army) and not mentioned on the Navy list. Anthrax appears among the general infections and carbuncle among the local infections (Army), and carbunculus only among diseases of the cutaneous apparatus (Navy). There are twenty-nine diseases of the visual apparatus specified on the Navy list and but fifteen diseases of the eye on the Army list. The classification of neither Service includes herpes zoster and ulcus perforans, although the nervous origin of both diseases which are of frequent occurrence is well-established.

The Marine-Hospital Service has for many years followed literally the nomenclature of the Royal College of Physicians of London, a revision of which is now due.

#### COLLECTIVE INVESTIGATION OF THE ANTITOXIN TREATMENT OF DIPHTHERIA.

When PROFESSOR VIRCHOW—repudiating the attack of his assistant, DR. HAUSEMANN, on BEHRING'S theory of the serum treatment of diphtheria—said: "All theoretical considerations must give way to the brute force of these figures," referring to the statistics of the treatment in the Kaiser and Kaiserin Friedrich Hospital of Berlin, the question seemed to be settled as to the general merits of sero-therapy. During a given period 533 cases of diphtheria were treated in this hospital; of these 303 were treated with the serum, with a mortality rate of 13.2 per cent.; 230 were treated without serum, with a mortality rate of 47.8 per cent. A still more striking exhibit was afforded during June and July, when nearly all cases were treated with the serum and the mortality rate was 12.7 per cent. "Suddenly," says VIRCHOW, "the supply of serum ceased, as, unfortunately, the very horses from which the serum was taken died. The old methods of treatment had again to be resorted to and the results were"—109 cases, 55 deaths in seven weeks, a mortality rate of 50.46 per cent. A supply of serum was then obtained from another source, and during the next six weeks 81 cases were treated with 12 deaths, a mortality rate of 14.81 per cent. It was the "brute force of these figures" which VIRCHOW said compelled him to recommend the serum; to attribute to it "a brilliant therapeutic virtue;" to contend that, even if disagreeable by-effects were proved to occur occasionally, they were not sufficient to deter him from continuing the treatment; and to counsel that the theoretical explanation of its therapeutic action should be left to the future rather than allow the failure of such explanation to interfere with its practical application.

Since then, however, these and similar figures which seemed so convincing have been rudely assailed.

Among the most recent of the assailants is DR. JOSEPH E. WINTERS, of New York City, of whom the *Medical Journal* says: "Nobody who knows the medical profession of New York can question DR. WINTERS' astuteness as a clinician and we do not conceive it to be possible to bring up any circumstance or condition that may reasonably be held to have tended to warp his judgment in this matter." At a recent meeting of the New York Academy of Medicine (April 3) DR. WINTERS, discussing the papers presented on diphtheria and the antitoxin by DRs. HERMANN A. BIGGS, W. H. PARK, C. H. PECK, GEORGE P. BIGGS and IRA VON GIESEN, sweepingly challenged every claim made for sero-therapy, attacked the favorable statistics and alleged a number of serious after-effects due to antitoxin septicemia. In an experience of 154 cases treated during January, February and March, 1895, in the Willard Parker Hospital he asserted he had never found that the serum exerted the slightest influence for good on a single clinical manifestation—on membrane, pulse, temperature, gland swelling, laryngeal symptoms, etc. "Every one of these patients had been examined daily; they had been examined with care and with great solicitude and with the desire to discover some evidence of the virtues ascribed to antitoxin by others." He further opposed antitoxin on account of its "immediate danger to life through its influence on the kidneys and on the nervous system and remotely through its influence on the blood"—basing this last charge, apparently, on the destructive action of horses' serum on the red globules, as reported by L. LANDOIS and others.

Again: PASSED ASSISTANT SURGEON CORDEIRO, U. S. N., has just reported to the Surgeon-General of the Navy the results of his study of the use of antitoxin in the Berlin hospitals, and concludes that "so far, proof is lacking of the value of antitoxin in the treatment of diphtheria;" he adopts the adverse opinions of KASSOWITZ who says: "The burden of proof lies with BEHRING and his co-workers. The world will eagerly and only too willingly receive this proof. We know that the former extravagant promises are out of the question, but we should be grateful to have it demonstrated that the serum can reduce the mortality by even 1 per cent. As yet we have not the slightest basis on which to found an expectation that fewer children will die in the future of this disease on account of the serum treatment."

In this conflict of opinion there is, obviously, an urgent necessity for the collected and collated experience of the profession, and the JOURNAL offers itself as the medium for the collection of this experience. Following the last page of reading matter in this issue, will be found a blank form for reports of cases of diphtheria, treated either in hospital or private practice. In order to facilitate comparison with the experience in other countries, this form has been

prepared in close accord with that now in use in Germany for the collective investigation undertaken by the *Deutsche Medicinische Wochenschrift*.<sup>1</sup> This blank form is believed to be self-explanatory; it may be detached without mutilating the rest of the number; and it is hoped that all members of the AMERICAN MEDICAL ASSOCIATION who have had or may have any experience in the antitoxin treatment will contribute to this attempt to settle the question of its merits.

#### SECTION ON BENEVOLENCE.

Our friend DR. FREDERICK HORNER, U. S. N., retired, writes us concerning the plan he has often urged, whereby a fund may be created for the relief of widows and orphans of medical men. He urges the establishment of a "Section on Benevolence" or "Medical Aid Section," reference to which was made in the JOURNAL for May 16, 1891, and April 16, 1892.

It is understood that our President, DOCTOR MACLEAN, will this year favor the matter, and ask that the initial steps be taken for inaugurating the measure.

By a resolution of the ASSOCIATION, passed at Washington in May, 1891, a committee was authorized to be appointed on the subject, but it appears that no report was made, although the exhaustive paper of DOCTOR HORNER (see JOURNAL, April 16, 1892, p. 482) might very well answer such a purpose.

We sincerely hope some definite action may be taken at the Baltimore meeting, which will result in the establishment of some such section.

THE JOURNAL TRAIN from *Chicago* for *Baltimore*, Sunday, May 5, 3:15 P. M., via Pennsylvania Railroad, is a *special* train, exclusively for the use of the members of the ASSOCIATION and their friends. It goes direct to the place of meeting, on limited time and with the finest train service in America. There is but one JOURNAL train, and that is via the Pennsylvania R. R.

PAPERS READ IN THE SECTIONS.—Members are respectfully reminded that papers read before the Sections become the exclusive property of the ASSOCIATION.

#### CORRESPONDENCE.

**Shall Ingenuity and Invention be Discredited Among Physicians?**

DENVER, COLO., April 9, 1895.

To the Editor:—The above is practically one of the important questions which should have been decided at last year's meeting in San Francisco. Could it have come to the surface so as to have been voted on separately, the indications were then that the proposition to change the Code in this particular would have carried by a large majority. Happily, Dr. Quimby, of New Jersey, put in an amendment, separately from all others proposed, which brings this question

<sup>1</sup> The JOURNAL is indebted to the courtesy of DR. JULIUS SCHWALBE, one of the editors of the *Wochenschrift*, for a copy of the return blank.



squarely before the Baltimore meeting. Dr. Quimby's motion is to "change the Code of Ethics—Duties for the Support of Professional Character—by leaving out the words 'Surgical Instruments,' in second line, Clause 5, Article I."

To spare the precious time of the meeting and to "hedge" against the possibility of my not being able to be present when this question comes up, please allow me to give a few reasons why this change should certainly be made, and the mechanical device or "surgical instrument" be forever divorced from the low company of "a secret nostrum."

As a preliminary let me observe, with all due respect for our professional grandmothers who framed the Code and Constitution of the AMERICAN MEDICAL ASSOCIATION, that the horizon of their vision of the possibilities of invention must have been rather narrow. The conditions were so different then from what they are now. Then, with few inventions made by medical men, and few patents issued to anybody, there was no need apparent to protect any physician in his right to be honored as the originator of anything. Now there is every need, and the Patent Office is the only reliable criterion by which to decide if a man has even made an original invention. To require that a man should prove his title and then deprive him of the only means of so doing reminds one of that old college song:

"Mother, may I go to swim?"  
"Yes, my darling daughter;  
Hang your clothes on a hickory limb,  
But don't go near the water."

The question is not whether it will pay for a physician to take out a patent on an invention. Judging by the forty-five thousand or more patents already allowed in the United States, and only one in fifteen a financial success, it would probably not pay, and the applicant would have a "heap of bother" and considerable expense in return for the establishment of his own originality and a possible service he may do his fellow men.

Briefly stated, the arguments which seem to me sufficient to warrant this proposed change in the Code are:

1. That the intrusion of the words "surgical instruments" is uncalled for and without good excuse. It is out of harmony with the rest of the paragraph, for *there is no fraud or secrecy to be avoided*, as implied with regard to "secret nostrums." The latter are generally known to be cheats, while the former bear "upon their face" their evidence of worth and fitness.

2. The interdiction of "surgical instruments," and by implication probably (?) mechanical devices, is wrong, because the Patent Office furnishes the only reliable proof that a claimant is entitled to credit.

3. The sacrifice in time, thought and expenditure required of a physician is really a *damage* to the medical profession, not to mention the deprivation to those who depend upon our aid, because many new things must be made, if at all cheaply, by dies and machinery, and manufacturers will demand protection for their own outlay. Especially is this the case with all hard rubber goods which have to be made in expensive molds.

4. The restriction imposed is *unjust* to the physician inventor, because he (co-equal with an outsider) ought to have the stimulus of credit and profit, if there is any, in order to make a success of his invention. The field is the world, and after all the great test of merit is extended use, and the sources of profit must be massed and under rightful control in order to secure such introduction to supply demand. The writer could illustrate this point by the failure of meritorious, mechanical, surgical inventions which have come short of recognition and use because of the lack of properly sanctioned pushing of their undoubted claims upon the attention of those who should employ them. Again he could illustrate a point taken (3) by stating that he has lately been requested to indorse a poor make of his stethoscope, with which it is proposed to undersell the market, and calculated to bring discredit upon an instrument the utility of which, when properly made is unquestioned. And now when he is just finishing an improved stethoscope, made on similar but new lines and measurements, he is warned that he must secure the same by patent, or So-and-So—manufacturers—will cheapen the thing to capture the trade, regardless of his wishes to hold the instrument to an even grade of excellence. What shall be done under such circumstances? Shall the author take the advice given him by two ex-Presidents of the AMERICAN MEDICAL ASSOCIATION and get behind a surgical instrument company who will seek protection from the Government for him? or shall he be open-handed and boldly announce that his own rights in the matter are just the same as those of any citizen of the

United States, even though he *is* a member of the AMERICAN MEDICAL ASSOCIATION?

The best way is to change the blamed paragraph and make it read as though a sane man had originally written it.

Yours respectfully, CHARLES DENISON, M.D.

### The Judicial Council.

PHILADELPHIA, April 10, 1895.

To the Editor:—The JOURNAL of the 6th inst. contains a criticism of the circular, relative to advertisements, recently sent to all members of the AMERICAN MEDICAL ASSOCIATION by the Philadelphia County Medical Society. In the criticism occurs a personal allusion which impels me to request the publication of this letter. The JOURNAL says: "There are two direct mis-statements in the committee's report which we are sure they will be glad to have corrected; one is that the decision of the Judicial Council was not given to them or published. We notice that Dr. John B. Roberts has signed this document, and that he was also Secretary of the Judicial Council. If he failed to notify his associates on the committee of the action of the Council surely the JOURNAL is not to blame."

It is true that I was a delegate of the Philadelphia County Medical Society to the meeting of the AMERICAN MEDICAL ASSOCIATION at San Francisco, and therefore signed the report made by the delegation after its return to Philadelphia. It is also a fact that I was and am the Secretary of the Judicial Council of the Association.

The circumstance that I held the two positions and *could* have disclosed the decision of the Judicial Council to my associates of the delegation, seems to the JOURNAL a sufficient reason for supposing that I *would* do so. Such a betrayal of official confidence would, in my opinion, make me unworthy to be a member of the Council.

As Secretary, I was directed to furnish the Board of Trustees with a copy of the decision in regard to the publication in the JOURNAL of advertisements of secret preparations. I did this immediately, on June 8, 1894. I was not at liberty to inform any one else, outside of the membership of the Council, not even those who brought the charges against the Trustees. I therefore have refrained from doing so.

You will remember that I declined to be present during the executive sessions of the Judicial Council at which the question was considered, because of my official connection with the Society bringing the charges. After the decision of the Council had been made, I returned to the room and resumed the duties of Secretary, which during my absences had been performed by Dr. X. C. Scott, and Dr. T. D. Crothers respectively acting as Secretary *pro tempore*.

Yours truly, JOHN B. ROBERTS, M.D.

ANSWER:—The *decisions* of the Judicial Council are not secret. The *proceedings* are secret, but not the *decisions*. The copy sent the Trustees was signed by Dr. Roberts.

### Mountain Air for Cities.

MILTON, KY., April 15, 1895.

To the Editor:—The details of the plan which I suggested in the JOURNAL of March 30, for supplying pure air to cities are as follows: Upon a sufficient foundation is a frame thirty feet high, within which is an elevator running to top of frame, for the purpose of raising the perpendicular sections of steel plate pipes, each of which is twenty feet long, and each one is larger than the one above it, to which it is securely bolted, and also of heavier plate. When the first two joints are securely joined at the top of frame they are elevated until another is added and so on until the first attains the desired height. Guys are attached and are so arranged as to maintain the pipe perpendicularly.

Electric lights could be attached to the top of the pipe, and being at an elevation of six hundred feet would be at least quite conspicuous.

The lower end of the pipe is attached to the cylinder of a pump which draws the air down through the pipe and forces it through the supply pipes to the desired apartments. These rooms should be practically air-tight except the ventilator at the lower, and the supply pipe at the upper part of the room. The air from an altitude of six hundred feet, being so much lighter than the impure air at the surface of the earth would force the latter out of the room, the temperature of which could be regulated by passing the supply pipes through either cold or hot media. A room thus furnished and covered with glass would be an ideal mountain resort.

It is believed by some that pathogenic microorganisms, other than the tubercle bacillus, play an important part in the destruction of lung tissue. In view of the facts that during sleep the vital resistance of the system is greatly lessened and that the air in all large cities contains innumerable hosts of ferocious pathogenic microbes, the wonder is that there not more pale, wan faces in cities, or even that there should be any one left to tell the tale.

It is even hinted that the tubercle bacillus alone is unable to cope with the vital resistance of the system. Hence we send our consumptives to a high dry location for pure air. But with my plan a high dry location with absolutely pure air is sent to our consumptives.

Not only the apartments for invalids but also factories, business offices, store rooms, etc., could have the mountain air, simply by making the upper part of the rooms air-tight.

I have thus briefly outlined the plan for supplying cities with pure air of any desired temperature at a trifling cost compared with the benefits to be derived, and I hope to see Chicago—the wonder of the nineteenth century—take the lead in making a test of its practicability.

S. E. HAMPTON, M.D.

### Quis Custodiet Ipsos Custodes?

CHICAGO, April 13, 1895.

To the Editor:—At a meeting of the faculty of the Northwestern University Woman's Medical School, the following resolutions were unanimously adopted and ordered to be placed before the Illinois State Board of Health:

WHEREAS, On three occasions within the past three years, the Illinois State Board of Health has licensed to practice medicine in this State, students who have not properly qualified themselves for such duties, and whose incompetence has compelled us to withhold the degree of Doctor of Medicine; and

WHEREAS, By common report we are informed that the State Board has adopted a similar policy with reference to numerous other persons; therefore,

Resolved, By the faculty of the Northwestern University Woman's Medical School that the State Board be requested hereafter to make its examinations so rigid that persons incompetent to obtain the degree of Doctor of Medicine from first class medical colleges can not obtain license to practice from the Illinois State Board of Health.

Resolved, That the State Board of Health be urged to do all in its power to secure a modification of the State law, so that the privilege of examination for license to practice in this State can only be obtained by graduates of recognized medical schools in good standing.

Resolved, That for the protection of the lives and health of our people, we believe it the duty of the State Board of Health to do all in its power to prevent the entrance into the medical profession in this State of any persons not properly qualified; and further

Resolved, That in the interests of humanity and medical science we believe the State Board should make its standard of qualifications as high as that of the best medical colleges in this country, and that it should do all in its power to aid and encourage the efforts of the profession and the people for thorough medical education and higher requirements of licentiates and for the degree of Doctor of Medicine.

MARIE J. MERGLER, Secretary.

### Shall the Physician Act as Clerk for an Insurance Company without Pay?

STOUGHTON, Wis., April 11, 1895.

To the Editor:—I inclose a copy of a letter I wrote to the Wisconsin Benevolent Association which is self-explanatory: Wisconsin Benevolent Association, Milwaukee, Wis.

Gentlemen:—Your letter of the 11th inst. at hand. Your statement does not in the least alter the position I have taken.

I filled out the blank sent to the patient, giving my diagnosis, number of visits, date of first and last visits, the time patient was confined to the house, etc. This is about all that is required of the attending physician, without compensation, by any legitimate accident insurance company and is amply sufficient to establish the justice of the claim so far as the testimony of the attending physician is concerned.

The filling out of a complicated blank, such as you inclose, requires time and technical skill, is exclusively for your benefit, and is not under any consideration justly chargeable to the patient. The patient has paid you for the insurance;

he has also paid me for the medical services rendered during his recent illness. It is therefore manifestly unjust, even if it were possible, to collect from him an additional fee for an examination and written report which is solely for your benefit. It is impossible for me to answer questions you put in your report without making a much more thorough and complete examination than is required in an ordinary case of a slight acute attack of sickness. Take for instance the question: "Were there indications of disease of the blood vessels?" Now it is no easy matter to determine this, and the question can not be truthfully answered until it is determined. The same is true regarding the question asking whether the patient has had any disease of the kidneys, liver, lungs, heart, etc. To even make a diagnosis of exclusion requires a careful and painstaking physical examination of the patient, a chemie and microscopic examination of the urine and the excretions generally. You can readily understand that this takes time and skill. If I am to answer these questions by guessing at it, you are about as competent to do that as I am.

I have consulted an excellent attorney regarding this matter and am prepared to sustain the position taken at all hazards. There is no way by which you can compel me to give you the benefit of my knowledge and experience without adequate compensation. Very respectfully yours,

J. NOER, M.D.

### Antitoxin.

CHICAGO, April 13, 1895.

To the Editor:—In an editorial of the April 13 number of the JOURNAL, you refer to the case of Bertha Valentine, of Brooklyn, who died ten minutes after the injection of Behring's antitoxin No. 2, Op. 159, tested Jan. 30, 1895. April 5, I used Behring's antitoxin, No. 2, 1,000 and No. 2, Op. 159, tested Jan. 30, 1895 (note the coincidence of the Op., please), upon a 4-year-old boy with surprisingly good results. This seems to me but another link in the chain, showing that the cause of death was not inherent in the antitoxin used; for that used by me was from exactly the same lot of serum and cured, not killed, my case. It might be well to hear from every case upon which Op. 159, Jan. 30, 1895, test has been used.

Trusting that my contribution will help dispel the prejudice aroused by this deplorable case, I am,

Yours respectfully, ROSA ENGELMANN, M.D.

ANSWER:—This letter is itself evidence of the necessity of the collective investigation proposed by the JOURNAL.

### Fairfield County (Conn.) Medical Society.

WESTPORT, CONN., April 10, 1895.

To the Editor:—At the one hundred and third annual meeting of the Fairfield County Medical Association, held in Bridgeport, April 9, the following officers were elected: F. B. Baker, East Norwalk, President; J. W. Wright, Bridgeport, Vice-President; L. T. Day, Westport, Clerk; C. R. Hexamer, Stamford, Corresponding Reporter. Censors: F. M. Wilson, Bridgeport; M. V. B. Dunham, Greenfield Hill; W. S. Watson, Danbury. Very truly yours, L. T. DAY, Clerk.

### Nu Sigma Nu Convention—Amended Date of Meeting.

DETROIT, MICH., April 12, 1895.

To the Editor:—In my letter to you of March 7, having inclosed a notice of the Nu Sigma Nu Medical Convention for the JOURNAL's last issue, I gave the dates of meeting in Minneapolis as May 13, 14 and 15. The date has since been changed by Grand Council to June 3, 4 and 5, 1895. So please make the correction, and oblige. Very truly yours,

JOHN L. IRWIN, M.D.

### ASSOCIATION NEWS.

#### The Forty-sixth Annual Meeting.

It is the desire of the Committee of Arrangements to issue a complete program of the proceedings for each day, in advance of the meeting. Secretaries of Sections should at once send to the chairman of the Committee on Printing, Dr. W. A. B. Sellman, No. 5 E. Biddle Street, Baltimore, Md., the titles of all papers to be read in their respective Sections, in the order in which they desire them to be read. Titles not received before April 20 can not be entered on the program.

The hours for Section meetings will be from 3 to 6 p.m. Some of the Sections will also hold sessions from 9 to 11 a.m. All the sessions will be held in Music Hall. The rooms for the different Sections will be designated on the program.  
 GEORGE H. ROHE, Assistant Secretary.

### The Rush Monument Committee.

The annual meeting of the Rush Monument Committee will be held in the Stage Reception Room, Music Hall, Baltimore, on Tuesday, May 7, 1895, at 9:30 a.m. Members of the Committee are requested to be prompt in attendance, to receive the reports of the Chairman and Treasurer.

In this connection, attention is called to the importance of more active exertions on the part of the members of the committee to raise the necessary funds to erect the monument to this distinguished physician and patriot. The Committee has now upward of three thousand dollars in hand toward this object. One of the latest contributions to the fund (1 guinea) was received from the eminent English alienist Dr. Daniel Hack Tukey, whose death has just been announced. In a letter to the secretary of the committee, Dr. Tukey manifested a deep interest in the success of the enterprise, and expressed some surprise that the American medical profession had been so slow in the erection of this well deserved memorial to one of our medical heroes. I may be permitted here to quote the opinion of Dr. Tukey concerning Rush:

"I am glad to be permitted to contribute my mite to the memorial in honor of one I have always greatly admired. It must be confessed that the medical profession of your country has been tardy in publicly recognizing the claims of their most celebrated physician. I paid my humble tribute to his memory in 'The Insane in the United States and Canada,' and can only regret that I have not sufficient command of language to describe adequately his originality, his talent, and above all his devotion to the best interests of our race, including the insane. In the union of medical skill with active benevolence, I think, as I have said in my book, he was the prototype of Fothergill rather than of Sydenham."

To these eloquent words of the distinguished English alienist nothing need be added. We can not however, afford to continue to rest under the imputation that the American medical profession does not appreciate the greatness of the character of Rush, and it is hoped the contributions toward the memorial will be generous at the coming meeting of the Association.

A table will be placed in the lobby of the Music Hall during the meeting, at which subscriptions will be received.

GEORGE H. ROHE,  
 Secretary Rush Monument Committee.

**Section on Physiology and Dietetics.**—Chairman, E. H. Woolsey, Oakland; Secretary, C. G. Chaddock, St. Louis. Executive Committee: I. N. Love, St. Louis; W. T. Bishop, Harrisburg; Ephraim Cutter, New York.

1. On Food and Thrombosis, by Ephraim Cutter, New York.
2. Physiologic Treatment of Tuberculosis by Injection of Serum, by Paul Paquin, St. Louis.
3. Vital Resistance to Disease, by G. W. Finley, Harmony, Ind.
4. Researches in Rapid Photography by means of Edison's Kinetograph, and the animated reproduction by the kinetoscope; showing also by this method the present and future possibilities of taking and reproducing certain animated physiologic movements of the larynx, heart, intestines, etc., and certain diseases having visible symptoms, etc.; with an historical of fifty years of photography, by J. Mount Bleyer, M.D., F.R.A.M.S., Naples, etc., New York.
5. The Influences of Atmospheric Electro-Barometric Oscillations, by John North, Toledo.
6. The Physiologic and Pathologic Effects of Electricity, with some results of Practical Experience with Electricity, by E. H. Woolsey, Oakland.

### The Baltimore Meeting.

Indications point to a large and enthusiastic meeting of the AMERICAN MEDICAL ASSOCIATION at Baltimore in May, and we do hope that the questions that have been agitating this body for so long will be definitely settled.

What we want is more scientific work, and less squabbling and dickerings over ethical matters.

It is common rumor that some of the members from

Philadelphia and Pennsylvania intend going in force to demand the elimination of advertisements of proprietary medicines from the pages of the JOURNAL, and dire threats are uttered that if their request is not granted they will do awful things—even retire permanently.

We express the hope that this rumor is not true, but if true, these men ought to realize the fact that the Association will not be swayed by threats, or bulldozing of any kind.

If the JOURNAL is to be kept on its feet, all legitimate revenue should be derived from every source obtainable, and this source, which is perfectly legitimate and proper, should be utilized to its fullest extent.

Don't handicap the Trustees, but give them full rein to do as they deem best. They are not the kind of men to betray any trust the Association may impose upon them.

Under Dr. Hamilton's able editorship the JOURNAL has so improved that it is scarcely recognizable. He has given us a first class JOURNAL and his hands should be upheld.

Let us all put our shoulders to the wheel and make this meeting at Baltimore the banner one.—*New England Medical Monthly.*

### Executive or Business Committee.

The first meeting of this Committee will be held in Parlor 23, Hotel Stafford, on Monday May 6, at 5 p.m. Subsequent meetings will be held at the same place and hour, unless otherwise ordered by the Committee. It is hoped that there will be a full attendance, in order to properly consider matters which may be referred to the Committee by the Association, and for the transaction of such other business as may seem desirable. L. DUNCAN BULKLEY, M.D., Secretary.

## SOCIETY NEWS.

**Association of Military Surgeons of the United States.**—The fifth annual meeting will be held at Buffalo, N.Y., May 21, 22 and 23, 1895.

The morning session of the first day will be held in the Star Theater at 10 o'clock. The morning and afternoon sessions will be held at 9 o'clock and 2 o'clock daily, in a convenient and easily accessible location to all hotels, which will be made known in a later announcement. The General Committee headquarters will be in the Iroquois Hotel, where provision will be made for registration.

Addresses: An Address of Welcome to the City of Buffalo, by the Honorable Edgar B. Jewett, Mayor; an Address of Welcome to the State, by the Honorable Levi P. Morton, Governor and Commander-in-Chief of the National Guard of the State of New York; an Address on behalf of the Medical Profession, by Dr. Roswell Park, President of the State Medical Society; an Address by the President of the Association, Brig-Gen. George M. Sternberg, M.D., LL.D., Surgeon-General, U. S. A.; the Report of the Committee of Arrangements, by the Chairman, Major Albert H. Briggs, M.D., N.G.N.Y.

The Citizens' Committee of Arrangements has provided an elaborate and pleasing program for this meeting, and extends a cordial invitation to all members and prospective members to be present and participate in all the exercises, social and literary. On Tuesday evening, and also at other times during the meeting, the members of the Association as far as practicable will be entertained by hospitable citizens of Buffalo at their private residences and at various clubs. An informal hand shake and conversazione will be held at Hotel Iroquois from 9 to 11 p.m. On the same evening the Committee of Arrangements will also escort to the theaters all visitors so desiring. On Wednesday evening a reception will be tendered the members of the Association and their friends. On Thursday afternoon, if time and weather permit, a carriage drive to various points of interest in the city. On Thursday evening a promenade concert will be given by the band of the 65th Regiment, N.G.N.Y., and a review and regimental parade by the regiment at the Arsenal. It is anticipated that a hop will follow these exercises. On Friday, leaving Buffalo at 9:30 a.m., there will be an invitation excursion to Niagara Falls, and probably on to Fort Niagara. This trip will afford the members an opportunity of viewing the various points of interest at the great cataract, including the prodigious electric power plant, which is exciting the attention of the industrial and scientific world, also the historic battle-grounds of Lundy's Lane and Queenston Heights, General Brock's monument, the Rapids of Niagara, and other interesting places.

## PUBLIC HEALTH.

**Latest Circular of the New York City Board of Health on Anti-toxin.**—This Board is now producing 20,000 cubic centimeters of serum each week. People unable to pay for the remedy are supplied without charge. The arrangements for the sale of the excess product are not quite complete. The following is the circular that will accompany the flasks and phials:

"The dose contained in No. 1 is usually sufficient when the cases are mild and the remedy is administered within the first twenty-four or thirty-six hours. Phial No. 2 contains the average full curative dose. In very severe cases, or when the treatment is not begun in a very early stage of the disease, or in any case in which improvement is not marked, the dose must often be repeated twice or thrice, depending upon the symptoms, at frequent intervals of from twelve to twenty-four hours. The remedy is administered by deep hypodermatic injections, a special large syringe being preferably employed for the purpose, although an ordinary hypodermatic syringe, carefully cleaned, may be used, the barrel of the syringe being repeatedly filled. Some point on the anterior surface of the body should be chosen for the injection, where there is an abundance of subcutaneous cellular tissue, as the anterior surface of the abdomen or thorax, or the outer surface of the thigh. Before the remedy is administered the skin should be carefully washed with alcohol or some disinfecting solution. The syringe should be carefully sterilized. The solution is rapidly absorbed, and it is better not to employ massage over the point of injection. When children or adults have been much exposed to diphtheria they may be protected from the disease by the administration of from 150 to 300 antitoxin normal units. The protection probably will not last more than three to eight weeks. The earlier the preparation is administered the more certain and rapid is the cure. In suspicious cases of any severity, and in croup cases, it is better to administer the remedy at once and make a culture at the same time for bacteriologic examination for diagnosis, than to delay the treatment until a diagnosis has been made by bacteriologic examination."

**Health Reports.**—Sanitary reports to the Supervising Surgeon-General, Marine-Hospital Service.

## SMALLPOX—UNITED STATES.

Louisiana: New Orleans, March 30 to April 6, 1 case and 1 death.

Maryland: Charles County (near Newburgh), 24 cases and 3 deaths reported, April 10.

Michigan: Detroit, March 30 to April 6, 3 cases.

Missouri: St. Louis, March 1 to 31, 93 cases and 27 deaths; Nodaway, March 1 to 31, 1 case; Lincoln and Pike Counties, March 1 to 31, 20 cases; no deaths reported.

Ohio: Cincinnati, April 5 to 12, 12 cases of smallpox and 1 case of varioloid.

Pennsylvania: Philadelphia, March 30 to April 6, 8 cases of varioloid.

Texas: Fort Worth, March 30 to April 6, 2 cases.

Wisconsin: De Pere, March 23 to April 8, 1 case (supposed to be contracted through rags in a paper mill); Milwaukee, March 23 to April 6, 13 cases, 4 deaths; April 6 to 13, 5 cases, 1 death.

## CHOLERA—FOREIGN.

India: Bombay, March 5 to 12, 1 death; Calcutta, March 2 to 9, 22 deaths; Madras, March 2 to 8, 2 deaths.

Turkey: Constantinople, January 1 to 31, 14 deaths; February 1 to 28, 108 deaths.

## SMALLPOX—FOREIGN.

Arabia: Aden, March 2 to 9, 3 cases.

Ecuador: Guayaquil, March 8 to 22, 4 deaths.

England: Leeds, March 23 to 30, 1 case.

Germany: Prague, March 9 to 23, 13 cases.

Gibraltar: March 24 to 31, 2 cases.

Greece: Athens, December 1 to 31, 1 death.

Havana: Cuba, March 28 to April 4, 10 deaths.

Hungary: Buda-Pesth, March 11 to 25, 3 cases.

India: Calcutta, February 23 to March 2, 123 deaths; Singapore, January 1 to 31, 1 death.

Mexico: Nogales, March 23 to 30, 6 cases.

Netherlands: Rotterdam, March 23 to 30, 9 cases, 3 deaths.

Russia: Batoum, March 19 to 26, 6 cases, three deaths; Moscow, March 9 to 23, 6 cases, 1 death; Odessa, March 16 to 23, 1 death; Warsaw, March 9 to 16, 2 deaths.

Turkey: Constantinople, January 1 to 31, 134 deaths; February 1 to 28, 110 deaths.

West Indies: San Juan de Puerto Rico, January 9 to 30, 255 cases, 7 deaths; March 6 to April 3, 237 cases, 7 deaths.

HAVANA, CUBA, April 8, 1895.

Sir:—I have the honor of calling your attention to the mortuary reports recently forwarded to you, in which you will see that as far as the number of deaths from smallpox can indicate the progress of that disease, it has increased very considerably during the last twenty days.

It will be seen that during the week ending April 4 there were ten deaths from it, and during the week ending March 28 there were 12, while during the week previously there were none, and for several weeks before that there had been but one or two deaths a week. Nearly all of these deaths have occurred in the barrio of San Lazaro, a ward in which many poor people and cigar-makers live, and there the disease seems to be raging like a regular epidemic, for, for every death it is fair to calculate there must be from five to ten new cases. No official report of the number of cases of any disease is ever given here.

Your cablegram of the 4th inst. conveying instructions that whenever there should be an unusual increase of yellow fever to cable you, was promptly received and will be implicitly obeyed, but I am happy to inform you that up to date there has been no such increase, there having been but one death from it during the last week, with three new cases approximately. However, in all probability, in view of the large number of unacclimated troops which have arrived, are arriving and will arrive from Spain, there will be much more yellow fever here than usual some time during the coming summer.

Very respectfully, your obedient servant,  
D. M. BURGESS, U. S. Sanitary Inspector, M.-H. S.

## BOOK NOTICES.

**Publications du Progres Medical.** Paris. 14 Rue des Carmes. (Bibliotheque d'Education Speciale) Rapport et Memoires sur l'Education des enfants normaux et anormaux. Par E. O. SEGUIN. Preface par BOURNEVILLE. Volume 8 de XLVIII, 340 pages. Price 5 fr.

This book is part of a series of the "Educational Library" of the *Progrès Médical*. The publication of this volume, with a preface by the talented Bourneville, editor of the *Progrès Médical*, must be extremely gratifying to every American, as it is a collection of memoirs of the late Edward O. Seguin, of New York. Although Seguin was himself a Frenchman, Bourneville thinks it necessary to introduce him to the French people, which he does in an appreciative preface and fortifies his judgment of the man by a translation of the obsequies of Seguin at New York in 1880, in which Dr. Brockett, of Brooklyn, Dr. Wilbur, of Syracuse, Dr. George Brown, of Barre, Massachusetts, and Dr. Marion Sims took part.

The first part of the book is devoted to the education of the feeble-minded children, including the rooms in the asylum, the gardens, their plays, methods of instruction, etc. The second part is devoted to the education of deaf mutes and discusses the methods of Pereire, of the Anglo-Spanish school, the Abbe de l'Epee, and the Anglo-American school, as set forth in the writings of Wallace, Braidwood, Bell, Hirsch and others, known as visible speech or lip-reading. The third part is occupied with a discussion of the best means of education of idiots and feeble-minded. The institutions devoted to this benevolent object in all countries are passed in review. The fourth part is given to the discussion of popular education of children in various countries; the fourth chapter of this section is given to the metric system, and the author points out its great simplicity and general adaptability.

The volume concludes with Dr. Seguin's memoirs on idiocy, translated by Dr. Bourneville, and the whole constitutes a notable addition to the literature of the subject.



**Text-book of Diseases of the Kidneys and Urinary Organs.** By PROF. PAUL FÜRBRINGER; translated from the German, with Annotation by W. H. GILBERT, M.D., with a Commendatory Letter from SIR JAMES GRANGER STEWART. In two volumes. Volume I, octavo, pages 194. London: H. K. Lewis. 1895. Price, \$1.75.

Prof. Paul Fürbringer is Director of the Freiderichshall Hospital in Berlin, who has been known to the profession for many years as an able writer in various departments, particularly in connection with the kidneys and the urine. This volume opens with general remarks on albuminuria, hematuria, hemoglobinuria, renal casts, dropsy and uremia, and gives special and particular consideration to the circulatory disturbances of the kidneys, kidney disease in Asiatic cholera, renal affections during pregnancy, engorged kidney, hemorrhagic renal infarctions, inflammation of the kidneys, diffuse nephritis, acute diffuse nephritis, albuminuria in febrile diseases, chronic diffuse nephritis, contracted kidney, amyloid degeneration of the kidney, and infection of the kidneys leading to suppuration.

There is absolutely no padding in this book. It has been pruned, pared and freed from superfluities until from start to finish it is a solid compact mass of well-digested facts. To contemporaries, while not always agreeing with them in their conclusions, Fürbringer has been generous, and apparently has never omitted to mention the name of an individual connected with a theory or demonstration of any portion of the subject under consideration. In this respect the book is to be commended beyond any that has recently fallen under our observation. The deep knowledge displayed by the author, and his candor, should commend the work to all English-speaking people.

The translator and publisher have done their part well to give the book a handsome setting in its English dress. We shall look for the second volume of this work with increased interest. We observe with pleasure that the English translator has used the metric system of doses and measurements throughout the book.

**A Book of Detachable Diet Lists** for Albuminuria, Anemia and Debility, Constipation, Diabetes, Diarrhea, Dyspepsia, Fevers, Gout or Uric Acid Diathesis, Obesity, Tuberculosis, and a Sick-Room Dietary. Compiled by JEROME B. THOMAS, A. B., M.D. Philadelphia: W. B. Saunders; Chicago: A. C. McClurg & Co. 1895. Price, \$5.

This book will save the practitioner a great deal of work and be distinctly to his advantage, as there is every reason to believe that the general dietary is seldom carried out with the same care in private practice that is characteristic of it in hospitals, especially in military and naval service, where, as a rule, the diet is prescribed for the patient even before the prescription is written, and it is made possible with these lists to carry out the diet system in private practice with great ease. In addition to the list of articles given there is a collection of sick-room dietaries at the end of the book, which gives almost all of the forms of sick-room foods. These lists have been printed and bound in a book and perforated, so that they may be torn out when we have a patient to nurse as occasion may require. Ten lists are given, namely, those for patients with albuminuria, anemia and debility, diabetes, diarrhea, dyspepsia, fevers, gout or uric acid diathesis, obesity, tuberculosis, and a sick-room dietary.

**Medical Gynecology.** A Treatise on Diseases of Women from the Standpoint of the Physician. By ALEXANDER J. SKENE, M.D., Professor of Gynecology in Long Island College Hospital, Brooklyn, N. Y. With illustrations. 8vo, 529 pages. New York: D. Appleton & Co. 1895.

The volume is divided into three parts, of which Part I treats of development and growth, differentiation of sex, discusses heredity, environment and care in childhood, and mental and physical education. Part II treats of the char-

acteristics of sex and the relations between structure and function, the predisposition to peculiar diseases, and the etiology of diseases of women. The diseases of the child-bearing period are also carefully treated. In Part III the menopause and diseases after the climacteric are taken up. The observations of a well-trained observer like Dr. Skene can not fail to be interesting and instructive to the general practitioner, as well as specialist, and we predict that in the present movement against excessive operative treatment in gynecology, its advocates will turn naturally to the work of Dr. Skene as a safe one in which the lines between medical and surgical gynecology, although arbitrary, are clearly drawn.

**A Manual of the Modern Theory and Technique of Surgical Asepsis.** By CARL BECK, M.D. With 65 illustrations, and 12 full-page plates; 306 pages. Philadelphia: W. B. Saunders. 1895. Price, \$1.25.

This book is rather interesting, as it sets forth clearly and distinctly the modern practice of asepsis as distinguished from antiseptis. There are sixteen chapters, namely, I, of microbes; II, of asepsis; III, means of disinfection; IV, prophylactic disinfection; V, disinfection of instruments and dressings; VI, sterilization of catgut, silk, etc.; VII, sponges, drainage tubes and ligation tubes; VIII, an aseptic operating room; IX, aseptic wounds; X, infected wounds; XI, aseptic bone wound treatment; XII, renewal of dressing; XIII, technique of aseptic operation; XIV, aseptic injection; XV, anesthesia; XVI, asepsis of private practice. There have been several good books on this subject lately, notices of which have appeared in these columns, but the book under consideration is original in many respects. We commend it.

**Cod-liver Oil and Chemistry.** By F. PECKEL MÖLLER, Ph.D. London, 43 Snow Hill, E. C.; Christiania, Norway: Peter Möller. New York: W. H. Schieffelin & Co. Copenhagen: A. T. Møller & Co.; 508 pages. 1895.

This well-known firm of manufacturers have produced a book of great merit, not alone on account of the novel and interesting information in connection with the fishes and oil, but on account of the advanced chemistry it contains. One of the peculiar features of the chemic part of this work is the abandonment of the usual method of representing atomic parts in chemic formulæ and the introduction of a diagrammatic illustration. The book is an exceedingly interesting one, and notwithstanding its commercial origin is a distinct addition to medical literature.

**Transactions of the World's Columbian Dental Congress,** in two volumes. Edited for the General Executive Committee by A. W. HARLAN, A.M., M.D., D.D.S., assisted by LOUIS OTTOFY, D.D.S. Volumes I and II, paper, pages 1068. Chicago. 1894.

This handsome set of Transactions records the gathering of the greatest number of prominent practitioners of the dental art, and it is certainly a tribute to the fecundity and the great scope of medical science when one of its youngest departments can prepare and promulgate a scientific work of this character. Few realize the immense strides which the art of dentistry has made in the last few years, and although dentists in America were fond of pointing to this and the other one of their number as an example of the high scientific standard which American dentistry had attained, it was reserved for the French Commission, who visited America in 1887, to give to the dentists of the United States the proud position of the first rank in the dental art.<sup>1</sup> It was appropriate, then, that this first International Congress should be held in the United States, not only on account of the conceded preëminence of our dental practitioners, but on account of the recognition that has been extended to them as medical practitioners by the AMERICAN MEDICAL ASSOCIATION. Many languages were spoken at

<sup>1</sup> Kuhn: *L'Art Dentaire des Etats Unis*, Paris, 1888.

this Congress, which have been reduced in the Transactions to four, namely, French, German, Spanish and English. The suggestion was made in the closing of this Congress that, owing to the great success of the present one, future dental congresses should be held on each occasion of the holding of an International Exposition. This may be said to be the second Congress of this character, the first having been held in Paris in 1889.

The papers read in the various sections, along with the discussions, are printed in these volumes, and the work reflects great credit on the editors and the publication committee.

**King's College Hospital Reports**; being the Annual Report of King's College Hospital in the Medical Department of King's College. Edited by NESTOR TIRARD, M.D., F.R.C.P., W. WATSON CHEYNE, F.R.C.S., JOHN PHILIPS, M.A., M.D., F.R.C.P., W. D. HALLIBURTON, M.D., F.R.S. Vol. i. May 1, 1893, to Sept. 30, 1894. Price \$1.25; to non-subscribers, 7s. 6p. London: Adlard & Son. 1895.

It will be seen that this is the first volume of the reports of King's College Hospital and its Medical School. The volume opens with an historical sketch of the college and hospital by John Curnow, M.D., after which are articles as follows: Curable Stage of some Incurable Maladies, by Lionel S. Beale; Abstraction of Blood Clinically Considered, by Oliver B. Duffin; A Case of Functional Albuminuria, by Nestor Tirard; Psychology of Medicine in Relation to the Medical Practitioner, by Ernest W. White; Sneezing, by G. McDonald; On the Principle of Selection as Applied to the Administration of Anesthetics, by J. Frederick W. Silk; On Artificial Maturation of Immature Senile Cataract by Trituration, by Malcolm M. McHardy; On Some Cases of Pelvic Suppuration in the Female, by John Philips; Treatment of Gonorrhea and Gleet by Means of the Urethroscope, by F. Burghhard; Bursitis, by George Lenthal Cheate; The Value of the Discoveries of Sir Charles Bell, by William A. Turner; after which follow a classified summary of medical cases admitted during the year, notes of medical cases, tables of surgical cases, reports of fatal cases, reports of cases of interest, reports of various departments, the museum, the medical society of the College, report from volunteers, athletic records, and old students' dinner.

The illustrations in this book are all good, and some of them excellent. It is evident from a perusal of the papers that the work at King's College does not lag behind that of the other large hospitals of London.

**Report of the Massachusetts State Board of Health upon the Metropolitan Water Supply**, February, 1895. Boston: Wright & Potter Printing Co. 1895.

The State Board of Health of Massachusetts, under legislative act of 1893, was authorized and directed to investigate, consider and report upon the question of water supply for the city of Boston and its suburbs within a radius of ten miles from the State House, and for such other cities and towns as in its opinion should be included in connection therewith. This exhaustive report has been made in accordance with the law, and it affords an example which should be taken as a model for similar investigations in other portions of the United States. We have elsewhere referred to this report. (See page 293.)

**Manual of General Medicinal Technology, Including Prescription Writing**. By EDWARD CURTIS, A.M., M.D., Emeritus Professor of Materia Medica and Therapeutics, College of Physicians and Surgeons, Medical Department of Columbia College, in the City of New York. Third Edition, conforming to the U. S. Pharmacopœia of 1890. Pocket size (Wood's Pocket Manual Series), 245 pages. Price, \$1.

This little manual, small enough to carry in the pocket, has reached its third edition, which we are informed was made necessary by the changes in the Pharmacopœia of 1890. It is an excellent book and will be found useful for reference.

In our opinion, however, the author devotes too much space to the old apothecaries' system, which, since the adoption of the metric system in the new Pharmacopœia, has become practically obsolete.

**Ninth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania**. By CLARENCE M. BUSCH; 833 pages. 1894.

This book includes the report of the Secretary, Dr. Benjamin Lee; report and analysis of water samples; reports of epidemics; quarantine; disinfectants, and of the water supplies in various parts of the State. There are few boards that work more harmoniously with municipal boards than the State Board of Health of Pennsylvania, and in consequence of this harmony they have been able to accomplish a great deal. The volume under consideration deserves to rank among the best of its predecessors.

**Report of the Commissioner of Education for the Year 1891-92**. Vols. I and II, containing Parts I, II, III. 1294 pages. Washington: Government Printing Office. 1894.

The report of the Commissioner of Education is of more than usual interest, and shows in a marked degree the great advances that have taken place in the evolution of the Bureau, which from its humble beginning in 1870, has now the reports on the school systems and university methods of all countries of Europe, comprised in these volumes. All those interested in education, either in a special department or generally, will do well to write for the report.

**The Evolution of the Diseases of Women**. By W. BALLS-HEADLEY, M.A., M.D. (Cantab) F.R.C.P. (London); 375 pages. London: Smith, Elder & Co.; Melbourne and Sydney: George Robertson & Co. 1894.

This book is intended by the author to be a "Contribution to the Study of the Natural History of Disease." The author's treatment seems sound, even if his pathology is a little hazy at times. The work is well illustrated and handsomely printed.

**Index of Medicine**. A Manual for the Use of Senior Students and Others. By SEYMOUR TAYLOR, M.D.; 794 pages. Philadelphia: Lea Brothers & Co. 1894.

This book contains in compact form the essentials of medicine, a short chapter on general pathology and general medicine, specific infectious diseases and specific fever, then the diseases of the different regions are taken up. It is an extremely convenient book for ready reference.

**The International Medical Annual and Practitioners' Index**. A Work of Reference for Medical Practitioners. Thirteenth Year Annual, 648 pages; New York: E. B. Treat, 5 Cooper Union. Chicago: 199 Clark Street. 1895.

This well-known annual contains the usual amount of new matter, as well as improvements and changes of the year. Its scope includes the entire range of medicine and surgery and the compilers are experienced literary workers.

**The Treatment of Wounds, Ulcers and Abscesses**. By W. WATSON CHEYNE, M.B. Ed., F.R.S., F.R.C.S.; 197 pages. Philadelphia: Lea Bros. & Co. 1895.

The author has been long known as one of the advanced men who practice asepsis in surgical work. This little work will be useful in furnishing the medical world with the careful style and technique of a master in surgery. Every surgeon should add this to his library.

**Transactions of the American Pediatric Society**. Sixth Session, held at Washington, D. C., May 29, 30, 31, and June 1, 1894. Edited by DILLON BROWN, M.D., New York. Vol. vi, paper. Reprinted from the *Archives of Pediatrics*. 1894.

These transactions comprise the reports read at the last meeting, held in Washington, 1894. There are eulogies of Drs. Keating and Earle by Dr. Forchheimer, of Cincinnati, and many interesting papers.

**The Year-Book of Treatment—1895**. Philadelphia: Lea Bros. & Co. 1895.

In this year-book we have one of the most compact of the several manuals that have been presented for consideration, inasmuch as it is very much condensed and very carefully edited. Those desirous of securing in condensed form a summary of the newer systems of treatment brought out during the year will do well to secure this volume.

## NECROLOGY.

**BERNHARD GRUNHUT, M.D.**, who was formerly of New York City, is alleged to have lost his life on or about August 22, of last year, when coming to this country on the steamer *Bothnia*. His estate, valued at \$150,000, has been the subject of a vast amount of litigation. Two days before he sailed he made a will leaving \$25,000 to his wife and the greater part of his estate, amounting to about \$100,000, to the Mount Sinai Hospital, and the Hebrew Benevolent Society of New York. There was also \$25,000 left to an unborn child, which amount was to revert to the residuary estate, should the child die before it was 21 years old. A child was born after the doctor's disappearance from the *Bothnia*, which lived a few hours. The contestants, a brother and a sister of the testator, endeavored to show that the Doctor was insane at the time of his marriage, and therefore, mentally incapable of entering into such a contract. Counsel for the contestants claimed that if the surrogate held that he had no jurisdiction, all that he could do was to permit them to withdraw. On this point the surrogate announced that he would reserve his decision. The will was then admitted to probate and the pending issue closed in the surrogate's court. The remainder of the estate is divided among a number of small legatees. Had the case been continued some interesting expert testimony on insanity would have been given. The defense had subpoenaed Dr. G. Alder Bloomer, Superintendent of the State Asylum for the Insane at Utica, and Drs. Jacobi, Dana and Spitzka, of New York, were among the medical witnesses who were expecting to be called to testify.

**JOHN W. COLES, M.D.**, retired surgeon of the United States Navy, died at his home in Philadelphia, April 6, in the fifty-seventh year of his age. Dr. Coles was born in New Jersey, on August 14, 1838. Soon after beginning the practice of medicine in May, 1863, he was appointed Acting Assistant Surgeon in the United States Navy from this State, and served in that capacity on the United States Ss. *North Carolina*. On June 25, 1863, he was made Assistant Surgeon, and was subsequently on duty on the United States Ss. *Paul Jones*, of the South Atlantic Blockading Squadron; at the Naval Battery, Morris Island, S. C.; United States ironclad, *Catskill*, of the South Atlantic Blockading Squadron; United States Ss. *Pontiac*; at the Naval Hospital, New York; and on the *Bienville*, West Indies. On January 14, 1867, he was promoted to Passed Assistant Surgeon, serving at the Naval Academy, on the *Lancaster* at Norfolk, Va.; on the *Ashuelot* in the Asiatic fleet. He also did special service on the United States Ss. *Minnesota* from May 7, 1869, and on July 3, 1868, was transferred to the Naval Hospital in this city. He was promoted to Surgeon in October, 1873, returning to duty at the Philadelphia Naval Hospital. He was assigned to the Naval Hospital at Yokohama, Japan, in April, 1875, and on returning to this country in 1878 was detailed on the Medical Examining Board and the National Board of Health at Washington. His last service was in this city at the Naval Hospital and as a member of the Medical Examining Board. He was placed on the retired list Feb. 6, 1885.

**GEORGE W. BATES, M.D.**, died at the residence of his father in Louisville on April 4, of pneumonia. Dr. Bates was born in Fairmount, Ky., about twelve miles from Louisville, Feb. 22, 1847. He received his education at Cecelian College, where he graduated in 1869. After this he taught school for several years in Carlisle, Ind., beginning the study of medicine at the Hospital College of Medicine in 1876, where he graduated Feb. 26, 1878. As a result of a competitive examination he received the appointment of interne at the Louisville City Hospital and served one year. He was associated for one year upon the beginning of his practice, with Dr. Willis. He has practiced continually since that date in Louisville. He had a chill at the funeral of his father whom he had attended during his illness from pneumonia, and died himself of pneumonia one week later. He was a widower but left no children.

**SWAYNE WICKERSHAM, M.D.**, Chicago, April 16. Dr. Wickersham was one of the oldest practitioners in Chicago. He was Commissioner of Health under Mayor Cregier. For some time his health had been gradually failing. Dr. Wickersham was a Quaker. He was born in the early 30's in

Pennsylvania and came to Chicago forty years ago. He was a member of the Cook County, State and American Medical Associations. He was unmarried and leaves a considerable estate. The remains will be taken to the home of his sister at Kennett, Pa., in accordance with his last wish.

**B. G. MERRY, M.D.**, of Stillwater, Minn., March 27, aged 62.—**J. H. Fuller, M.D.**, of Chattanooga, Tenn., April 2.—**James Kennedy, M.D.**, of San Antonio, Texas, March 30.—**J. B. Morgan, M.D.**, of Joplin, Mo., March 30, aged 72.—**Peter J. Dwyer, M.D.**, of St. Paul, Minn., March 30, aged 55.—**Horace Babcock, M.D.**, of Las Vegas, N. M., March 25.—**Thomas Wheat, M.D.**, of Manchester, N. H., March 25, aged 74.—**G. W. Cusick, M.D.**, of Tualatin, Ore., April 3, aged 54.—**Albert G. Anthony, M.D.**, of Oakland, Cal., April 3, aged 50.—**Carl Hoffman, M.D.**, of Baltimore, Md., April 8.—**H. C. Baker, M.D.**, of Kansas City, Mo., April 8, aged 50.—**George Gaston Brewer, M.D.**, of Baltimore, April 8, aged 59.—**B. H. Harris, M.D.**, of Groveland, Ill., April 6.—**L. C. French, M.D.**, of Hudson, Mich., April 12.—**J. T. Ball, M.D.**, of Rushville, Ill., April 4, aged 69.—**L. D. G. Gifford, M.D.**, of Watertown, N. Y., April 8, aged 38.—**A. H. Cochran, M.D.**, of San José, Cal., April 4, aged 64.—**C. D. O'Brien, M.D.**, of Ackley, Iowa, April 4.—**L. M. Tidrick, of Winter-set, Fla.**, April 3.—**J. W. Gill, M.D.**, formerly of Louisville, but lately of Danville, Ky., died at the latter place after a brief illness, April 2, of pneumonia.

## MISCELLANY.

**Change of Address.**—Dr. V. L. Hurlbut to Wellington Hotel, Chicago. Dr. S. S. Adams, to 1 Dupont Circle, Washington.

**Billroth's Monument.**—This memorial will soon be placed in the court of honor of the University of Vienna. A monument to Skoda and Rokitsky has been also ordered by the Council of the Faculty.

**Rennion.**—It is proposed to have a reunion of the class of 1874 of the Jefferson Medical College, on the evening of May 10, in Philadelphia. Members of the class who have not received an announcement will please forward their names to E. E. Montgomery, 1715 Walnut St., Philadelphia.

**Another "Faith-Cure" Fatality.**—The coroner at Dayton, Ohio, has held Col. F. B. Mead and his wife to be responsible for the death of their 12-year-old daughter, who was by them permitted to be treated by "faith-cure" methods, while she was suffering from tubercular meningitis.

**Health Officer of Chicago.**—Concerning various rumors afloat, we sincerely hope that the intense desire of Mayor Swift for civil service reform will not induce him to appoint a hod carrier or hotel drummer as Health Commissioner. There is a prejudice in favor of having a physician and sanitarian in that office. Why not retain Doctor Reynolds?

**The Hot-Air Cradle.**—This is the name given, at one of the New York city charities, the Bowery Mission, to a hot-air chamber, the use of which is to kill the vermin that infest the clothing of a portion of their lodgers. When the tramp disrobes for the night, his garments can, if he so desires, be placed in a wire pocket or cradle, and suspended in a hot atmosphere that does such cleansing as may be accomplished by dry heat.

**Dr. T. M. Drown Chosen President of Lehigh University.**—The election of Thomas M. Drown, M.D., etc., to the Lehigh Presidency took place on the 4th inst. Dr. Drown is a graduate from the medical department of the University of Pennsylvania, class of 1862, at which his ruling passion strong in graduation showed itself in the subject of his thesis, namely, Urological Chemistry. Dr. Drown has formerly filled the professorship of chemistry at Lafayette College, later at the Boston Institute of Technology. He was until recently the chemist of the Massachusetts State Board of Health.

**Presentation to Professor Sir William Turner.**—The colleagues and former pupils of Sir William Turner, Professor of

Anatomy at the University of Edinburgh, united in presenting a portrait of himself, as a testimonial of their esteem, respect and appreciation of his unfaltering zeal in the cause of science, and his faithful services to the University of Edinburgh. The picture, painted by Sir George Reid, P.R.S.A., is of three-quarter size, and portrays Sir William Turner in a characteristic pose while lecturing. Sir James Russell conducted the presentation ceremony which took place in the lecture room April 3, and was the occasion of the gathering of representative academic and medical men of the city.

**Longevity of Physicians.**—Dr. Salzmann, of Essling, Germany, has made a study of all the available facts regarding the above subject, to be found in the records of his country, going as far back as to the sixteenth century. In that century the life period of the medical man was 36.5 years; in the seventeenth 45.8; in the eighteenth 49.8, and in the current century 56.7. The gradual growth of preventive medicine, and especially those measures that have reduced typhus fever and smallpox, has tended to bring about the increased life rate.

**An English Colony for Epileptics.**—The *Echo* of London gives an abstract of the work done, during the first eight months, by the National Society for the Employment of Epileptics, which is essentially the record of success: "At Skippings Farm, Chalfont St. Peters, two or three epileptics were first of all placed, then two or three more, until, by the addition of units, never groups of persons, the number has grown to twenty; thus the family feeling has been preserved. The patients vary in age from 18 to 50, and 'most thoroughly repay the unremitting care and attention bestowed on them.' The work undertaken at present is, to a large extent, potato growing for market, vegetable gardening, carpentering, building, bootmaking and tailoring."

**Measurements of a Selected Venus.**—Out of five hundred applicants—more or less—for the position of a bronze Venus, in a New York show, one little woman filled the bill, whose measurements are said by her to be the following. She thus announces her statistics: "One artist says my figure is one of the best that he has ever seen, and I think myself the measurements show up very well. I am 5 feet 7 inches in height and weigh 155 pounds. My other measurements are: bust, 38 inches; waist, 26 inches; thigh, 22 inches; calf of leg, 15 inches; ankle, 9 inches; foot, 9 inches in length. My upper arm is 11½ inches, and my neck 13½ inches. Many women have figures superior to mine in certain points; but it is a most difficult thing to find a perfect, all-round figure."

**Another Survey of the Croton Watershed.—Filtration Necessary.**—Representatives of the New York city departments have again visited the Kensico district of the Croton system. Their informal reports show that much work is needed to furnish a desirable water from that region. The New York *Herald* insists that infiltration beds will need to be constructed before the good name of Croton will be re-established. The editor of that paper writes as follows: "The inspection was limited in its scope to the Kensico region. Kensico is reported 'the least safe of any of the supplies of the water service.' But further inspection may reveal other sources of dangerous contamination. It should not for a moment be forgotten by any New Yorker that the city's water supply never can be pure until some system of filtration is adopted. The most thorough purgation of the Croton basin that can possibly be made would at best be a poor make-shift for protecting citizens against polluted drinking water. No adequate protection is possible without filtration of all the water admitted to the main pipes. The sooner the public understands this and provides for real purification of the water supply the better it will be for the public health."

**Increased Losses of Life and Property by Lightning.**—In Germany, a paternal government controls in large measure the deforestation of the unsettled regions. The complaint has been made that this control was neither efficient nor wisely ordered, and that as a result the country was suffering un-

duly from lightning. The following report appears to confirm that view: "The director of the statistical bureau at Berlin has written a treatise on the increase of damage caused by lightning and its effects on the human body. Among the causes he assigns for increased destructiveness are the extended use of electricity, the changed character of the earth's surface through drainage, denudation of timber, etc., and the constantly increasing use of coal, by which impurities are introduced into the air. In Bavaria the annual average of fires caused by lightning was 52 for the period of 1844-1865, while for 1866-1879 it was 103, and for 1880-1882, 132.

**The Length of the Lower Limbs; Abraham Lincoln's Definition.**—There is an elaborate symposium in the *Independent*, having for its topic the life and death of President Lincoln. Among the anecdotes related of him is the following, which will be new to the majority of our readers: On one occasion it is said that some of Mr. Lincoln's friends were talking about him and Stephen A. Douglas. The conversation led to the physical proportions of the respective men and an argument arose as to the proper length of a man's leg. During the discussion Mr. Lincoln came in and quietly seated himself, and it was agreed that the question should be referred to him for settlement. They told him what they had been talking about and asked him what, in his opinion, was the proper length of a man's legs. "Well," said he, reflectively, "I should think that they ought to be long enough to reach from his body to the ground."

**Crew Space.**—The Bureau of Navigation calls attention to a recent act which went into effect April 1, 1895: "Every place appropriated to the crew of a vessel must contain not less than 72 cubic feet and not less than 12 superficial feet, measured on floor or deck of that place for each seaman or apprentice lodged therein. Such place shall be adequately ventilated, properly lighted, drained and protected from weather and sea, and as far as practicable properly shut off and protected from effluvia of cargo and bilge water; and failure . . . shall subject owner to penalty of \$500."

Such place must be kept free from goods or stores under penalty for non-compliance.

"Sec. 3. . . . provisions of this act requiring a crew space of 72 cubic feet per man shall apply only to vessels the construction of which shall be begun after June 30, 1895."

### College Commencements.

THE ATLANTA, GA., MEDICAL COLLEGE.—April 2, one hundred and thirty-five graduates.—Bellevue Medical College, N. Y., March 25, eighty-nine graduates.—Tennessee Medical College of Knoxville, March 26, fifteen graduates.—St. Louis College of Physicians and Surgeons March 26, forty-nine graduates.—The Omaha, Neb., Medical College, April 3, twenty-four graduates.—The Southern Medical College at Atlanta, Ga., April 3, sixteen graduates. Total, 328 graduates.

### Hospital Notes.

THE regular monthly meeting of the board of managers of the New York State Hospital was held in Utica, April 10. The report of the Superintendent showed that there were 1,028 patients in the hospital. The twenty-fourth annual report of the Mercy Hospital at Davenport, Iowa, shows 164 inmates. Nearly \$200,000 have been expended on the grounds.—Plans are being prepared for the purpose of building a floating hospital at Providence, R. I. It is intended for use in contagious diseases.—The St. Vincent's Hospital Society of Toledo, Ohio, was organized April 7. This society is formed for charitable purposes, and will aid the St. Vincent's Hospital and Orphan Asylum.—The new cottage hospital for the insane at Independence, Iowa, was formally opened April 16.

### Society Notes.

THE annual meeting of the District Medical Society of Northwest Missouri was held at St. Joseph, Mo., April 11.



The following officers were elected for the ensuing year: President, D. D. Bryant, of Savannah; Vice-President, W. W. Carter, of Wathena; Secretary and Treasurer, B. M. Berry, of Chicopee Falls; Secretary and Treasurer, J. M. Townsend, of St. Joseph. The next meeting of this society will be held in July.—A quarterly meeting of the Iowa and Illinois District Medical Association was held in Davenport, Iowa, April 11.—The Eastern Hampden Medical Association held its fifteenth annual meeting in Springfield, Mass., April 4. The following officers were elected: President, George T. Ballard, of Hampden; Vice-President, L. M. Berry, of Chicopee Falls; Secretary and Treasurer, J. M. Hannum of Ludlow.—The Snyder County Medical Society held a regular meeting at Selina Grove, Pa., April 4. The following officers were elected: President, A. M. Smith; Vice-President, J. F. Kanawell; Secretary and Treasurer, J. O. Wagner.—The annual meeting of the Cuyahoga County Medical Society was held in Cleveland, Ohio, April 4. The following officers were elected: President, H. E. Haldeman; Vice-President, H. C. Eyeman; Second Vice-President, W. C. Weber; Secretary, B. F. Oswald.—A regular meeting of the Cleveland Medical Society was held April 12.—The Lehigh County Medical Society met in Allentown, Pa., April 10. Resolutions were passed relative to the prevention of blindness.—The annual meeting of the Oneida County Medical Society was held in Rome, N. Y., April 9. The following officers were elected for the ensuing year: President, Charles E. Smith, Whitesboro; Vice-President, Charles G. Ward, Utica; Secretary, David Eynon, Utica; Treasurer, H. G. Jones, Utica.—The Twin City Medical Society held a meeting in Kansas City, Mo., April 9. The following officers were elected: President, E. H. Thraillkill; First Vice-President, A. R. Greenlee; Second Vice-President, L. A. Schaefer; Secretary J. N. Jackson.—A regular monthly meeting of the Los Angeles Medical Society was held April 5.

#### Philadelphia Notes.

**OBSTETRICAL SOCIETY.**—The April meeting of the Obstetrical Society had a discussion on the subject of uterine fibroids especially the treatment of this condition when complicating pregnancy. Dr. Anna M. Fullerton of the Woman's Hospital read a paper and presented specimens and photographs, which form a valuable contribution to the subject. Dr. Geo. E. Shoemaker reported a case of hysterectomy by ligation for fibroma. He also presented a very interesting specimen showing anastomosis of the small intestine by the Murphy button, the operation having been performed eleven months before death by Dr. J. B. Murphy when on a visit to this city in September, 1893. It was done originally to close a fecal fistula following strangulated hernia, but the operation was not successful. Another attempt nine months later was made by Dr. Holmes, to close the fistula by resection and button anastomosis but death resulted from exhaustion.

#### Louisville Notes.

**LONG.**—Dr. John L. Long has been appointed expert to the State Board of Health, to be sent any place in the State where smallpox is suspected to exist, and there is no doubt as to the diagnosis. The choice is an excellent one and the appointment one of importance, as there has been considerable conflict between local physicians in different parts of the State and the health authorities, when a diagnosis was in doubt. Dr. Long was for several years Superintendent of the Louisville City Hospital, but has again entered the practice of medicine, limiting his practice to genito-urinary and skin diseases.

**DEATH REPORT.**—During the past week there was a total of eighty-seven deaths; of these twenty-six were due to pneumonia, fourteen to consumption, four to organic heart disease. There were eight still-births: Forty-two were single, thirty-eight married, sixty-eight white, nineteen colored, three died at the City Hospital. The percentage of deaths from pneumonia still continues enormous.

#### Washington Notes.

**MEDICAL SOCIETY OF THE DISTRICT.**—At the regular meeting of the society held on the 3d inst., the essay of the evening was read by Dr. Anita Newcomb McGee, subject, "Esoteric Medical History" of the Oneida Community. Twenty-five new members were elected to membership.

At the meeting of the society held on the 10th inst., Dr. Andrew H. Smith, of New York, the guest of the society, read an essay entitled "Some Points in the Physical Examination of the Chest." The discussion was opened by Dr. W. W. Johnston, and continued by Drs. Prentiss, Stowell, Adams and others. Dr. H. L. E. Johnson reported nine successful cases of laparotomy and presented specimens. Dr. G. L. Magruder reported a case of cancer of the stomach.

**THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.**—The two hundred and twenty-sixth meeting of the society was held April 5. Dr. T. C. Smith read the paper of the evening, entitled, "A Case of Hypertrophy of the Cervix Uteri, complicating Pregnancy and Labor." The hypertrophied cervix was amputated post-partum and the woman restored to health. The cervix was six inches long and protruded from the vagina. An instructing discussion followed. Dr. H. L. E. Johnson presented an interesting specimen of ovarian cyst removed by himself on the 22d ult. The fimbriated extremity was closed, largely distended with fluid, intimately adherent to the cyst wall and the two cavities separated by a very thin septum. It was a tubo-ovarian cyst in transition stage.

**DR. S. C. BUSEY.**—The profession will be pleased to learn that Dr. Busey, who is confined to bed with a fracture of the right hip, is resting comfortably and is expected to make a speedy recovery.

**DR. J. FORD THOMPSON,** who has been dangerously ill from a septic injury is considered out of danger.

**HEALTH OF THE DISTRICT.**—The report of the Health Officer for the week ended April 9 is as follows: Number of deaths (still-births not included), white 55, colored 49, total 104.

**FIRE ESCAPES FOR HOSPITALS.**—The Commissioners are requiring all hospitals in the District to comply with the law of March 2 by providing suitable fire escapes, stand pipes, red lights, etc.

## THE PUBLIC SERVICES.

### NOMENCLATURE AND CLASSIFICATION OF DISEASES.

Statistical nomenclature and classification of diseases and injuries; Medical Department of the Navy of the United States—in operation Jan. 1, 1895.

#### CLASS I.—PARASITES AND PARASITIC DISEASES.

Actinomycosis.	Oxyuris vermicularis.	Tenia.
Ascaris lumbricoides.	Podiculus.	Tinea favosa.
Echinococcus.	Pityriasis.	Tinea trichophytina.
Filaria medinensis.	Pulex penetrans.	Trichinosis.
Filaria sanguinis.	Scabies.	Other dis's of this class.

#### CLASS II.—GENERAL INFECTIOUS DISEASES.

(Non-venereal.)

Cachexia malarialis.	Gangrena nosocomialis.	Sepsicemia.
Catarrhus epidemicus.	Cholera.	Tetanus.
Cholera morbus.	Morbilli.	Tuberculosis miliaris acuta.
Dengul.	Neuritis endemica.	Tuberculosis pneumonica acuta.
Diphtheria.	Paralysis ascendens acuta.	Tuberculosis pneumonica chronica.
Dysenteria acuta.	Parotitis epidemica.	Tuberculosis of other parts.
Dysenteria chronica.	Pertussis.	Typhus.
Erysipelas.	Pyemia.	Vaccina.
Febris cerebro-spinalis.	Rabies.	Varicella.
Febris enterica.	Rheumatismus articularis acutus.	Varola.
Febris flava.	Rheumatismus articularis chronicus.	Other diseases of this class.
Febris intermittens.	Rubella.	
Febris pneumonica.	Scarlatina.	
Febris recurrens.		
Febris remittens.		

#### CLASS III.—CONSTITUTIONAL DISORDERS OF NUTRITION.

Anemia.	Hemophilia.	Purpura hemorrhagica.
Debilitas senilis.	Leucocythemia.	Purpura simplex.
Diabetes insipidus.	Lithemia.	Scorbutus.
Diabetes mellitus.	Pseudoleucocythemia.	Other dis's of this class.

#### CLASS IV.—DISEASES OF THE NERVOUS SYSTEM.

Apoplexia.	Irratio spinalis.	Paraplegia.
Aphasia.	Mania.	Prostatio thermica.
Atrophia muscularis progressiva.	Melancholia.	Sciatica.
Cephalalgia.	Meningitis.	Sclerosis lateralis amyotrophica.
Chorea.	Monoplegia.	Sclerosis lateralis spastica.
Dementia.	Myelitis.	Sclerosis multiplex.
Encephalitis.	Nausea marina.	Sclerosis spinalis posterior.
Epilepsia.	Neuralgia.	Syncope.
Febris continua simplex.	Neurasthenia.	Torticollis spasmodica.
Febris ephemera.	Neuritis.	Vertigo.
Febris thermica.	Neuritis multiplex.	Other diseases of this class.
Hemicrania.	Neurosis hysteroides.	
Hemiplegia.	Paralysis agitans.	
Iusomnia.	Paralysis glosso-laryngealis.	
	Parauoia.	

#### CLASS V.—DISEASES OF THE VISUAL APPARATUS.

Achromatopsia.	Corneæ ulcus.	Myopia.
Amaurosis.	Dacryocystitis.	Neuritis optica.
Amblyopia.	Entropium.	Obstruction lacrymalis.
Asthenopia.	Entropium.	Panophthalmitis.

Astigmatismus.	Glaucoma.	Pterygium.
Blepharitis.	Hordeolus.	Retinitis.
Cataracta.	Hypermetropia.	Scleroditis.
Chalazion.	Iritis.	Synechia.
Choroiditis.	Keratitis.	Trachoma.
Conjunctivitis.	Leucoma.	Other dis's of this class.

## CLASS VI.—DISEASES OF THE AUDITORY APPARATUS.

Myringitis.	Otitis externa.	Surditas.
Otalgia.	Otitis media.	Other dis's of this class.

## CLASS VII.—DISEASES OF THE OLFACTORY APPARATUS.

Antri abscessus.	Rhinitis acuta.	Other diseases of this class.
Catarrhus estivus.	Rhinitis chronica.	

## CLASS VIII.—DISEASES OF THE NUTRITIVE APPARATUS.

## SUBSIDIARY CLASS I.—DISEASES OF THE DIGESTIVE APPARATUS.

Adenitis salivosa.	Diarrhea simplex.	Obstructio intestinalis.
Ani-prolapsio.	Dyspepsia nervosa.	Odontalgia.
Ani-rhagades.	Fistula in ano.	Odontolithus.
Appendicitis.	Gastralgia.	Esophagostenosis.
Catarrhus gastricus acutus.	Glossitis.	Parulis.
Catarrhus gastricus chronicus.	Hematemesis.	Peridontitis.
Catarrhus intestinalis acutus.	Hemorrhoids.	Periproctitis.
Catarrhus intestinalis chronicus.	Hepatitis congestio.	Peritonitis.
Cholelithiasis.	Hepatitis acuta.	Pharyngitis.
Colica.	Hepatitis chronica.	Stomatitis.
Constipatio.	Hepatitis suppurativa.	Tonsillitis.
Dentis caries.	Hypertrophia tonsillarum.	Typhilitis.
	Icterus.	Ulcus gastricum.
	Intestini recti strictura.	Uvula descendens.
		Other diseases of this class.

## SUBSIDIARY CLASS 2.—DISEASES OF THE CIRCULATORY APPARATUS.

A—Blood Vessels.		
Aneurysma.	Cordis palpitatio.	Myocarditis.
Angina pectoris.	Cordis valvularum morbus.	Pericarditis.
Arteriosclerosis.		Phlebitis.
Cordis dilatatio.	Embolismus.	Thrombosis.
Cordis hypertrophia.	Endocarditis.	Varix.
B—LYMPHATICS.		
Bronchocele.	Lymphangitis.	Other diseases of this class.
Lymphadenitis.	Splenypertrophia.	

## SUBSIDIARY CLASS 3.—DISEASES OF THE RESPIRATORY APPARATUS.

Asthma.	Emphysema pulmonalis.	Pleuritis acuta.
Bronchopneumonitis.		Pleuritis chronica.
Bronchitis acuta.	Hemoptysis.	Pleuritis purulenta.
Bronchitis chronica.	Laryngitis acuta.	Pneumothorax.
Catarrhus bronchialis.	Laryngitis chronica.	Other dis's of this class.
	Edema pulmonalis.	

## CLASS IX.—DISEASES OF THE MOTORY APPARATUS.

Ankylosis.	Gangrena.	Periostitis.
Arthritis.	Myalgia acuta.	Synovitis.
Arthritis deformans.	Myalgia chronica.	Thecitis.
Bursitis.	Neerosis.	Other diseases of this class.
Caries.	Ostitis.	
Contractura.	Osteomyelitis.	

## CLASS X.—DISEASES OF THE CUTANEOUS APPARATUS.

Abscessus.	Furunculus.	Pityriasis.
Acne.	Herpes simplex.	Prurigo.
Carbunculus.	Herpes zoster.	Psoriasis.
Cellulitis.	Impetigo.	Ulcus.
Clavus.	Lichen.	Unguis involutus.
Cutis fissurae.	Oocythia.	Urticaria.
Ecthyma.	Paronychia.	Verruca.
Eczema.	Pemphigus.	Other diseases of this class.
Erythema.	Pernio.	

## CLASS XI.—VENEREAL DISEASES AND DISEASES OF THE GENITO-URINARY APPARATUS.

Adenitis inguinalis (venereal).	Hydrocele.	Spermatorrhea.
Arthritis gonorrhoea.	Nephritis acuta.	Syphilis consecutiva.
Balanitis.	Nephritis chronica.	Syphilis primitiva.
Calculus.	Nephrolithiasis.	Urethra strictura.
Chaneroid.	Ophthalmia gonorrhoea.	Urethritis simplex.
Cystitis.	Orchitis.	Urina suppressa.
Euuresis.	Paraphimosis.	Urina retentio.
Epididymitis.	Perinephritis.	Varicocele.
Fistula urinaria.	Phimosis.	Verruca acuminata.
Gonorrhea.	Prostatitis.	Other diseases of this class.
Hematuria.	Pyelitis.	

## CLASS XII.—CYSTS AND NEW GROWTHS.

Adenoma.	Epithelioma.	Neuroma.
Angioma.	Fibroma.	Osteoma.
Carcinoma.	Glioma.	Sarcoma.
Chondroma.	Lipoma.	Other diseases of this class.
Cystis.	Myxoma.	

## CLASS XIII.—INJURIES.

Abrasio.	Fractura.	Sole excoctus.
Ambustio ex calore.	Furunculus ictus.	Stemma.
Ambustio ex frigore.	Hernia.	Virium defectio.
Asphyxia.	Ictus electricus.	Vulnus contusum.
Asphyxia ex submersione.	Luxatio.	Vulnus incisum.
Concussio.	Membrana tympani ruptio.	Vulnus laceratum.
Contusio.	Membranes clades.	Vulnus punctum.
Deformitas.	Musculi ruptio.	Vulnus scoploptum.
Fames.	Visceris ruptio.	Other diseases of this class.
	Sitis.	

## CLASS XIV.—EXTRANEUS BODIES.

## Corpus extraneum.

## CLASS XV.—POISONS.

Alcoholismus.	Venenum irritans.	Vulnus venenatum.
Dermatitis venenata.	Venenum neuroticum.	Other dis's of this class.

The form must not be altered by erasure nor interlineation, and the names of the diseases specified shall be employed in classification and diagnosis whenever practicable. Diseases not included in this table shall be returned as "Other diseases of this class," in the class to which

they belong, and, observing the same classification, shall be specified alphabetically in the "Supplementary Table," page 12, care being taken to avoid terms synonymous with those already employed.

No symptom shall be considered as the diagnosis of any case when it is practicable to classify it under the disease which is its cause.

Each genus shall include its varieties unless the variety appear in the table, e.g., melancholia includes nostalgia, hypochondriasis, lypothymia, etc.; neuralgia includes trigeminal, occipital, cervico-brachial, and intercostal neuralgias, neuralgias of the joints, genitals, rectum, etc., but acata, gastralgia, and certain others occupy places of their own; amblyopia includes hemeralopia, nyctalopia, etc.; asthenopia includes asthenopia muscularis, etc.; meningitis includes hemorrhagic pachymeningitis, leptomenigitis, etc.; alcoholismus includes delirium tremens, ebriosis, etc.; myalgia includes omalgia, lumbago, rheumatic torticolis, pleurodynia, etc.

In making a diagnosis, preference shall be given to the primary disease except where the secondary disease, specified in the nomenclature, is the main or only cause of admission to the sick list or retention thereon, or overshadows the primary disease, e.g., adenitis inguinalis, orchitis, or epididymitis may be the main cause of admission or the only cause of retention on the sick list though co-existing with gonorrhea; sclerositis spinalis posterior may overshadow syphilis consecutiva, or arthritis gonorrhoea, gonorrhea, etc.

## Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from April 6, 1895, to April 12, 1895.

Capt. REUBEN L. ROBERTSON, Asst. Surgeon, is granted leave of absence to and including July 3, 1895, on which date his resignation has been accepted by the President to take effect.

Capt. JAMES E. PILCHER, Asst. Surgeon, is granted leave of absence for two months, on surgeon's certificate of disability.

Capt. WILLIAM B. BANISTER, Asst. Surgeon, is relieved from duty at Ft. McIntosh, Texas, and ordered to Ft. Omaha, Neb., for duty.

First Lieut. FREDERICK P. REYNOLDS, Asst. Surgeon, is granted leave of absence for one month, to take effect upon his relief from duty at the U. S. Military Academy, West Point, N. Y.

The following named officers will report in person to Major CALVIN DEWITT, Surgeon, President of the examining board appointed to meet at Ft. Leavenworth, Kan., on Wednesday, May 1, 1895, at such time as they may be required by the board, for examination as to their fitness for promotion, and upon conclusion of their examinations, will return to their proper stations: First Lieut. THOMAS U. RAYMOND, Asst. Surgeon; First Lieut. HENRY D. SNYDER, Asst. Surgeon; First Lieut. ALLEN M. SMITH, Asst. Surgeon; First Lieut. JOSEPH T. CLARKE, Asst. Surgeon.

## Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending April 13, 1895.

P. A. Surgeon G. MCC. PICKRELL, detached from U. S. S. "Newark," and granted three months' leave.

Asst. Surgeon A. W. DUNBAR, detached from U. S. S. "Vermont," and ordered to the U. S. S. "Newark."

Asst. Surgeon HENRY LA MORTE, detached from U. S. S. "Newark," ordered home and two months' leave.

Asst. Surgeon C. P. BAGG, detached from U. S. N. Hospital, Mare Island, Cal., and to the U. S. S. "Monterey."

## LETTERS RECEIVED.

Anderson, Wm., Indiana, Pa.; Andrews, B. J., Burlington, Vt.  
Bower, R. W., Socorro, N. M.; Breedlove, J. W., Fort Smith, Ark.;  
Barr, J. Walter, Keokuk, Iowa; Bullard, W. M., Wickes, Mont.; Biddle,  
A. G., Detroit, Mich.; Battle & Co., St. Louis, Mo.  
Cutter, John A., New York, N. Y.; Carter, J. M. G., Waukegan, Ill.;  
Cone, Andrew, New York, N. Y.; Cook, G. F., Oxford, Ohio; Case, W. R.,  
Poughkeepsie, N. Y.  
Dering, A. R., Chicago, Ill.; Delanp, S. P., New Orleans, La.  
Eckelman, F. C., Elkhart, Ind.  
Finger, W. R., Rockford, Ill.; Fehn, Julius, Hohoken, N. J.; Fernandez,  
J. D., Jacksonville, Fla.  
Gorges, L. D., Chicago, Ill.; Gores, Dr., Cincinnati, Ohio; Gallup,  
Benj. E., Chicago, Ill.  
Hanel, R. F., Ruston, La.; Hart, B. F., Marietta, Ohio; Hayne, Henry  
W. (2), Lawrence, Kan.; Hummel, A. L. (3), Philadelphia, Pa.; Herald-  
Despatch Co., Decatur, Ill.; Haralson, H. H., Forest, Miss.; Hakanson,  
A., South Chicago, Ill.; Hutchinson, Mahlon, Washington, D. C.; Hengst,  
D. A., Pittsburg, Pa.; Hartley, Henry A., Chicago, Ill.  
Jordan, J. R., Montgomery, Ala.; Jelks, J. T., Hot Springs, Ark.; Jones,  
W. D. (2), Rising City, Neb.  
Kerrick, H. C., Brocton, Ill.; Kerr, W. W., San Francisco, Cal.; Kelly,  
Galion, Ohio; Kistler, O. F., Wilkes Barre, Pa.  
Lyon, D. E., Dubuque, Iowa; Lehn & Fink, New York, N. Y.; Lewis,  
J. B.; Waseca, Minn.; Lea Bros. & Co., Philadelphia, Pa.; Lundgren, C.  
E., Jamestown, N. Y.  
McCurdy, S. L., Pittsburg, Pa.; Medical Herald Co., St. Joseph, Mo.;  
Miller, DeLaskie, Chicago, Ill.; Malone, Mrs. Edw., Waukesha, Wis.;  
Marshall Printing Co., (2) Marshalltown, Iowa; Marshall, Clara, Phila-  
delphia, Pa.; Morgan, Jas. Dudley, Washington, D. C.; Morse, Lyman  
D., Advertising Agency, New York, N. Y.; Matthews, F. B., Jacksonville,  
Fla.; Maltine Mfg. Co., New York, N. Y.  
Northwestern University, Evanston, Ill.; North, N. L., Brooklyn, N. Y.  
Ollino, G., San Francisco, Cal.  
Purnell, J. B. R., Snow Hill, Md.; Plummer, S. C. Jr., Chicago, Ill.;  
Parke, Davis & Co. (2), Detroit, Mich.; Porcher, W. P., Charleston, S. C.;  
Publisher's Collection Agency, St. Paul, Minn.; Pennell, W. W., Freder-  
ricktown, Ohio; Page, J. F., Mystic, Iowa; Pollak, S., St. Louis, Mo.  
Rational Chemical Co., St. Louis, Mo.; Robinson, R. D., Chicago, Ill.;  
Rumbold, Thos. F., San Francisco, Ill.; Reynolds, A., Clinton, Iowa.  
Schounerhorn, B., Honesdale, Pa.; Stowell, Chas. A., Washington, D. C.;  
Schulze-Berge & Koechl, New York, N. Y.; Steiger, E. & Co., New York,  
N. Y.; Sulter, A. Walter, Herkimer, N. Y.; Schneek, J. M., Carmel, Ill.;  
Sellmau, W. A., Baltimore, Md.; Stewart, F. E., Detroit, Mich.; Stearns,  
F. & Co. (2), Detroit, Mich.  
Turner, S. W., Chester, Conn.; Tieste, L. E., Brooklyn, N. Y.; Trum-  
bauer, Chas., Jesup, Iowa; Tylor, O. F., Magnolia, Ill.; Thorp, Edw. Y.,  
New York, N. Y.  
Vail, H. M., Rock Rapids, Iowa.  
Werner, O. E., Tigerton, Wis.; White, Geo. W., Boston, Mass.; Western  
Publishing House, Chicago, Ill.; Warner, W. R. & Co., Philadelphia,  
Pa.; Webb, J. A., Providence, R. I.; West, W. F., Waxahachie, Texas;  
Whitten, T. J., Nokomis, Ill.; Wiggins, J. L., East St. Louis, Ill.

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, APRIL 27, 1895.

No. 17.

## LECTURES.

### LECTURES ON INTRACRANIAL SURGERY.

#### VI—BRAIN TUMOR AND ITS SURGICAL TREATMENT.

BY EMORY LANPHEAR, M.D., PH.D.

ST. LOUIS, MO.

Continuing the discussion of brain tumor and its surgical treatment, I will first speak of the

*Symptoms of Cerebellar Tumor.*—Tumor of the cerebellum may give rise to no characteristic symptoms whatever. Loomis has reported a case in which there was simply a low grade of fever; yet the post-mortem examination revealed a cerebellar tumor as large as an orange. Commonly, however, there are marked symptoms—sometimes so pronounced as to make localization absolutely certain: vomiting with occipital headache and general failure of health, without other discoverable cause, will almost certainly call attention to the proper region; besides, as the tumor grows, pressure symptoms arise. They are thus enumerated by Wood: "Encroachment on the medulla may lead to imperfect hemiplegia or even to great motor failure; or hypoglossal, or facial, or other local paralysis may result from the pressure exerted by the enlarged cerebellar hemisphere upon nerve trunks. If the trigeminus be involved a true anesthesia dolorosa may be produced; loss of power of swallowing may be a prominent symptom. On account of proximity to the sight centers, blindness from pressure is not an infrequent result of cerebellar tumors." When the lesion occupies the middle lobe of the cerebellum it causes peculiar disturbances of motion called cerebellar titubation. This was typically illustrated in a case that came under my observation in 1890:

Annie Buford, colored, 19 years of age, for many weeks presented these symptoms: occipital headache, vertigo, vomiting, tenderness over the right occipital region and cerebellar ataxia; reflexes normal; her general condition was excellent, but she became somewhat thin on account of persistent vomiting; late in the history, choked disc was prominent; cerebellar titubation was marked—she could only stand with feet widely separated, as when brought close together she would sway and fall to the floor unless caught, but closing the eyes did not cause any increase of the tendency to fall; in walking she could not turn quickly, and there was a constant inclination to fall to the right; but when lying on her back she had perfect control of the lower extremities. Tumor of the middle lobe of the cerebellum was diagnosed and operation urged. It was refused persistently. One day while washing dishes she suddenly fell to the floor unconscious and died in a few moments. The autopsy (by Dr. J. B. Jones and myself) confirmed the accuracy of the diagnosis; the tumor was nearly as large as a hen's egg and extended—at the time of death—to the fourth ventricle; so operation during the last few weeks of life would have proved fatal, though doubtless early extirpation might have been possible. Microscopic examination showed the growth to be tubercular in character.

The cerebellar titubation is ordinarily accompanied by giddiness. The attitude is that of a tabetic person; the feet held forward and well separated. When

they are brought together there is present a singular movement of flexion and extension in the feet, while the body begins to sway, and a fall to the floor follows unless some assistance is afforded. Sometimes these movements are in one direction, but more frequently they are irregular; often the patient can not turn suddenly, so the walk resembles that of a person intoxicated. Festination is rarely a symptom. When in bed the patient can use the legs as perfectly as ever. Nothnagel has clearly proved that this titubation invariably means disease of the middle lobe of the cerebellum. When the cerebellar peduncles are implicated, rotatory movements appear.

Rosenthal enumerates the diagnostic points of tumor of the cerebellar peduncles as headache, vertigo, disorders of the special senses, unsteady gait with tendency to fall upon the side, and partial rotation around the vertical axis.

#### DIAGNOSIS.

After a careful study of the symptoms of cerebral and cerebellar growths, as I have given them, there should be little difficulty in making a correct diagnosis. The only diseases with which brain tumor can be confounded are cerebral or cerebellar abscess, cerebral thrombosis, meningitis (chronic forms), lead poisoning, hysteria and parietic dementia. A chronic basilar meningitis is particularly misleading. The essential features of each of these diseases and the points of differential diagnosis may be found in any good work upon diseases of the nervous system. For deciding the location of the lesion, the symptoms already mentioned, coupled with the subjects to be considered later under the head of cerebral localization will suffice.

#### OPERATION.

It having been determined that the growth is so situated as to admit of excision, the steps to be followed are these: after proper preparation, a flap of scalp and periosteum at least three inches broad is turned back from the area to be opened. The trephine is applied and a button removed, or a small opening made with a gouge or chisel; this opening is enlarged until it is at least one and one-half by two inches, with cutting forceps, and the dura inspected while bleeding is being checked. The dura is opened by a flap slightly smaller than the hole in the bone, and the brain exposed and examined; especially by palpation, to decide as to the location of the tumor if not at once visible. When the situation of the growth has been exactly determined, operative procedures may be resumed.

The pia may be carefully raised with the vessels of the brain, the latter slipping out of the sulci without serious rupture in most localities. Then the tumor may be removed either with a very thin sharp knife, or curetted away with a Volkmann's spoon; in case of tubercle or other soft tumor the latter is prob-

ably the better method. Extreme care must be taken to remove all diseased tissue; which is particularly important of malignant neoplasms. Quite often the growth may be readily enucleated—shelled out from the surrounding brain substance, the fibers of which have been simply pushed asunder with no infiltration; in which instance the operation is comparatively simple. But when the normal tissues are intimately mixed with the diseased structures there is frequently great difficulty, and the surgeon is compelled to cut at considerable distance from the center of the tumor—if so, as much gray matter should be preserved as possible, the cut slanting inward around the mass to be removed.

When extirpation is completed, a roll of iodoform gauze, wrung from very hot water, is placed in the wound, with firm pressure, to control hemorrhage. By making pressure with these hot balls of gauze for about five minutes all capillary hemorrhage can be checked—a method of hemostasis much to be preferred to the Paquelin cautery which is sometimes used. It is sometimes necessary to ligate bleeding vessels too large to be controlled by heat and pressure, especially if the cut has extended down near to or into the lateral ventricle. If—as sometimes has happened in the past—it is found that the bleeding continues in spite of these efforts, there remains but the alternative of packing (as firmly as dared) with iodoform gauze.

As soon as bleeding has been checked the wound is irrigated with hot normal salt solution (temperature 110 degrees) and dried, a plenty of iodoform dusted in, the pia and vessels gently replaced and the dura sewed with fine catgut; with or without catgut drainage as may be indicated—without it by all means if possible. A few strands of catgut are laid to the dura and allowed to project through the scalp at the lower end of the incision. The scalp is finally closed with continuous catgut suture and the usual dressings applied.

If the Paquelin cautery is brought into use to control hemorrhage, the wound must be drained for some four or six days. When the wound has to be packed with iodoform gauze for hemostatic purposes the tampon must be removed with the utmost gentleness and under the most scrupulous antiseptic precautions at the end of thirty-six to forty-eight hours. After its removal the patient must be kept absolutely quiet for forty-eight hours longer or bleeding may be caused to return.<sup>1</sup>

When a cystic tumor is the variety found, the cyst should be extirpated entire if possible. The most extreme care is required in pushing away the fibers next to the tumor. If, in spite of all precaution, the cyst ruptures, the wound must be immediately and thoroughly irrigated and then the sac of the tumor carefully dissected out to prevent recurrence; this not being possible, it is best to gently curette the remaining cyst wall and insert a drainage tube, as very good results may be thus obtained.

All incisions in the white substance should be made parallel with the fibers of the corona radiata—that is practically perpendicular to the lateral ventricle—or as nearly so as practicable.

Exploratory puncture may be made in various

directions to ascertain the presence of any hard mass when no tumor can be made out by palpation. This is to be done with a fine needle. When the needle has been run into brain tissue no attempt must be made to change its position until it has been entirely withdrawn, as serious injury to associated fibers would otherwise result. The needle may be thrust in again and again without much harm if this precaution be observed—provided that the point is never allowed to come near the base of the brain nor the region of the pons and medulla.<sup>2</sup>

If absolutely necessary in order to complete the exploration, an incision may be made down to the suspicious point; this will be rarely called for and should never be done unless urgently demanded. The resulting cicatrix may, in certain regions, give rise to serious consequences.

If the tumor be found so extensive as to defy removal, the dura is to be closed over it with fine catgut stitches and the opening in the skull enlarged until it is fully two or two and a half inches by four or four and a half—to allow relief from the dangerous and agonizing intracranial pressure.

When the tumor is very vascular (as when in the meninges) it becomes necessary to surround it with a number of catgut ligatures before extirpating. The gut may be simply passed around the vessels, one by one, with a needle and tied; but when they are not superficial it becomes necessary to pass the sutures deeply into brain tissue with a large curved needle and tie *en masse*, with very little force; these sutures are repeated until the tumor has been entirely gone around, when the cutting can be done in the circle thus made with little hemorrhage except from the under surface—which can be checked after excision is finished.

The after treatment is the same as that of any other trephining and will be described in another lecture, when the general subject of head operations is under consideration.

#### CASES.

It has been my good fortune to operate upon eight cases of brain tumor—some of them of great interest on account of their rarity as well as the favorable results obtained. The first one I will mention is

*Angioma of the Meninges—Removal—Recovery.*—Roy L., of Independence, Kan., 12 years of age, was brought to me Nov. 29, 1892. The history showed inherited neurotic tendency; previous health good; was unusually intelligent during early life, but at the age of 3½ years began to have “night terrors,” and after a time epilepsy developed; for the last three years convulsions had been severe and frequent and his mental development very slow; spasms were much more frequent at night and were confined to the right side of the body for months and always began there, even after the culmination in general epilepsy.

Examination showed him in excellent physical condition; mental development limited; his language was fairly good, though sharp and quick, and very childish expressions only were employed. He had never been able to learn to read. His right side was far less developed than the left, and his motions were mostly of the left hand.

October 1, 1893, operated at All Saints' Hospital, Kansas City, assisted by Dr. T. B. Thrush and J. F. Binuie, opening the skull with a gouge and enlarging with cutting bone-forceps until a space two by four inches was cleared over the frontal and parietal regions. Upon cutting through the dura a tumor measuring about one and one-half inches across was found growing apparently in the meninges over the upper

<sup>1</sup> In an operation for epilepsy due to old depressed fracture, (case of Joseph A. Barton) I removed the packing from the wounded superior longitudinal sinus at the end of forty-eight hours. Some hours later, during the temporary absence of the nurse, the patient rolled out of bed and set up the hemorrhage with fatal results.

<sup>2</sup> The normal brain tissue is much softer than generally imagined, and unless the surgeon is thoroughly familiar with the natural consistency of the cerebral structures he should chloroform a dog, open its cranium and carefully practice this exploratory puncture, as well as cutting the brain before attempting operation.





If answered in the affirmative, a second question naturally follows: did the sarcoma begin its development soon after the injury? There are certain things about the history to lead us to infer that such was the case; *e. g.*, almost exactly two years after the accident he had a convulsion which left a paralysis of the left arm for some time. What was the cause of this epileptic paroxysm in a patient otherwise in perfect health and free from neurotic tendency? Was it an extradural (sub-cranial) hemorrhage, or was it an irritation due to the presence of the tumor already developing? We can only surmise as to the proper answer. Slowly growing spindle-celled sarcomata have been reported by a number of observers; Warren in his "Surgical Pathology" (page 718) speaking of sarcoma affecting the parietal bone and its periosteum mentions a sarcoma of the dura which persisted from 1846 to 1866 and says: "Other cases of slow growth of these tumors are recorded; one of twenty years, one of fifteen years, and several of four or five years duration." If we take it for granted that this growth began as late as the time of the first convulsion, May, 1887, a period of more than five years elapsed before it caused death.

The query then arises, Why did it not occasion serious trouble earlier in its history? The reply I have already given, in the assertion that the brain often shows a remarkable tolerance to slowly increasing growths, and that only when a tumor reaches a size sufficient to interfere with vision is its existence suspected. This patient knew there was something "wrong in his head," as he expressed it, for some time, but did not regard it as serious until his eyesight failed. He then sought the oculist, who immediately recognized the fearful seriousness of the case, explained that less than two months of life probably remained and advised removal as the only possible escape; unfortunately it was too late.

A description of other cases of brain tumor upon which I have operated will prove interesting in illustration of some of the statements I have made; this will therefore be given in the next lecture.

*(To be continued.)*

## ORIGINAL ARTICLES

### GASTRO-ENTEROSTOMY, PERFORATION OF THE STOMACH, PERFORATION OF THE INTESTINE, INTESTINAL OBSTRUCTION, AND SOME OF THE LESSONS THEY TEACH.

A paper read by special invitation before the Shelby County Medical Society, held at Shelbyville, Ind., April 8, 1895.

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It is only a few years since stenosis of the pylorus, intestinal obstruction and gastric and intestinal perforation were considered fatal diseases. For the surgeon to have even suggested operative interference under the circumstances, would have only been to have incurred censure on the part of the medical profession as well as the laity.

During the last decade the advancement of surgical knowledge and the improvement of its technique has enabled the surgeon to invade the abdominal cavity, and handle it with comparatively the same

accuracy and confidence that the mechanic controls or repairs a machine.

When invited by your secretary to read a paper on this occasion, I was at a loss to know what subject I should select that would be of interest, saying nothing of benefit to the members of this active and progressive Association and its guests on this occasion.

At first thought it occurred to me that gastro-enterostomy would, perhaps, be of some interest, but on more mature reflection, I took the liberty of modifying my subject so as to cover two classes of conditions occurring in the abdominal cavity, and will, so far as I am able, illustrate what I may say on these subjects by specimens, and at the same time draw a few comparisons.

#### GASTRO-ENTEROSTOMY.

Gastro-enterostomy is usually performed where stenosis of the pylorus exists, whether of carcinomatous, cicatricial, fibrous or other origin. It is perhaps more frequently performed for cancer of the pylorus and may be of a radical nature or simply of a temporary character. Having determined by the symptoms which are familiar to you all, that obstruction of the pylorus exists, it is not always possible nor is it necessary for the diagnostician to determine absolutely before submitting his patient to an operation, the exact pathologic condition that is producing stenosis. From the fact that you have an obstruction, it is sufficient evidence to warrant an operation. If during the operation it is satisfactorily determined that the blockade is caused by cicatricial bands or by fibrous contraction of a benign character, it is not usually necessary to make an excision. Under these circumstances it is only necessary to "side-track," so to speak, this portion of the intestinal canal, by performing a gastro-enterostomy and thereby establishing a new opening between the stomach and the bowel.

Experimental research has demonstrated that where this can be done, that portion of the bowel which is thereby "retired from active service" becomes atrophied from disuse, and the digestive function of the gastro-intestinal canal is, as a rule, re-established through the new channel.

If we find by operative interference that we have a malignant growth to contend with, and it is possible to remove it, then it is necessary to perform an enterectomy, and remove all the diseased parts, closing up the stomach as well as the intestine under septic precautions, with a view of giving permanent relief.

If the growth is malignant and has involved the adjacent tissues to such an extent as to prohibit its removal, there is nothing left but to perform a gastro-enterostomy and contribute to the patient's comfort and length of days. As an illustration of this latter condition allow me briefly to report the following case:

Mr. F. B. P., age 52, a widower, was admitted to the medical ward of the Protestant Hospital, Columbus, Ohio, Feb. 5, 1894, for carcinoma of the pylorus. He was very much emaciated, could retain but little or no food, although hungry and anxious to eat, but when given any kind of food he retained it only a short time when it was ejected from the stomach and in consequence the patient continued the slow process of starvation. My attention was called to the case by Dr. Adams, who was then in charge of the med-

ical ward; an examination confirmed the diagnosis of obstruction of the pylorus which was probably due to carcinoma. Assisted by Dr. Means, he was operated on March 19, 1894, when we found a large carcinoma, which not only caused complete stenosis of the pylorus, but involved so many of the surrounding tissues that it was impossible to attempt to remove it. We therefore performed gastro-enterostomy, using the Senn bone plates. The patient rallied fairly well after the operation, notwithstanding his emaciated and debilitated condition. His appetite soon returned and for a short time he was able to eat and assimilate the more easily digested liquid foods, such as milk, beef teas and meat broths, to which were added, by degrees, a more substantial diet, which was not only relished but retained and digested. He was discharged the latter part of May, 1894, very much improved. I followed up the case and found that he was admitted to the Soldiers' and Sailors' Home at Sandusky, on May 29.

Through the courtesy of Dr. E. M. Heard, Assistant Surgeon at that institution, I received the following information relative to this case: After describing his general condition, the Doctor stated that he was nauseated after each meal and unable to take anything but liquids on account of nausea and discomfort. A physical examination revealed a cicatrix in the linea alba, extending from the center of which, was a small tumor of brownish color and firm consistency. Percussion revealed dullness over epigastrium, to right and above incision, about the size of an orange. The patient was put upon supportive treatment but gradually succumbed to the malignant disease and died from inanition on July 14, 1894. An autopsy was held eight hours after death, which revealed adhesions binding the intestines together but the abdominal wall was free. Duodenum firmly adhered to mass at pylorus. Upon opening the stomach, found a loop of black silk engaged in mucous membrane near the pylorus, and an opening admitting a lead pencil from the stomach to the intestines, evidently the result of an operation. At the pylorus was found a tumor broken down at a line corresponding with the junction with the stomach.

We will not take up your time going into further details of this case, except to demonstrate the feasibility of a gastro-enterostomy even in advanced malignant disease, which we believe is justifiable, and in a majority of cases will result in giving temporary relief, prolonging life, and also prevent the patient from dying the horrible death of starvation. Last, but not least, it shows what can be done when the peritoneum is protected from septic infection.

#### PERFORATION OF THE STOMACH.

On Dec. 24, 1894, I was called in the forenoon in counsel with Dr. Adams to see Mrs. J. M. B., age 32, married, no children, whom I found suffering agonizing pain. I inquired of her history and learned that she had suffered from ulceration of the stomach for over ten years; also had been troubled with uterine and ovarian irritation and irregular menstruation. She was in her usual health and attending to her duties about the house until 8 A. M., when she was taken with excruciating pains in right shoulder, left side and over the left ovary; also complained of tenderness along the spine. There was no fever, increase of pulse or bloating of the abdomen at 11 A. M., when seen by the writer in consultation with

the family physician. I was called again at 3 P. M., and found the pulse 120, temperature 104, when operative interference was seriously considered, for perforation of *some part* of the abdominal viscera. The obscure symptoms and reflex irritation, together with the history of her previous attacks of a similar character from which she recovered, caused us to hesitate. Subsequently, Dr. Baldwin was called in counsel, who agreed with us as to the probability of a perforation, but owing to the acute peritonitis, which had rapidly developed in the last few hours, it was decided that it was inadvisable to operate. The patient rapidly sank and died in twenty-six hours from the time she was first taken with the last attack. A post-mortem was held five hours after death, which revealed a violent general peritonitis the result of septic infection due to a large perforation of the stomach.

In order that you may more fully appreciate the condition which led to the perforation, I have brought the specimen with me and will pass it around for the benefit of those interested. You will observe the marked cicatricial contraction which has taken place about four inches above the pylorus and which has no doubt existed for years, but owing to the low vitality which we always find in cicatricial tissues, necrosis had taken place resulting in perforation and the escape of the contents of the stomach into the abdominal cavity. The practicability of operating on a case of this kind is quite uncertain as you will readily observe by examining the specimen.

You will note there is practically a large and small stomach, which are separated by cicatricial bands, through which the perforation has occurred. It would be quite impracticable to make an excision of this cicatricial portion, unite the lesser with the larger part of the stomach and expect the operation to be successful; and at the same time to attempt to close the opening by a plastic operation, we would have the low vitality which is always present in cicatricial tissue to contend with, which would surely be followed by necrosis and by another perforation.

The only operation which to my mind would present a reasonable chance of recovery in a case of this kind would be to excise the cicatricial band, together with the small portion of the stomach, and then after closing the stomach perform a gastro-enterostomy, and even this would be a difficult and hazardous operation, especially so when the abdominal cavity was so thoroughly infected with the contents of the stomach. It has been my experience that general peritonitis due to perforation is usually fatal in a very short time, no matter what you do.

In this connection I recall a case, which I attended while living in Mansfield, of a young man who had been complaining for several weeks of some stomach difficulty for which he had been treating with a homeopath, who had diagnosed it as indigestion. The young man had been at work all day plowing corn, ate a hearty supper, and a few hours afterward complained of a severe pain in the region of the umbilicus. I was sent for about midnight, found him in collapse with every evidence of general peritonitis; hands and feet cold, thready pulse, rapid respiration, etc. I diagnosed a perforation of the stomach with an unfavorable prognosis.

I did not think it wise to attempt an operation, although it was recognized only a few hours from the

time the perforation had taken place, owing to the escape of the septic material into the peritoneal cavity, and the violent peritonitis which had already set up. The young man died in less than twelve hours from the occurrence of the perforation. A post-mortem revealed a perforation of the stomach in the region of the large curvature, sufficiently large to allow me to pass my thumb through it, while the abdominal cavity was filled up with meat, potatoes, corn and other material which he had eaten for his supper.

#### PERFORATION OF THE INTESTINE.

Only a few days ago, March 30, I was called in counsel with Dr. Emerick to see Mr. P., aged 23, a sawyer who gave the following brief history: about 5 o'clock P.M., March 29, while working on a rip-saw he was struck with a board some three feet in length, seven inches in width and an inch in thickness which was hurled from the saw very violently, the end of the board striking him in the right iliac fossa. Notwithstanding there was not a mark to be discovered on the abdomen, yet there was all the symptoms of a perforation of the intestine accompanied with the usual prostration and collapse. He was admitted to the Protestant Hospital on March 30, and operated on that afternoon. Assisted by Dr. Means I opened the abdominal cavity and found it filled with fecal matter and enormous quantities of plastic exudation, the result of the most violent septic peritonitis, which had adhered the large and small intestines in one general mass.

An opening was found in the ileum about eight inches above the ileo-cecal valve and was sufficiently large to pass the thumb through with ease. The abdominal cavity was thoroughly washed out with sterilized water. The opening was closed with the Lembert suture, a drainage tube inserted and the abdominal opening closed with interrupted sutures. It is scarcely necessary for me to state that this case died in fifty-three hours after the injury and thirty hours after the operation.

We gave it as our opinion, before the operation as well as after it, that the prognosis was exceedingly grave, yet, at the same time I feel that it is the surgeon's duty, even in these extreme cases, to give the patient the last chance for escape from death. In this case we had some peculiar conditions to which I will now call attention:

There was not a mark of any kind to be seen on the skin. A small rupture could be felt through the abdominal muscle, but the parietal peritoneum was not torn, yet at the same time, the intestinal peritoneum together with the walls of the intestine sustained a large lacerated wound. I have seen several cases of this kind occurring in a similar manner, in which no external violence could be observed, yet the stroke was so severe as to cause a perforation of the intestine, and operation or post-mortem, as the case may have been, revealed a severe lacerated wound of the intestine.

#### INTESTINAL OBSTRUCTION.

Intestinal obstruction occurs quite frequently and is always a perplexing problem for the general practitioner. He, as a rule, is loth to advise a patient to be operated on, and especially so until he has tried all the remedies at his command from a medical standpoint, to relieve the obstruction. We must all admit that the diagnosis of intestinal obstruction is

quite difficult to make, even to the expert, in its early stages; how much more so must it be to the general practitioner who sees only a few cases in a lifetime. At the same time, I think we must all admit that where intestinal obstruction *does* exist, and where heroic efforts have been made to relieve the obstruction by severe and repeated catharsis and rectal injections, they, as a rule, contribute to the danger of the case by increasing the intestinal peristalsis and peritoneal congestion. At the same time, so long as there is no septic infection of the peritoneal cavity it will withstand a great amount of torture without fatal results.

I recall a case of this kind in which I was called in counsel by Dr. Adams, the attending physician, and found a lady aged 51 who had been suffering for several weeks with pain in the region of the gall bladder, but during the last few days prior to my visit, had every evidence of intestinal obstruction. The attending physician and I agreed in the diagnosis. She was admitted to the Protestant Hospital late on the evening of December 16, was gotten ready for an operation and was operated on the morning of the 17th. On opening the abdominal cavity we found the small intestine injected and dilated to fully double its natural size, while the ascending, transverse and descending colon was contracted until it was not larger than the normal ileum.

This condition of the intestine was a ready guide to the point of obstruction, and in a few moments I found the blockade, which at this time was complete and existed at the ileo-cecal valve. On examination of the cause of obstruction, I found a mass in the small bowel that was movable through the lumen of the intestine, which was filled with liquid matter. After having slipped the lump up to a point about a foot above the ileo-cecal valve, I then prepared to open the intestine and remove it. Dr. Baldwin who was assisting me, very kindly separated, as completely as possible the contents of the intestine from the mass and held the bowel firmly between his fingers on either side of it, at the same time holding the intestine outside of the abdomen to avoid infection.

An incision was made in the ileum large enough to allow the escape of the mass which, when removed, was nearly the size of a guinea egg. The bowel was thoroughly cleansed, the incision closed with the Lembert suture and the abdominal incision closed, and dressed in the ordinary manner. The patient made a rapid and uninterrupted recovery and was discharged from the hospital just seventeen days from the time she was admitted. On examining the mass (which has now become very much shriveled from desiccation) it was found to be made up of gall stones, fecal matter and apple parings, which in some manner had become cemented together into a firm ball, assuming the appearance of an enterolith and plugging up the ileo-cecal valve, and which would have caused her death had it not been removed. At this writing I am informed by Dr. Adams, she is enjoying her usual health and is attending to the duties of her household.

We do not propose to go into a general discussion of obstruction of the bowel, but we have another case which we wish to report, with a view of drawing some practical, clinical conclusions from this class of cases:

On the morning of April 3, 1895, I was called in



counsel by Dr. Beery who reported to me that he had a case of intestinal obstruction, which was admitted to the Protestant Hospital about 8 o'clock the same morning. The patient M. B., age 17, a tinner by occupation, reported that he had been troubled for some three years with constipation which at times was very troublesome, and during all this time he had been compelled to take some laxative in order to obtain a movement of the bowels.

On Sunday morning, March 31, he felt some colicky pains which grew worse, but his attending physician was not called until the next morning. The usual remedies were resorted to for the relief of the obstruction but without avail. An examination satisfied the attending physician, as well myself, that we had an obstruction to contend with and consequently an operation was advised. With the assistance of Dr. Baldwin, the young man was operated on between 9 and 10 o'clock A.M. on April 3. On entering the abdominal cavity, we found the lower portion of the ileum corresponding with a horizontal line across the umbilicus, collapsed and empty, while that portion above the horizontal line was distended. On further examination a firm band about a fourth of an inch wide was found, which extended from the descending colon across the abdomen to the ascending colon on a line with the umbilicus. There were neither parietal nor intestinal adhesions, except at each end of this band. The end extending to the descending colon was firmly adherent to it, while the other end was firmly fastened to a narrow piece of omentum which in turn adhered to the ascending colon. At the juncture of the band with the strip of omentum was found a tumor, which I have the pleasure of presenting to you, about the size of the end of your thumb and which was entirely free from adhesions and had the appearance of an organized hematoma. It was pedunculated and hung down from the band like a plum from a twig. This band was ligated at each end and removed with the tumor. The abdomen was closed and dressed in the usual manner, and the patient is making a rapid and uninterrupted recovery without an abnormal change of temperature or pulse.

Our diagnosis as to the character of the tumor was subsequently confirmed by Dr. Fraker, the pathologist of the hospital.

There are some remarkable features in this case, which have evidently been the result of a hematoma of the omentum setting up a localized inflammation, followed with cell proliferation, building a band in this peculiar manner across the entire abdominal cavity which for years partially obstructed the peristaltic action of the bowels, allowing only the liquid contents to pass, but finally became so firm as to cause a complete obstruction which would undoubtedly have been followed with death had not operative interference been instituted.

#### CONCLUSIONS.

In studying these cases from a clinical standpoint we find that they divide themselves into two general divisions:

1. Those in which we are warranted in giving a favorable prognosis.
2. Those in which we may expect an unfavorable prognosis.

In the first case, notwithstanding we had a carcinoma of the pylorus and performed a gastro-enter-

ostomy in an aged party, who was almost devitalized from starvation, yet the result of the operation was favorable, because we were enabled to avoid septic infection. In the fourth case we had an obstruction of the intestine, which was occluded by a fecal mass, causing severe enteritis with enormous distension of the bowel, yet by removing the mechanical obstruction aseptically, the patient made an uninterrupted recovery. In the fifth case we had a mechanical obstruction of a different type caused by a band, which was also operated on aseptically with the most favorable results.

In the second class, consisting of perforations, we have in the two cases reported, two perforations of the stomach, both of which died from acute, violent, septic peritonitis within a few hours after its occurrence. In the third case we had a perforation of the bowel, producing the same general results as those produced by the perforation of the stomach, each one setting up an intense septic peritonitis which resulted in death in a few hours, notwithstanding an operation was performed in the third case for its relief.

A study of these cases, leads us to the legitimate conclusion that we are justified in giving a favorable prognosis where there is an obstruction without septic infection but, on the other hand, where there is *perforation* and *septic infection* we are not justified in giving a favorable prognosis; on the contrary, we should look upon such cases with fear and trembling.

In conclusion, allow me to repeat that I believe it is the duty of a surgeon, even in the face of the grave conditions which usually arise in perforation of the stomach or intestine, to operate and to seek to make the operation at the earliest possible moment after the accident. Without an operation we have nothing to hope for. With an operation there is a possible chance of saving a human life.

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## TUMORS OF THE EYEBALL.

(EXHIBITION OF SPECIMENS).

Read at the meeting of the Tri-State Medical Society, St. Louis, April 4, 1895.

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The study of tumors of the eye is of the greatest importance to the general practitioner, as well as to the specialist, for the reason that not only is the special sense endangered, but the life of the patient frequently depends upon the early recognition and prompt treatment of a neoplasm of this part. Our time will not allow a consideration of the tumors affecting the lids, lacrymal glands and other adnexa of the eye, but it is the purpose of this paper to discuss briefly the most frequent growths that attack the eyeball.

Tumors affecting the cornea primarily are, from the nature of this structure, exceedingly rare. Usually they spring from the edge of it where the conjunctiva passes over into the epithelial layer of the cornea. Of the benign growths may be mentioned dermoid, which is usually situated at the limbus, involving both conjunctiva and cornea. Rarely it is seen on the cornea alone, as was the case with the small microscopic specimen shown here. It appears as a grayish, or yellowish-white, rounded mass varying in size from half a grain of wheat to that of a hazel nut or even larger. It is usually single but it

may be a double growth. Its surface is smooth and may be sprinkled with fine hairs. It is of congenital origin and supposed to be caused by an inversion of the epiblast. It is seldom cystic, as are dermoids of other parts, but is a solid growth containing hair follicles, elastic fibrous tissue, sebaceous glands and other histologic parts of cutaneous tissue. It is not malignant, and although growing slowly, is not likely to recur after a thorough removal.

The irritation of the eye from the scratching of the hairs, and the unsightly appearance of the growth, however small, usually bring the patient promptly to the surgeon. The growth should be cautiously shaved off the cornea with a cataract knife, and the base lightly touched with a cautery if it should show signs of recurrence.

The malignant tumors that affect the cornea are sarcoma and epithelioma. Sarcoma, seldom, if ever, begins primarily in the cornea, but takes its departure from the limbus or sclero-corneal margin. It is almost invariably pigmented, of the type known as melano-sarcoma, and makes its appearance at times in a small pigmented spot which may have been thought harmless. This part of the eye normally contains pigment, more noticeable in a person of dark complexion, in whom a distinct ring around the cornea may sometimes be seen. It does not always infiltrate the cornea, but often grows over it, although it can be demonstrated that the epithelial layer of the cornea passes up on to the tumor. It presents either a smooth or a lobulated dark brown appearance, is firm to the touch and bleeds easily because of its great vascularity. Often a tumor in this situation is an outgrowth from a similar mass inside the eyeball, that has infiltrated the ciliary body and sclera and extended its ravages to the structures on the outside of the globe. The prognosis is grave.

Epithelioma is a rather frequent type of growth in this neighborhood. This may be explained, according to Fuchs, by the predilection that epithelioma has for attacking those parts where the epithelial covering changes its character as it passes from one part to another. Examples are familiar in the frequency of epithelial growths about the anus, the lips and the eyelids. We have an analogous condition in the limbus, where the epithelium of the conjunctiva passes over to that of the cornea. A small nodule appears at the junction of cornea and conjunctiva, and grows sometimes with great rapidity. Although occurring in advanced middle life, it does not invariably do so, according to Saemisch, but may also occur in young individuals. This growth spreads over the cornea, but does not infiltrate it except when it is quite advanced. Even then it is quite easily removed from the subjacent corneal structure. It presents a grayish-white, nodulated, sometimes distinctly papillated appearance, and is accompanied at times with severe pain. Often these epithelial cancers are deeply pigmented and this form grows to a great size, separating the lids and projecting from the palpebral fissure.

The question of attempting to save the eye, when sight is not affected, by carefully dissecting away an epithelioma or sarcoma from the cornea is an important one. When the growth is small and has not invaded the corneal or scleral tissue, it may be tried with some hope of success, but I am skeptical that anything short of enucleation will suffice to check

these malignant growths. Under the microscope is a section of a small epithelial growth, removed about eighteen months ago from right cornea of a patient in the Illinois Eye and Ear Infirmary, but as he never reported again it is not known with what result.

It should be remembered that the nodule may be an outgrowth from an intra-ocular neoplasm. The danger of mistaking such a case for a localized sarcoma of the scleral region is not great if reasonable care is practiced.

Tumors of the iris are not common. Tuberculosis affecting this part appears usually in the form of reddish-gray tubercles situated at the root of the iris. These coalescing may form a distinct nodular mass, and with the increase of the growth there may be considerable pain, pericorneal redness and exudation into the anterior chamber. The growth may perforate the cornea or sclera.

Sarcoma of the iris may be of the pigmented or white variety; the former is the more frequent as well as more malignant. The disease may occur at any age; as a primary tumor of the iris it is rare, being usually an extension of a growth from the ciliary body. When the growth is of the melanotic type it is easily diagnosed. When of the white variety it may be confounded with tubercle, gumma or cyst of the iris. The former will probably show a conglomeration of tubercles of a dirty grayish color, situated at the root of the iris; a gumma will not be so distinctly circumscribed and there will be a syphilitic history, while a cyst will show a pearlish reflex quite characteristic.

These growths may be so small and circumscribed as to make it possible to successfully remove them by an iridectomy. This should be large enough to excise a considerable portion of the healthy iris around the tumor. At the first sign of recurrence, enucleation should be performed to prevent further spread of the disease. Cysts of the iris may be caused by either cysticercus or by the implantation of epithelial masses in the iris after a wound. We shall omit the consideration of them, as well as of navi, which are congenital black patches or elevations and extremely rare.

Of all tumors affecting the eyeball, those most to be dreaded occur in the choroid, ciliary body and retina. According to Noyes, tumors of the choroid are met about once in fifteen hundred eye cases. Eighty-five per cent. of such tumors are said to be sarcomata, and of these the greater number are pigmented. Sarcoma may also spring from the uveal portion of the ciliary body. (Lawford and Collins in an examination of one hundred and three cases, report six affecting the ciliary body, one in the iris, two affecting both choroid and ciliary body, and ninety-four originating in the choroid behind the ciliary body.) Usually the growth attains a considerable size before it is recognized, unless affecting primarily the region of the yellow spot, in which case the impairment of sight brings the patient promptly to the physician. It is customary to divide the clinical history of these cases into four stages, according to Knapp:

1. A period of early growth before there is any irritation.
2. A period of inflammation.
3. Perforation of the eyeball and extension of the tumor outside the eye.
4. Metastasis.

In the first stage there may be no symptoms unless, as said before, the tumor encroaches on that part of the eye which is used for distinct vision. In this stage there may or may not be increased tension; although, as a rule, it is increased. If the physician is fortunate enough to see the eye during the first stage he may, by an ophthalmoscopic examination, discover the growth. He will then see a mass within the eye with a comparatively smooth surface, over which the retina is seen to pass. The retinal vessels are convoluted because of the lobular condition of the tumor; and the retina itself is bluish-gray in color. A careful examination with a bright light may show that the tumor is vascular. The duration of the first stage varies from six months to four years. Fuchs found the average to be in sixty-seven cases, twenty-one months.

Most authors have found that males are affected rather more frequently than females. According to Lawford and Collins, 57 per cent. of the former and 43 per cent. of the latter are affected.

This is a disease occurring generally after the fortieth year; the average age of the 103 cases of Lawford and Collins was 48.42 years. The average of 259 cases reported by Fuchs was 44.2 years. The average of cases reported by Freudenthal was 49.4 years.

With the beginning of the second stage there are signs of inflammation. The eye becomes painful and tender on pressure, the tension is increased, ciliary region injected, anterior chamber shallow and all the symptoms of acute glaucoma are present. In this stage there may also be bulging or staphyloma of the ciliary region, showing that the growth threatens to perforate the sclera. An interesting point, with reference to the subsequent history, is that the prognosis is more grave when the tension is increased; *e.g.*, Lawford and Collins found metastatic processes more frequent in those cases presenting increased tension before enucleation, than in those in which the tension was normal.

In the third stage the tumor escapes from the eyeball and invades the surrounding tissue. The pain and distension that were present before, now disappear because of the relaxation of the tension. The mass grows with much greater rapidity. Unfortunately many of the cases do not come to the surgeon until this stage is reached, when the chances of an ultimately successful operation are greatly diminished. The optic nerve is invaded in at least one-fifth of the cases, and the prognosis is thereby rendered more grave.

In the fourth stage metastasis occurs most frequently in the liver, though it may occur in the lungs, brain, stomach, uterus, or other organs. Fuchs found that 18.5 per cent. of his cases suffered from metastasis. Hirschberg gives 38 per cent.; and in 32.9 per cent. Lawford and Collins traced death to this cause.

One of the greatest dangers to the patient is that of local recurrence, which is diminished if the eye is removed before the tumor has reached a sufficient size to cause increased tension and local irritation. As mentioned above, the tables of Lawford and Collins show that more cases are fatal when the enucleation is performed after the tension is increased than if it is done when the tension is normal. Once the growth has burst through the eyeball, the dangers are greatly increased.

Fuchs records local recurrence in 31 out of 235

cases or 13 per cent. Freudenthal found 25 per cent. of local recurrences, 6 out of 24 cases, while Lawford and Collins note 8.86 per cent.—7 out of 179 cases. The danger of local recurrence is greatest within the first year.

*Prognosis.*—Lawford and Collins in a report of 103 cases subjected to operation, were able to trace 79—of this number 39 or 49.36 per cent. were alive at the time of the report. In twenty of these, an interval of three or more years has elapsed since the removal of the primary growth, and these are considered to be probable cures. This gives a percentage of recoveries of 25.31. The averages given by other writers vary from 6 per cent. by Fuchs to 38 per cent. by Freudenthal.

Metastasis has been known to occur eighteen and even twenty-five years after the removal of the primary growth—but whether the tardy occurrence of such processes should be regarded as metastatic is certainly a debatable question. However, the possibility of such an event, even after the lapse of many years, should make the physician extremely cautious in his prognosis, even though the patient is apparently cured. The therapeutics of this question has naturally been considered in discussing the symptomatology and prognosis; it can be summed up in a few words—excise the eye as soon as possible after the diagnosis has been made.

Glioma is the only form of tumor affecting the retina. It takes its origin from either the inner or outer granular layer, and in its growth may involve all the structures of the eyeball except the cornea and the lens. Histologically it is closely allied to round-celled sarcoma, being composed of small cells, sometimes with short processes having a large nucleus and a small amount of protoplasm. It is difficult to demonstrate this protoplasm except on freshly prepared specimens. The intercellular substance is slightly fibrillar, but mostly composed of a semi-fluid material which gives the whole mass a consistency like soft brain tissue. The neoplasm is bountifully supplied with blood vessels. In its growth it attacks the choroid, causing a proliferation of the cells of that structure, and separating it from the sclerotic by spreading in the loose connective tissue between these two coats of the eye. In this way it may pass beneath the ciliary body and appear in the anterior chamber.

The tumor grows from the retina in clusters, well illustrated in the specimens, which give it a nodulated appearance often distinctly seen with the ophthalmoscope. Foci of the growth may develop in the vitreous and choroid and spread as independent tumors. After filling the eye the sclerotic is attacked, its fibrous tissue infiltrated and softened, until the tumor escapes from the eyeball and invades the orbit. Or, even before the mass has attained a great size inside the eye, it may find a way of escape through the point of entrance of the optic nerve, along which it then extends. Having escaped from the eyeball, the neoplasm takes on a more rapid growth in the soft parts of the orbit, and soon it presses the lids apart and presents itself as a hideous fungous mass which bleeds easily. Death may be caused by extension backward to the brain, or the exhaustion consequent upon the involvement of other parts, either by continuity or metastasis.

*Symptomatology.*—Clinically, this disease, like sarcoma, may be divided into four stages. In the first

stage there is no increase of tension and no irritation. The parents of the child may discover that it can not see with the affected eye, and that there is a whitish reflex from the pupil. This condition was named by Beers (one of the earlier ophthalmologists), "amaurotic cat's eye."

An examination of the interior of the eye with the ophthalmoscope reveals the growth with its nodulated surface, and possibly with the retinal vessels passing over it. Numerous smaller vessels in the tumor may be seen. As a rule, the vitreous remains clear.

In the second stage, symptoms of irritation and inflammation appear. The eye becomes painful, the tension is increased, the episcleral vessels are injected, the pupil is dilated, the lens and iris are pushed forward and the details of the interior are no longer distinctly seen. The cornea becomes cloudy and may ulcerate. In the third stage, there is perforation of the eyeball and invasion of the orbital tissues. The fourth stage ends the case with either extension along the nerve to the brain, or metastatic processes in the lymphatic glands or other organs, chiefly the liver.

This disease is one of early childhood, occurring very rarely after the age of 10 and with greatest frequency during the first three years of life. Well authenticated cases are recorded by Knapp, Hirschberg, Vetsch, Lawford and Collins, in which the disease was congenital. Furthermore, it happens in about one-fifth of the cases that both eyes are affected at the same time, this symmetrical occurrence not being the result of extension of the growth from one eye to the other along the optic nerve, but an independent affair. The prognosis is absolutely fatal unless the eye is promptly removed.

If excision is performed during the first stage, and before the growth has invaded the optic nerve, there is some chance of recovery. The chances of cure are very slim, however, when the operation is performed in the second stage, when irritation and inflammation have already begun; and when done after the tumor has extended to the orbit, there is almost no hope, although a few cases of so-called recovery are reported, even after complete exenteration of the orbit was necessary to remove the growth.

One should not hesitate to enucleate both eyes if the growth is bilateral, for cases of recovery after double excision for glioma have been reported. Even where there is absolutely no hope, it may be the surgeon's duty to remove the eye, and even the contents of the orbit, to relieve the little patient of his suffering.

103 State Street.

## PRE-COLUMBIAN LEPROSY.

BY ALBERT S. ASHMEAD, M.D.

LATE FOREIGN MEDICAL DIRECTOR, TOKIO HOSPITAL, JAPAN.  
NEW YORK.

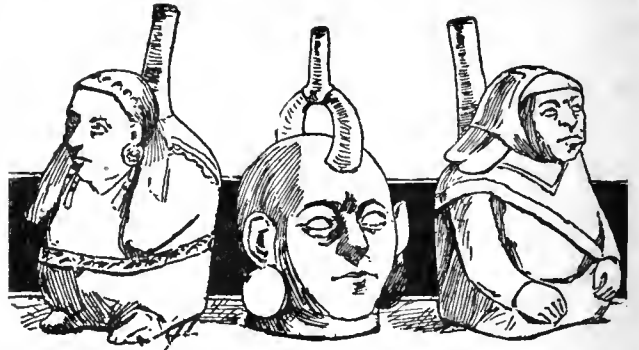
Dr. Muniz, of Lima, Peru, alone of all the authorities known to me, thinks that leprosy did exist among the Incas; he finds evidences of this in some ceramics, the *huacos*.

In the *American Anthropologist* for January, there is an article entitled "The Huacos of Chira Valley, Peru," by Samuel Mathewson Scott. This valley was once teeming with population, though scarcely populated now. In this part of the country, there are numerous ruins and graves, and Mr. Scott's excavations among these monuments of the past, enabled him to make a collection of Peruvian antiquities, now

in the Museum of the University of Pennsylvania at Philadelphia. All the pottery found in those burial grounds are called *huacos*. They are found by the side of the mummies. "About the heads of the mummies, whether male or female, were ranged the pieces of pottery in black and red clay which are known as *huacos*. These were probably filled with water or *chicha*—a beer made from corn, the beverage of ancient Peru. Upon these jars the artists expended all their skill. The clay itself is very finely worked; the designs are infinite in variety and imitate every form of animal and vegetable life. There are jars in the shape of bananas, gourds and melons; there are jars ornamented with human figures, climbing monkeys, pelicans, parrots, fish and serpents. These is, moreover, a distinct tendency toward the comic and grotesque—many animals have exaggerated teeth, and birds have quaintly elongated bills."

It is on these vases that Dr. Muniz claims to have found figures which can reasonably, if they must not absolutely be explained, by the intention of the artists to represent leprous effects.

Dr. Brinton, of Philadelphia, kindly invited me to examine the Peruvian antiquities in the Museum of the University of Pennsylvania. Under these antiq-



*Huacos* pottery of the Incas without deformation.

uities can only be understood: 1, hands and feet of mummies; 2, the *huacos*. For skulls are out of the question. "A leprous cranium," writes Hansen, "shows nothing peculiar, as the skull is never affected by leprosy." For the purpose of comparison with mummies' hands and feet, Hansen sent me photographs. (He writes: "You can see the ossa metacarpi, especially the first and the fourth, atrophied, and also the distal phalanges; the curvatures of the fingers are to be seen too.") of a leper's right hand in two attitudes, from Dr. Kaurin's collection of leprous preparations at Rekna leper hospital, Molde, Norway. It belonged to an anesthetic leper.

There is a large collection of *huacos* pottery in the Museum of Archaeology of the University of Pennsylvania. I examined it with Mr. Stewart Culin, the director. In none of the specimens was there any representation of face, hand or foot which could in any way be supposed to be indicative of leprosy. I also examined with Mr. Culin, mound-builders pottery<sup>1</sup> from the stone graves of mound-builders in Missouri. According to Mr. Culin's opinion, these specimens are unquestionably anterior to the Conquest. In them the following evolution is shown: First, there appears the simple form in clay of a gourd.<sup>2</sup> Next, the gourd changes to the representa-

<sup>1</sup> The mound-builders were the immediate ancestors of American Indians.

<sup>2</sup> Gourds and shells were mound-builders models.



tion of the pregnant form of a woman, with the face of the woman on top. Thus the vase, which had begun with the original gourd, had become in course of evolution, a human form. Gradually this torso assumed hands, feet, backbone and buttocks. A similar evolution in ceramics, from the gourd to human forms, occurs in East Asia. I think I may make here an observation which will be superfluous for most readers, but which perhaps, will strike some as interesting. The gourd is the original vase of these nations. Naturally, when the artistic genius arose in their descendants, vases were made from clay, in the form of gourds. The idea of vegetable life, existing in the gourd, extended to the vase and developed finally into conceptions of animal life; thus was suggested the pregnant woman with the swelling belly, in

made up their minds to commit a sin they took care to turn the face of the earthen god to the wall. The mound builders, in order to leave nothing to chance, made their household gods with blind eyes; this at least is what the examination of these remains leads us to suppose. There are other vases in which the *penates*, as we may call them, have sealed lips, to prevent indiscretions. These blind eyes or sealed lips are the only deviations from the usual and healthy course of nature that I, at least, could discover in these monuments of prehistoric times.

The same evolution from the gourd to perfect human forms is found, as I said before, in East Asia. There leprosy is acknowledged to have existed for many centuries. Yet in the East Asiatic ceramics not the least trace of any intention to represent de-



Lepros Anesthetica. The right hand in two attitudes. From Dr. Kaurin's collection of leprosy preparations at Reknes Leper Hospital, Molde, Norway. Sent to Dr. Ashmead by Dr. Armaner Hansen for comparison with bones of Peruvian mummies.

a sitting posture. When the human representation had appeared it did not long remain limited to this feminine image; the male also was delineated. The development of the human being originating in the woman's womb, was shown in pottery through all its gradations: development of the face, then face and shoulders, then vases with face, shoulders and hands; feet succeeded, then all these parts with backbone added, developing through the clay; finally came the buttocks. In this way, the vase was endowed with life and became a household idol. The vase living, in the fancy of the people, was supposed to have its eyes on the affairs of the household; if they had



formations can be found. It is true that I have seen some deformations in the American Museum of Natural History, New York, but they certainly, whatever they are, are not leprosy; they may be due to syphilis, a disease which we know to have existed in Peru; syphilis and leprosy both would destroy the structures of the nose, and destroying the nose, would spare the upper lip. Now the deformations represented by these works of art show this: in three instances the cartilaginous part of the nose and the upper lip removed as by a knife, showing the septum and nasal bones and the soft tissues covering those remaining, and also the teeth; one figure lying prone upon the belly, with both feet gone to above the ankles. The nose and upper lip partly cut off, but both hands are perfect. Another figure

shows a partial loss of the upper lip, a semi-circular piece being cut out on the left side, teeth showing where the lip should have concealed them. This head is drawn far back—opisthotonus. Another one has the nose cut off, with the septum showing, and chin considerably drawn forward, a perfect mouth being at the top of it. Another figure shows a chin drawn strongly over to the right side with loss of upper lip. In all these figures the hands are perfect.

I regret not to be able to give photographs; but the explorer, Mr. Bandelier, the owner of these specimens, who is at this moment excavating in Peru, exacted before his departure, the promise that these articles should not be represented before he had finished his research. I asked the director, Mr. Saville, whether he thought, from his own investigations in

When the figure was placed upright we hardly knew what to call it, it appears so human, yet so apish. In the position it occupies it is 97 centimeters (about three feet) high. So if standing it would not represent a very tall person. It is made of white limestone and painted dark brown. The head is flat at the top and back, and apparently hairless, but painted blue, and over that are red streaks from the forehead down to the shoulders. The eyes are open, and painted blue around the lids. The nose is not pierced, but the clumsily made ears have each a large hole. The mouth is closed and lips painted red. On the back part of the top of the head a hole is pierced, so that a string can be passed through, perhaps to secure a bunch of plumes, perhaps to keep a banner in place, for in the palm of the right hand there is a groove as if for a round stick to fit in there. The hands are not altogether human; where the fingers begin there seem to be mittens, the other ends of which are nowhere visible. The fingers, like the toes, were furnished with nails made of shell, and fitted in place



Hands and forearm of Peruvian mummy, presumably pre-Columbian. Museum of Archaeology, University of Pennsylvania.

Yucatan, Mexico and Peru that these peoples would make representations of loathsome diseases on their pottery. He says that he has seen the coitus<sup>3</sup> represented in that pottery, and also some orgies, and that this disposed him to think that other matters might be represented which, in our own ideas, do not belong to art. He called my attention to a publication in the *Scientific American* in 1884, from Dr. Le Plongeon's discoveries in the ruined cities of Yucatan: "The figure (stone) was found on its back; one leg was broken off below the knee, but was found under the figure and afterward adjusted. The head of the statue rested on a stone painted red, that represented the tongue of a serpent, the peculiar shape of which Dr. Le Plongeon long ago discovered to be the letter *chi* or *ch* of the Maya alphabet.



Head of Peruvian mummy, presumably pre-Columbian. Museum of Archaeology, University of Pennsylvania.

with mortar so as to look very natural even in color. Unhappily nearly all were fallen, but we found some of them. A necklace is indicated by a line of red paint around the throat. Garters, below the knee, are painted blue and red. The loins are covered with an ornamental *wit*, a scanty garment yet in use among the aborigines, and anciently worn by Egyptian laborers. The right foot is turned in, as if the individual had been club-footed. The sandals are painted blue, and close up around the heel, but the very elaborate and fanciful fastenings are red. On one heel is the name, *Cay Canchi*, written with red paint. "This image," says Dr. Le Plongeon, "may possibly represent the sacred monkey of the Mayas, as the *Cynocephalus* was emblematic of the god *Thoth* among the Egyptians."

A monkey, even a deformed one, was thought worthy to be represented in stone. Mr. Saville suggested that it might be, not a monkey, but a leper, as the arms were cramped and the hands were in a clawed position, similar in some degree to that of a leper's hands (not mutilated).

Dr. Emil Holub, an African explorer who was present at the Museum, told Mr. Saville that he has seen

<sup>3</sup> I have seen a silver image from Peru, of a monkey copulating with a llama.

lips cut, as in these *huacos*, and something ornamental placed in the openings, in African Bushmen.

I may say that it would hardly be natural that art should represent loathsome features of nature, which could not be looked at without pain and perhaps horrible recollections. It was the idea of a correct human development that was in the mind of the potter, and what had the horrors of an awful disease to do with that?

It is clear that the non-existence of any leprosy characteristics in American antiquities is not a proof that the disease did not exist in this country anterior to the Conquest. The thing is simply this—*non liquet*.

Through the courtesy of Dr. Brinton and Mr. Culin, I have been permitted to examine closely the following Peruvian remains in the collections at the Museum of Archaeology, University of Pennsylvania:

1. The Scott collection, from Chirac Valley, Peru, to which reference has been made in the article published in the *American Anthropologist* for January: hands and feet of several mummies; post-Columbian, as shown by the presence of glass beads.

2. Dr. Carl Lumholtz' collection, from Chihuahua, Mexico: cave mummies' hands and feet, presumably ante-Columbian remains from burial caves (a very ancient form of disposing of the dead); North American Indian remains, presumably prehistoric, certainly several hundred years old; cave mummies' hands and feet from Nararachic, Mexico; remains from San Mateo, Peru, near Ancon, the most ancient burial place in Peru.

3. A lacquered mummy head from Ancon, Peru, with gold band over the mouth, presumably of a priest or sacred person carried over the country for worship according to custom.

4. A collection of loose bones of hands and feet from Cave Valley, Mexico (cave burial).

5. Apache bones, hands and feet, from Sonora, Mexico. (Apaches are thought by some observers to have East Asiatic (Tartar) characteristics and customs.)

6. Remains from a cave near Yocinbo, Chihuahua, Mexico, not ante-Columbian, on account of presence of glass beads.

7. A collection of perforated human bones, mostly humeri, from the mounds of Ohio. These perforations in the olecranon fossa were formerly supposed to be syphilitic; but they really are accounted for by the forcible extension of the arm, necessitated by the grinding of corn. In none of these bones was there any evidence of leprosy.

I examined besides, skulls from Choptauk ossuary, the sand bonepits of Dorchester County, Maryland, remains of Nanticoke Indians; nineteen casts of the Muniz collection of Peruvian skulls, showing ancient trephining, recently exhibited in the Smithsonian Institution, Washington; and skulls of Indians, excavated in Florida. These last are the only ones in which there can be perceived any evidence of disease; probably syphilitic osteitis, through intercourse with Spaniards.

There is a diseased skull in the American Museum of Natural History, New York, from an ancient grave at Lachay, near Chancay, Peru. It belongs to

the famous Banelier collection. On the left side of the frontal bone, near the median line, there is an egg-shaped, deep cavity, which does not penetrate the internal table of bone. This cavity has the appearance of having contained a hard smooth substance, probably a bone cyst, and the bone seems to have grown partly over the foreign body. Upon the parietal and occipital bones and especially on the frontal bone between the cavity and the orbit, are evidences of such destruction as might result from syphilitic osteitis. These evidences of disease, excepting the cavity in the frontal bone which, I may say in passing, has nothing to do with leprosy, are similar to those found in the Florida Indians. The latter evidently had contracted syphilis through their connection with the Spaniards of Mexico.

Mr. Culin informs me that there is one distinctly connecting link between the Mexican Aztecs and the Asiatics, besides that evolution of pottery which I have described above. It is the game of *patoli*. This game is played in Mexico thus: there is one stave held with the hand, across three parallel staves; it is used as a bat to throw beans or balls up to be caught, when falling back, upon a cloth; a tally is kept, according to the position in which these balls fall on the cloth. The three parallel staves are marked with an arrow, the single stave which crosses the parallel ones has the mark of a bow on it. The game was originally played not with staves, but with arrows, the warrior always holding three arrows with his bow. This explains the mark of the arrow on the staves. That the same game, absolutely the same, should exist in Asia can not be due to chance.

It seems to me that the intercourse, whatever it may have been, to whatever degree it may have existed, between America and Asia is the only thing which could, after what I have said before, make it admissible that leprosy existed here before Columbus came. Certainly syphilis existed here, and, if it did, it could not have come from anywhere else but Asia. Therefore, in spite of the absence of every proof of the presence of leprosy here, before the Conquest, we must consider the question as still in doubt.

The oldest center of leprosy in America, is Old Colombia, (Granada, Venezuela and Ecuador.) Carthagenia of the Indies was a most ancient focus of leprosy. Mr. Luther F. McKinney, U. S. Minister to Bogota says: "This country is cursed with leprosy, there being about 24,000 lepers in Colombia alone. Unless something is done to isolate those who are afflicted, and means taken to prevent the marriage of lepers, the whole country will eventually become a race of lepers."

The librarians of the National and the University Libraries of Ecuador, can find nothing for me, in any way connected with the origin and history of leprosy in Spanish America. These libraries are lamentably small and imperfect.

I am informed by the British Minister in the same country that all matters relating to leprosy have been extensively treated in Colombia where as I mentioned above, the disease is very widely spread. In Ecuador, he says the number of cases is comparatively small.

Dr. Zeballos, the Argentine Minister in Washington, writes that although he is a student of South American history he does not remember having read that leprosy existed among the Indians of his country previous to the advent of the Spaniards.

NOTE.—Brinton says: "But an obscurity certainly hangs over the ethnography of Florida at the period of the discovery. A large part of the peninsula was peopled by a tribe whose language stood alone on the continent, the Timucuas, and which became extinct generations ago. They are described by the Spanish and French explorers of the sixteenth century, as quite a cultured people and at that time as building mounds and erecting their houses upon them."

Dr. Juliano Moreira, physician to the Hospital Santa Isabel, Bahia, Brazil, says that the natives there before the Portuguese colonization, the Tupis, the Krars (Keras), the Goytacazes, the Guerens, the Gucks, the Parecos, the Guaycurus, the Lengoas and the Aruwacks, were certainly not leprosy and it is incontestable, in his opinion, that among the Indians now living, there is no disease that can be construed into leprosy.

Dr. Bibb, of Saltillo, Mexico, says that among the most prominent and best informed men in the city of Mexico, the general opinion is that the disease was introduced there by Chinese.

Dr. J. B. Terres, Vice Consul-General to Hayti, thinks that nothing has been written by any native of that island, nor by any foreigner, either as to the origin and history of leprosy there. However, it is supposed by old physicians, with whom the Vice-Consul spoke on the subject, that it was introduced by the Spaniards; but there is no proof of that. The same gentleman states that leprosy is very rampant in that island, and that no precaution whatever is taken to isolate the cases. There is no leper hospital, and the lepers are allowed to circulate without let or hindrance.

Dr. Beaven Rake (Report on Leprosy, Trinidad Leper Asylum, 1890) quotes from Leloir, page 300, that Drs. Magalhães and Mayrinch state that before the discovery of Brazil there was no leprosy among the Indians, nor subsequently in those who did not mix with the foreigners.

Beaven Rake says that of 216 lepers treated in the asylum, 74 or rather more than one-third were coolies. Of 138 reported from outside, only 29 were Hindus. No doubt there are more, for coolies when free do not seek medical advice so readily as other patients, unless they are paupers and wish to be maintained in the colonial hospital or leper asylum. "On the whole, then," says Rake; "the proportion of coolie lepers may be fairly taken as one-third. The question is, Where do they get the disease? We are told that there are some 250,000 lepers in India, and it is therefore hardly fair to suppose that all the Hindus who develop leprosy in Trinidad become infected here. It is far more likely that in some or many of them, the disease is already incubating when they land here, though it may not be evident enough to insure rejection after medical examination."

I have received a letter from Mr. McKinney, U. S. Minister to Colombia from which I extract the following:

"This country was first discovered (I mean Colombia) by a Spaniard, Gonzales Jimenez de Quesada, who started from the coast with a large body of men to explore the interior. He discovered the beautiful plain in which Bogota is situated, and founded the city of Bogota August 6, 1538. Some time after this, I do not know how many years, he was attacked with leprosy and died of it, I think about 1578. This was the first case known in Colombia, and attacked the first Spaniard who entered the country. In a late conversation with the acting Minister of Foreign Affairs, an intelligent gentleman, he said: 'Leprosy was not brought here by the Spaniards, but was developed here by the mixture of the races.' I can not see, however, that this can be true when the first Spaniard who landed in this country, contracted the disease and died of it. It seems very plain to me that this man had the disease in his blood, and it developed itself here. It is a well-known fact that leprosy had long before this existed in Spain, though at that time it is said to have been extinct. But while the disease is hereditary, it sometimes skips a generation, and this man may not have known his blood was tainted with the disease. This is the first his-

tory of leprosy in Colombia. "About 1550 a priest was sent by this same man to Africa, and he brought negroes to Panama and that was the first introduction of the black race into Colombia. (See note.)

"But from all the facts I have been able to gather, the leprosy can not be attributed to the negroes. There is very little pure blood of any race in Colombia; the people are a mixture of the Spaniard, Indian and negro races. Whether this mixture of the races, as some here assert, has caused the rapid spread of the disease, I am not competent to judge. There are in Colombia now, from 25,000 to 30,000 lepers; some put it at 60,000, but the weight of authority is in favor of the former numbers. The doctors here in Bogota declare universally, as far as I have talked with them, that leprosy is not contagious except by inoculation and heredity. But there are differences of opinion about this, and you are better able from your study of the subject to answer that question. Considering the large number of lepers in Colombia, the trade carried on with the United States, and the large number of Americans who are constantly coming here and returning to the United States, this is a matter of great importance to us, as it is likely in time to be carried to our country, especially as there is every year more or less marriage between the people of the two countries.

"I think one cause of the fearful spread of the disease is the poverty and filth of the people. Bathing is considered here more deadly than leprosy among the common people, and any filthy disease would find a congenial home among them. Another cause may be that the people are cursed with syphilis which was first brought among this people by the soldiers from Venezuela, during the early wars of independence. However, some say that those who have the one disease, are not so apt to take the other.<sup>4</sup> The government has so little money to expend for the purpose, that there is little done to isolate the disease, and though there are many schemes, and some hospitals for these unfortunates, they are scattered over every part of the country, and because of the laxity of sanitary regulations, they become beggars and vagabonds everywhere. I see them every day on the streets of this city. Unless something is done soon, the nation will become a nation of lepers and a menace to every civilized country.

"In my opinion the day will come when leprosy will command the attention of the medical profession of America, far more than it ever has in the past. May the day be far distant when our fair land will be cursed by such a loathsome disease."

(To be continued.)

## THE ANTAGONISM BETWEEN CITRIC ACID AND CANCROID CELLS.

BY C. M. FENN, M.D.

SAN DIEGO, CAL.

Though on the eve of another convocation, I venture to supplement the interesting discussion of malignant growths, held at the forty-fifth meeting of the ASSOCIATION, by calling attention to some original experiments inaugurated by the writer several years ago. The conclusions, with some additional cases, are now presented as a possible solution of the difficulties which so often militate against the radical extirpation of these and other neoplasms.

None will dissent from the dictum of the Section that early interference is to be commended, but unfortunately the scalpel, so far as the patient is concerned, is a *dernier ressort*, and not until he has exhausted other methods does he appeal to the surgeon.

It need not be remarked that from their inception, canceroid and other succulent tumors are environed by juices and cells, proliferations from the embryonic (?) germ which seem to await only the irritation of caustic or knife to migrate and set up foci of

NOTE.—The first negro in Peru was with "the thirteen" of the Isle de Gallo, before the Conquest, and in 1536 (two years before Quesada's time) Maroon negroes were in that country. The privilege was granted to Pizarro by the King, to import negroes from Africa before Quesada's time.

<sup>4</sup> That is the popular belief in Japan too.



infection elsewhere. May not these epithelial pearls, like the foliage of the agave, also contribute to the ultimate fruition of the central nucleus?

Fig. 141, page 528, of Virchow's "Cellular Pathology," while illustrating a solid mass of cancrioid from a tumor of the lower lip, graphically displays these cells *in situ*. The distinguished author in the same connection says, concerning the differential diagnosis of these neoplasms: "If you attempt to distinguish cancrioid growths from real cancer by the epithelial structure of their elements, you will herein give yourselves trouble in vain."

Hence, questioning the perspicacity of even the microscope, I am in the habit of classifying all facial tumors of the aged as at least suspicious and demanding immediate extirpation.

With the primary purpose of more accurately defining the boundaries of such growths, I employed a saturated solution of citric acid hypodermatically. It was found that the liquid introduced at any point near the periphery seemed to possess an elective affinity for the diseased structures and that it blanched and brought the same into bold relief. This will be recognized as a desideratum in operations about the face where the perplexing alternative usually presented is a sacrifice of symmetry or the probability of an early recurrence. Continuing the injections for several days, sometimes at the behest of the patient, it was further discovered that the area of induration and infiltration was measurably reduced. In some instances, as will be noted, no other surgical interference was required, and let me add that while the acid treatment enables the surgeon to make his incisions with greater precision and minimizes the danger of metastasis, it seems to be quite innocuous to normal tissues. The patient's experience is one of instant relief from the smarting and tension which attend certain neoplasms.

Among the cases previously reported was that of a man nearly 60 years of age, three of whose ancestors had succumbed to tumors of the face. In his own person a sessile growth as large as a filbert, having its apparent origin under the inner canthus of the left eye and leaving in its descent a broad cicatrix, was finally arrested at the junction of the ala of the nose with the cheek. In its new situation, enlargement became rapid and painful. Extirpation of the entire mass as outlined by the preliminary injection would have involved half of the nasal ala and not a little cheek, besides inviting profuse hemorrhages. Repeated instillation of the acid solution, during three or four weeks, reduced the dimensions to that of a small pea. The resultant scar was insignificant, nor had there been any evidence of recurrence up to the period of his accidental death six years later.

Another of the earlier cases was a so-called rose cancer which extended from one eyebrow to the other, and vertically more than an inch. Adequate incisions would have encroached upon both eyebrows, leaving an unsightly cicatrix at best. After a number of acid treatments the entire growth was included in an ellipse of no greater horizontal diameter than eight or nine lines.

Of more recent cases, I now note an undoubted epithelioma of the lower lip which involved a portion of the chin in its dart-shaped induration. Similar procedures relieved the chin and enabled me to include the remainder of the tumor in a small

V-shaped incision. Total extirpation in the beginning would have necessitated a formidable operation with plastic accessories. The gentleman's impatience alone prevented the attempt at radical cure with injections.

A further opportunity for testing the acid treatment occurred in the person of a lady over 60 years of age from whom I removed a scirrhus, left breast. Her financial condition precluded a lengthy sojourn in the city, and at the same time rendered any preliminary treatment impossible. Compensation for this was attempted by generously retrenching the flaps and bathing the parts subsequently with a strong acid solution. Union was delayed because of insufficient approximation, and some indurated portions of the integuments.

Yet a few injections *in situ* removed the latter, promoted healing and seemed to soften up one of the axillary glands which had escaped detection during the operation. A necessarily broad but healthy cicatrix was obtained in a few weeks, nor was there any recurrence at the wound site. Fifteen months later, the lady died of peritoneal dropsy which was regarded as metastatic and malignant.

More recently it was my privilege to treat a nose of generous proportions from which a Kentucky surgeon had excised a neoplasm some years before. After a brief respite it broke out again and again, and for the last two years had resisted all the blandishments of the *ars medicatrix*. Among other remedies, and notwithstanding his dual rôle of deacon and paterfamilias, some unbelieving Æsculapius had unsuccessfully subjected the gentleman to specific treatment. During the last few months of domestic or no treatment, its history was that of an open sore, either hemorrhagic in tendency and habit, or emitting sanious discharge which seldom rose to the dignity of a scab. Removal of the bit of paper which covered it revealed a raw, red and glazed surface, about five or six lines in diameter, surmounting an indurated base of much greater dimensions; in fact a typical epitheliomatous ulcer. Complete excision of the growth would have impaired the symmetry of the organ, by depriving it of the entire right ala. Hemorrhage and all unpleasant sensations ceased after the first injection, while cicatrization and atrophy proceeded *pari passu* until he was discharged cured.

In one instance, injections were thrown into the substance of a large colloid carcinoma, resulting in the disintegration of portions of it. It was too late, however, to prevent systemic infection or to arrest the growth.

## ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.  
NEW ORLEANS, LA.

(Continued from page 595.)

### CHAPTER IX.

ALTERATIONS OF THE BLOOD IN YELLOW FEVER, INDUCED  
BY THE SUPPRESSION OF THE FUNCTION OF THE  
KIDNEYS AND LIVER, AND THE RETENTION IN  
THE BLOOD OF THE CONSTITUENTS OF THE  
URINE AND BILE.

The constitution of the blood is more or less al-

tered in every case of yellow fever, but the changes are observed in greatest intensity in those cases in which there is partial or complete suppression of the action of the kidneys.

By careful experiments I have determined that during the active stage of febrile excitement in yellow fever, not less than 600 grains of urea are excreted by an adult during twenty-four hours. As the action of the kidneys is in many cases wholly arrested for various periods, ranging from one to four days before death, the whole amount of urea accumulating in the blood and remaining in the system may range from 600 to 2,400 grains. The gastrointestinal mucous membrane, in such cases, eliminates the urea, both as urea and as carbonate of ammonia; and both these substances frequently enter into the constitution of black vomit, which in many cases is intensely alkaline from the presence of carbonate of ammonia, in sufficient quantities not only to neutralize the acid of the gastric juice, but also to give forth such strong fumes as to be visible as a dense white cloud, when a rod dipped in hydrochloric acid is held over the black vomit, freshly discharged from the stomach or removed from the viscus immediately after death.

The presence of ammonia in the fluids of the stomach in such cases is clearly not due to subsequent changes, but is referable to the decomposition of the urea in the stomach, after the manner which has been pointed out by Frerichs, Bernard and other observers. In such cases the blood in the cavities of the heart and in the large vessels is black, and does not form a clot, and the solvent properties of the ammonia are manifest not only in the dissolution of the fibrin, but also in the altered appearance of the colored blood corpuscles, and in the rapidity with which they disappear when the blood is allowed to stand.

One of the most striking facts which arrests the attention of the observer in post-mortem examinations in this disease, is the apparent abundance of the blood in the various textures, its fluidity, and also the bright arterial hue which it rapidly assumes upon exposure to the atmosphere. This condition is referable to the distension of the blood vessel system, in consequence of the failure of the kidneys to eliminate the watery elements, as well as to the action upon the blood of the excrementitious materials. While it is true that urea is present in healthy blood in small amount, as may be determined not only directly by chemic means, but also by a simple calculation, as has been done by Dr. Goodfellow ("Lectures on the Diseases of the Kidney, generally known as Bright's Disease and Dropsy," London, 1861, pp. 67-69), I have at the same time, by careful analysis, shown that the urea is greatly increased in the blood of yellow fever, amounting in some cases to near 2 per cent. of the whole mass of blood.

The following is the calculation of Dr. Goodfellow, with reference to the amount of urea which must necessarily be present in healthy blood:

No physiologist denies that the urea is merely separated from the blood. It is universally acknowledged that the kidneys have no converting power. It can not be supposed, therefore, that all the urea contained in the blood goes directly to the kidneys; and consequently it follows, that only that quantity which passes through these organs is freed from this excrement at every successive revolution of the cir-

ulation. The following calculation will show this clearly: We will take the case of a healthy man, excreting every twenty-four hours about 360 grains of urea. This quantity divided by 24 gives 15 grains every hour, and still further reduced, one-fourth of a grain every minute. We will suppose the quantity of blood in his body to be thirty pounds, and that it takes from a minute to a minute and a half, to complete the circulation. We will suppose, moreover, that the kidneys constantly contain about three ounces of blood, and that about five ounces pass through these organs every minute. As we get, then, a quarter of a grain of urea from the five ounces passing through the kidneys, in this space of time, it is reasonable to infer that there will be left in the remaining mass of blood (475 ounces),  $23\frac{1}{4}$  grains of urea.

The quantities which Dr. Goodfellow has conjecturally assumed are, in the one case too small, and in the other too large, and he has subsequently added the following correction of the preceding calculation:

In one of the elaborate tables, in Dr. Parkes' work on the urine, it appears that the mean amount of urea secreted by males in twenty-four hours, as furnished by 250 analyses, made by twenty-four eminent chemists, is 512.4 grains, varying from 286.1 grains, the lowest, to 688.4 grains, the highest; and in females, from 260 to 400. The amount of blood (thirty pounds) is more than the area of the heart and blood vessels in a man of average size can accommodate, notwithstanding that it is the quantity as calculated by eminent physiologists. The amount of blood expelled from the left ventricle at each contraction, as supposed by Valentin (five ounces), and Volkmann (six ounces), is probably too large. The calculation is made on the supposition that at each contraction of the left ventricle from two and one-half to three ounces of blood are expelled, and that of the mass of blood so thrown into the aorta, from half a drachm to a drachm is propelled by the kidney, and that the same quantity makes its exit simultaneously by the vein. Supposing, then, that there are from seventy to seventy-five ventricular contractions in a minute, the total quantity passing through the kidney during this space of time, will therefore amount to from five to eight ounces. The calculation does not require the demonstration of the exact quantity which is always in the blood, but that there necessarily must be some urea constantly in it, and more than is generally supposed. The excretion of urea is always going on more or less quickly, and also the formation of this substance from the waste of the protein tissues, and from the same principles in the food, in greater or less quantity according to the state of the body, as to exercise or food; and as its transmission into the blood through its principal conduit, the thoracic duct (M. Wurst, as quoted by Bernard), is also constant, it follows that there must be more or less of urea in the blood at all times.

With respect also to the length of time required to complete the circulation, some facts of importance have been omitted in the calculation. Now that we have more correct notions with respect to secretion, most physiologists will show that although a complete revolution of the circulation may be effected in from a minute to a minute and a half, as deduced by calculation (Valentin and Volkmann), and by experiments (Poiseuille, Bernard and Blake), the blood really moves with varying velocity in differ-

ent secreting and excreting organs; influenced as the circulation is probably by the peculiar affinities, and the diameter and arrangements of the capillaries and other minute vessels. We observe that every secreting organ has some peculiarity in the arrangement and size of the vessels, and in the thickness of their walls. This arrangement must affect to some extent the velocity of the circulation, and affect also the character of the blood plasma transuded into the tissue, from which the secreting agents are to separate the peculiar constituents of the secretion. Taking the double circulation of the blood in the kidneys into consideration, then, it is probable that the blood does not pass through them so quickly as through some other organs, and that the whole mass of blood does not pass through the heart every minute or minute and a half, although a quantity equal to it may do so; some portions may, in fact, pass twice or oftener through the heart in this space of time.

On the assumption that there are twenty pounds of blood in a man's body, and that one ounce and a half of urea is excreted in twenty-four hours, Marchand calculated that the blood contained the 15-360 part of its weight of urea.\*

The results of these investigations on the condition of the blood, and upon the chemic constitution of black vomit in yellow fever, sustain the view held by MM. Prevost and Dumas, Claude Bernard, Ricord, and other physiologists, that urea after having been generated in the blood and tissues, is simply excreted by the kidneys, and does not confirm the doctrine taught by M. Herman, Dr. Beale and others, that urea and uric acid are not only eliminated but are formed by the renal tissue. And careful physiologic experiments which I have performed have been confirmed by the results of the inquiries of M. Gréhaut (*Archives de Physiologie Normale et Pathologique*, Sep et Novembre, 1870—*American Journal of Medical Sciences*, October, 1871, p. 530), which extended over several years. According to this careful observer, immediately after nephrotomy in the fasting dog, urea begins to accumulate in the blood, its increase being manifest within three hours after the operation; the increase of weight of the urea in the blood and in the lymph, twenty-four hours after the ablation of the kidneys, is equal to the weight of it that would have been excreted by the healthy fasting animal in the same space of time; the accumulation of urea in the blood in the hours that succeed nephrotomy, follows the same march as after ligature of the ureter. After ligature of the ureter, the quantity of blood circulating through the kidney of the side diminishes; under normal conditions the blood of the renal vein always contains less urea than the corresponding artery; in an animal in which the ureters have been ligatured, the renal venous blood obtained twenty-four hours after the operation contains as much urea as the renal arterial blood, so that the tissue of the kidney neither excretes nor secretes any more.

Finally, M. Gréhaut has shown, that ligature of the ureter and nephrotomy are two operations that are identical in their results; they both suppress the eliminative function of the kidneys, while they form no obstacle to the formation of urea, which takes place outside of the kidneys.

Whatever theory may be held as to the cause

of the peculiar phenomena, denominated uremia, whether that of the poisoning of the blood by the urinary constituents generally, or by urea especially, or by the product of its decomposition, viz., carbonate of ammonia, or by the edema of the brain from the accumulation of the watery constituents of the blood, attended by serous apoplexy and irritation of the brain and its membranes; it is evident that in many cases of yellow fever, the fatal issue is determined chiefly by the retention in the blood of the constituents of the urine. To this cause must be attributed to a great extent, the restlessness, nervous agitation, intoxication, delirium, convulsions and coma characterizing the stage of calm or depression in many cases of yellow fever.

NOTE.—Dr. Carl R. Braun, in his valuable work on the "Uremic Convulsions of Pregnancy, Parturition and Child-birth," has given the following summary of the state of our knowledge at the time of his work, which we here reproduce from the important bearing which it has upon similar phenomena in yellow fever:

"Eclampsia parturientium is commonly the result of uremic intoxications arising from Bright's disease of the kidneys, and produced mostly by carbonate of ammonia in the blood, perhaps also by extractive matters in the urine.

"This appears from the following analysis:

"a. All observers at present agree that urea retained in the blood is not, as such, the cause of the uremic symptoms.

"b. Lehman (*Physiol. Chemie.*, Vol. II, s. 245) and Frerichs almost simultaneously and independently of one another arrived at the conviction that cause of the uremic phenomena is to be sought for in the ammoniacal contents of the blood, produced by the transformation of urea into carbonate of ammonia.

"c. The investigations of Frerichs, Litzmann, the author (Dr. Carl R. Braun), Heller, Kletznsky, Ofpöizer, Gegenbauer, and others have demonstrated that in the eclamptic, urea and carbonate of ammonia developed by its decomposition are generally found in considerable quantities in the fresh blood, that from the presence of these materials in the blood the occurrence of uremic eclampsia may be prognosticated, and that these substances are observed also in the blood of children born of uremic mothers.

"d. Chemic analysis, however, can not always, even during the most violent eclampsia, discern the presence of carbonate of ammonia in fresh blood, as is shown in an observation made on August 4, 1854, by Gustav Braun and Heller and communicated to me. The blood, drawn from a vein after the sixteenth eclamptic fit, separated itself into clear serum and a light red, bulky, moderately consistent clot, covered with spongy fibrin, tinged yellow by a gall pigment. The strongly alkaline serum had a specific gravity of 1025, and contained much casein and bilephæin. The serum filtered after being treated with alcohol, contained little urea and sugar, much cholesterin and cholic acid. The blood then had not the uremic, but the cholemic constitution, as it contained no carbonate of ammonia, but all the elements of the bile. This observation, although it does not stand alone, can not be used to invalidate the theory of the very frequent coincidence of eclampsia and uremia. It rather points out that the excrementitious elements of bile may produce cholemia in the living body, and be likewise a cause of eclampsia.

"e. According to the very careful experiments of Mettenheimer (Mettenheimer, C., *Archiv. f. Voissenschriftliche Heilk.* 1. 4.), Beneke, and Reuling, (Reuling, W., *Inaug. Diss.*, Gussin, 1854,) all healthy and sick individuals have the power of expelling ammonia under certain circumstances. In the lungs of the healthy, ammonia is in general absorbed rather than expelled; hence the vapors produced in holding before the mouth a glass rod wet with dilute muriatic acid, are never capable of indicating the degree of uremia and Bright's disease.

"f. Normal blood when fresh drawn does not contain ammonia, as Reuling has proved by a very simple but very delicate qualitative method with logwood paper. In several diseases, as caries of the teeth, angina tonsillaris, typhus, pyemia, ischemia, and blenorrea of the urinary bladder, we sometimes find in the blood carbonate of ammonia, just as in uremia and Bright's disease. Hence carbonate of ammonia in the blood can not be regarded as a characteristic indication of uremia, and in many constitutions uremia may be produced by extractive matters in the blood.

\* Lectures on the Diseases of the Kidney, generally known as Bright's Disease and Dropsy, by S. F. Goodfellow, M.D., Ch.C., London, 1861, pp. 67-69.

"g. After weighing the objections raised against the theory of the intoxication of the blood by carbonate of ammonia, Litzmann has arrived at the following conclusions: the fresh blood of healthy individuals never contains ammonia. In the majority of the cases of uremia, the blood does contain ammonia, which has been formed by the decomposition of urea formed in the blood and retained in it, or by the decomposition of the urea that has been secreted in the urinary passages and has returned into the circulation by absorption. The presence of ammonia in the blood is indicated by the increased ammoniacal contents of the expired air; but this increase can not of itself be considered a proof, for it may be produced by the admixture of ammonia formed in the cavity of the mouth by decomposition of the oral secretions and of remains of food in the case of carious teeth, etc. In the vomited fluids and the contents of the intestine in cases of uremia, carbonate of ammonia is not unfrequently discovered. Sometimes there is an alkalin reaction of the sweat (Litzmann, Rühle). The urine may contain ammonia, even when it has an acid reaction (Brücke). But, on the other hand, presence of ammonia in the blood is not by any means a sign of uremia exclusively, for it has been exceptionally observed (Reuling) in other diseased conditions (typhus and pyemia) when the urinary secretion was not disturbed. On the other hand, cases undoubtedly occur where notwithstanding obstructed secretion of urea by the kidneys, and the occurrence of all the characteristic symptoms of uremia, the blood does not contain any ammonia and the ammoniacal contents of the exhaled air are not increased (Reuling), but when, on the contrary, undecomposed urea is found in the transudations from the blood, and in the sweat especially, may be in such quantity as to be left on the skin in the form of white crystalline dust. (Schottin, Archiv. f. Physiol. Heilkunde, Vol. x, xi, xii; Fiedler, De Secretion Urinæ per Cutum, Dissit. Inaug. Med., Leipsic, 1854). The cause of uremic phenomena can not therefore be sought for in the decomposition only of the urea retained in the blood into carbonate of ammonia.

"h. Whether the accumulation of extractive matters in the blood, in consequence of suppression of the urinary secretion is the cause of eclampsia (Schottin, Reuling) or not, is a question for the future to decide. Hoppe found, in a case of a uremic poison, besides urea, three times the usual quantity of extractive matters in the serum of the blood, and also the muscles saturated with their excretory products. The quantity of kreatin obtained from them was five times as much as the normal amount.

"i. Wiegner, on these grounds regards uremia not so loosely as the ancients, who held it to be a metastasis of the urine, and not so exclusively as Frerichs, who considers it an intoxication by carbonate of ammonia, but as a consequence of Brightian exudation into the kidneys which in its chemico-relations is characterized by retention of water and excrementitious matters in the blood, which itself, from the loss of blood corpuscles and albumin is impoverished in these elements. But it is uncertain whether the chief part in the combined operation is to be ascribed to the excess of serum or to the diminution of the albumin and blood corpuscles. Hydremia, however, is never the cause of the nervous symptoms, but has only a predisposing action.

"j. From the results of chemico-analyses it is certain that in uremia, carbonate of ammonia and urea are often found in the fresh blood and are rarely wanting. Although the essential nature of uremia is always coming into clearer light in consequence of the rapid strides of organic chemistry, yet we know enough already to assure us that eclampsia parturientium is always caused by the presence in the blood of an excess of excrementitious matters and also generally by uremic intoxication."

To the action of the same cause also may certain changes of the blood be referred, as the dissolution of the fibrin and the rapid changes which the colored blood corpuscles undergo after death and after removal from the living body. During the healthy action of the kidney, as has been shown by Simon, of Berlin, and Bernard, of Paris, fibrin disappears from the blood passing through this organ and is most probably converted into albumin, and the increase of the fibrin in Bright's disease has been referred to the cessation of this change of the fibrin in the diseased kidney; but in yellow fever, notwithstanding that the function of the kidneys may be

wholly arrested, there is almost complete disappearance of the fibrin of the blood, so profound is the action of the defibrinating cause. That very important changes take place in the blood during the healthy action of the kidneys, from the separation of the urea and other constituents of the urine, is evident from the fact observed by Bernard, that when the kidney is active, the blood issuing from the renal vein has a bright sparkling red color, but if the secretion is more or less diminished or altogether suppressed, not only is the blood issuing by the vein dark colored, but the whole organ assumes a purplish tint, more or less deep. This change of color has, with some show of reason, been referred chiefly to the non-separation of water during the suppression of the function of the kidney.

Nasse has shown that if blood be diluted with water it assumes a dark red color; if the blood be previously dark colored, it becomes still darker on the addition of water; and if the blood corpuscles be examined under the microscope, they are found to be distended, to have lost their discoid form, and to have become spherical; the blood collectively therefore must appear darker, since each individual corpuscle has become converted into a spherical mirror, from which the red rays are scattered and reflected.

It has been shown by the experiments of several physiologists, that when the red blood corpuscles are in normal amount, a certain quantity of urea added to the blood scarcely produces any effect upon them; but on adding the same quantity to the same amount of blood, from which a considerable number of blood corpuscles had been withdrawn, a very striking effect was at once observed—the corpuscles rapidly assumed a vermilion tint, and sank to the bottom, presenting the appearance to the naked eye of fine vermilion; and on examining this sediment with the microscope it was found to consist entirely of red corpuscles, reduced to about a sixth of their natural size. The effect of the urea seemed to be in exact relation to the quantity of red corpuscles in the dependent portions of the blood, resembling fine vermilion, as in the preceding experiments, and this appearance must not only be referred to the loss of fibrin, but also to the action of the urea.

The blood of yellow fever containing more or less urinous excrement, and with a physical alteration and actual diminution of both the albumin and fibrin, is not only ill adapted to the nutrition of the organs, and actually conveys to the stomach materials which when eliminated alter so completely the properties of the gastric juice, as not only to arrest digestion, but also to irritate and corrode the mucous membrane; but it is also by its physical and chemical constitution unsuited to the maintenance of the general capillary circulation.

Both Bernard and Poiseuille have observed that fibrin when in intimate mixture with a due normal proportion of albumin, facilitates the movement of the blood; but if the fibrin be withdrawn the blood globules fall to the most dependent part, and obstruct the capillary circulation.

Bernard has recorded the observation that when the capillary circulation in the web of the frog's foot is examined under the microscope, the globules are seen suspended nearly uniformly in the liquor sanguinis; but if we examine this circulation in an animal whose blood has been defibrinated, we see the globules fall to the most dependent part, while at



the superior parts, pure liquor sanguinis alone circulates. If a horizontal vascular trunk bifurcates in two divisions, not situated on the same horizontal plane, the lower branch will be plugged by the accumulation of the globules, while the upper branch will be full of serum.

Not only are similar causes active in producing the capillary congestions which are so characteristic of yellow fever, but the altered albumin and fibrin coagulate in the secreting and excreting structures of the liver and kidneys after its transudation through the walls of the capillaries and biliary and urinary tubes. To these changes of the blood, therefore, must be referred, to a great extent, the suppression of the functions of the liver and kidneys; for it is very evident that in the case of the liver the obstruction does not exist in the biliary or hepatic ducts, but in the biliary tubes.

It is evident that certain changes in the blood, as well as certain nervous symptoms in yellow fever, are due to the retention of bile in the blood.

Next to black vomit, jaundice occurring in the febrile stage of yellow fever is the most fatal symptom. Many observers regard jaundice as unfavorable in proportion to the earliness of its development; some writers considering jaundice as surely indicative of a fatal termination, when appearing upon the first or second day, or up to the third, fourth or fifth day.

Mr. Maher says that the period at which jaundice makes its appearance during the course of the disease is, according to the observations of Dr. Belot, a prognostic sign of great certainty. When it appears toward the third or fourth day, death will infallibly ensue; if it occurs toward the fifth or seventh day, the probability of a fatal issue is greater than that of recovery; finally, when it manifests itself only after the seventh day from the period of attack, recovery is almost certain (*Rapport Médicale sur l'Epidémie de Fièvre, Jaune*). The most valuable statistics with reference to this symptom have been furnished by Daniel Blair (*Some Account of the Last Yellow Fever Epidemic of British Guiana*." Third Edition, London, 1852, pp. 79-83). According to this accurate observer: "Yellow skin was always a sign of great intensity of disease. Among the 2,071 milder and graver cases, 385 had *yellow skin*; and of these 385, 178 died. Thus the proportion of cases in which the symptom appeared was 18.54 per cent., and the rate of mortality of the symptom was 46.23 per cent.

The following table will show the number of cases in which yellow skin was observed on different days of the disease, the number of deaths, and rate of mortality for each day, and rate per cent. of symptoms:

YELLOW SKIN AND BLACK VOMIT.					
122 Deaths.					
Day of Disease.	40 Cases Simultaneous.		45 Cases preceded.		22 Cases Succeeded
	No. of Cases.	No. of days preceded	No. of Cases.	No. of days succeeded	No. of Cases.
3d..	3	1	28	1	25
4th..	14	2	10	2	4
5th..	9	2	5	3	2
6th..	10	1	1	7	1
7th..	3	5	0	..	..
8th..	1	0	0	..	..
22 Recoveries.					
Day of Disease.	6 Cases Simultaneous.		6 Cases preceded.		10 Cases Succeeded
	No. of Cases.	No. of days preceded	No. of Cases.	No. of days succeeded	No. of Cases.
3d..	3	1	3	1	5
4th..	4	1	1	2	2
5th..	5	2	4	3	2
6th..	2	..	1	4	1
7th..	..	..	..	..	..
8th..	..	..	..	..	..

Black vomit, although a very unfavorable symptom,

and more so than yellow skin, being as 75.68 to 46.23, is still not necessarily fatal. Out of the 366 cases of it, 277 only died, giving the centesimal mortality just stated, viz., 75.68. Yellow skin and black vomit were closely associated as to the time of their appearance, but the former was generally the antecedent (fortunate for the patient when otherwise). Thus in 139 ascertained cases, the former preceded the latter in 51 instances, appeared simultaneously in 46, and succeeded it in 42 instances. The double symptom of yellow skin and black vomit was of all others the most dangerous, and especially when the latter succeeded the former, and within twenty-four hours. The co-existence of these symptoms was observed in 144 cases, being 6.95 per cent. of the 2,071 milder and gravior cases admitted to the Seaman's Hospital. Out of these 144 cases, 122 died, making the mortality of the conjoined symptoms 84.72 per cent.

The following table shows the day of the disease on which yellow skin and black vomit occurred simultaneously, also the number of cases in which the former preceded or succeeded the latter, and the number of days it so preceded or succeeded:

TABLE SHOWING THE NUMBER OF CASES IN WHICH YELLOW SKIN WAS OBSERVED ON DIFFERENT DAY OF YELLOW FEVER, THE NUMBER OF DEATHS, AND RATE OF MORTALITY FOR EACH DAY.									
Day of Disease.	Total number of cases. . . . .	Number of deaths . . . . .	Rate of Mor-tality . . . . .	Rate per cent. of Symptoms. . .	1	2	3	4	5
1	8	1	12.5	0.38	1	4	18	30	66
2	16	4	25.0	0.76	4	18	30	66	86
3	46	18	39.01	2.22	18	44	66	86	89
4	89	44	49.45	4.20	44	66	86	89	89
5	86	53	61.62	4.15	53	66	86	89	86
6	30	13	43.33	1.45	13	30	66	86	30
7	18	10	55.55	0.87	10	18	30	66	18
8	7	1	14.28	0.34	1	7	18	30	7
9	8	3	37.5	0.38	3	8	18	30	8
10	5	2	40	0.29	2	5	18	30	5
11	..	..	..	..	..	..	..	..	..
12	..	..	..	..	..	..	..	..	..
13	..	..	..	..	..	..	..	..	..
14	..	..	..	..	..	..	..	..	..
15	..	..	..	..	..	..	..	..	..
Unascertained.	..	..	..	..	..	..	..	..	..

I have confirmed, by careful chemic analysis of the blood, and of the nervous structure and organs, the view held by some pathologists, that the yellow hue in jaundice observed in many grave cases of yellow fever is due to the presence of bile in the blood. By careful post-mortem examinations, as well as by attentive observation of the amount and chemic constitution of the urine in this disease, I have been able to refer the accumulation of the bile in the blood in this disease to two causes, viz., structural alterations of the liver, attended with desquamation of the excretory cells, obstruction of the biliary ducts, with altered fibrin and albumin and oil, and

the accumulation of free oil in the excretory cells, and structural alterations of the kidney, resulting in impairment if not total suppression of its function.

Bile is a very common ingredient of the urine in yellow fever, even in those cases which terminate favorably, and as long as the functions of the kidneys are fully and freely performed, the blood may be relieved from any great accumulation of bile, even when the lesions of the liver are well marked, and from this cause the urine may be loaded with bile. When the kidneys cease acting, the bile as well as the urinary constituents rapidly accumulate in the blood, and certain changes in the physical and chemical characters of this fluid are referable to the bile, as well as to the urinary constituents.

In order to ascertain the effects upon the various functions resulting from the absorption of a large quantity of bile into the blood, but particularly with the object of tracing what becomes of the bile in the blood—whether it is transformed, or is excreted as bile, and, if transformed, what may be the nature of the changes it undergoes—Frerichs performed a series of experiments, the general results of which were as follows: some of the animals died under symptoms of violent dyspnea (obstruction of the capillaries of the lungs), owing to the entrance of air into the lungs, or to the too great consistency of the injected fluid; twenty-nine of the experiments, however, succeeded in such a way that their results could be made use of. In no case did any remarkable derangements of the nervous functions follow the injection; in no case was stupor, convulsions or retardation of the pulse observable; vomiting, however, occurred repeatedly in about one-fourth of the experiments, and in some of these cases also the injection of the bile was followed by some drowsiness. The character of the urine which was voided after the injection varied; sometimes it contained a larger or smaller quantity of coloring matter, and at other times it contained none; the former was the case in nineteen, and the latter in ten, of the twenty-nine experiments. The urine containing coloring matter was always passed in small quantity; it was of a greenish-brown color, became turbid upon cooling, and then appeared green, rapidly depositing flakes which, under the microscope presented a finely granular appearance. When collected upon a filter, this deposit formed a dark grass-green layer, which dried readily, and which, when recently dried, exhibited the characteristic properties of the coloring matter of bile, becoming decomposed by the action of impure nitric acid, or by a mixture of sulphuric and nitric acids, with a lively play of colors of green, blue, violet and red. The reaction of the urine was, in most cases, neutral or alkaline; the removal of the flakes of coloring matter was speedily followed by an abundant deposit of triple phosphates; the specific gravity of the urine varied. When the kidney is examined after death, in these cases, the tubes are deeply tinged by the bile contained in their secreting cells, and some tubes are nearly or quite filled with cells which have been thrown off, while others have been formed upon the basement membrane beneath them.

Dr. Johnston concludes from these facts, that when the blood circulating through the kidneys contains an excess of bile, the renal cells, in striving to eliminate these materials, become deeply tinged by it, and many of them are so far modified as to be shed by a process of desquamation.

The bile exerts a direct effect upon the kidneys, without doubt, inducing congestion and desquamation of the excretory cells in yellow fever, but the albuminuria, hematuria, and even total suppression of the functions of these organs, can not be referred wholly to the direct irritant action of the biliary products, but must, as in the albuminuria and desquamative nephritis of scarlatina, be referred to other causes also, as the irritant action of the poisons exciting the diseases, and the morbid condition of the blood induced by the action of specific poisons, as well as by the altered bile. That the retention of bile in the blood is capable of inducing profound alterations in its constitution, is evident from the fact that in all cases of jaundice which last for a length of time, the blood becomes impoverished by a diminution in the proportion of red globules and fibrin, and a tendency is developed to hemorrhages from the various mucous membranes. While this tendency to hemorrhage is practically observed in conjunction with cerebral symptoms and other indications of blood poisoning in cases of jaundice, when there is no obstruction to the bile ducts, it also occurs in cases of mechanical jaundice of long standing, in which the immediate cause of death is not unfrequently copious hemorrhage from the stomach and bowels.

While Frerichs observed in his experiments no marked effects upon the action of the heart or nervous system, it is well established by clinical observation that the presence of bile in the blood frequently retards the action of the heart and diminishes arterial tension, the pulse becoming irregular and falling to 50, 40, or even 20, and presenting the same characters as the pulse in yellow fever; and it is equally well established that acute delirium, stupor, coma, muscular tremors and convulsions may supervene in cases of jaundice, where there is no obstruction of the ducts, as well as in cases of long standing mechanical obstruction. The fact that slowness of the pulse is not an invariable symptom of jaundice has been explained by supposing that it is due to one particular ingredient of the bile, which does not exist in the blood in all cases of jaundice. Thus, Röhring has shown by experiments upon animals that the biliary acid salts exercise a specific paralyzing action upon the heart and retard its action, while bile pigment has no such effect; slowness of the pulse, therefore, in jaundice has been referred to the presence in the blood of unchanged biliary acids. Notwithstanding that the blood of the human subject may be saturated with bile in jaundice, for long periods of time, without the manifestation of any serious cerebral symptoms, at the same time there are certain cases of suppression of the function of the liver, attended with cerebral symptoms of the most violent character, hemorrhage from the bowels, and profound alterations in the blood and urine, which can only be referred to the presence in the blood of the altered secretion of the liver.

The theory advanced by Dr. Austin Flint, that the cerebral symptoms in jaundice are due to the retention of cholesterine in the blood, does not solve the question; for if the retention of all the elements of the bile in the blood does not give rise to cerebral symptoms, it is impossible to understand how the symptoms can result from the retention of cholesterine alone, which is one of the constituents of bile.

Cholemic eclampsia, attended with jaundice, and

rapidly fatal tonic and clonic convulsions and coma, as well as that peculiar form of jaundice which is characterized by vomiting of blood, bloody stools, convulsions, coma and a rapid progress and fatal issue, evidently arise from the alterations induced in the blood by the constituents of the bile, and the products of their decomposition, resulting from acute atrophy of the liver, and present, not only in some of the symptoms, but also in the acute fatty degeneration of the liver, and infiltration of the organ with oil, and the alterations of the heart and kidneys, a striking analogy to the grave cases of yellow fever.

It is still a matter of dispute and doubt which element of the bile, or what products of the decomposition exercise the baleful influence on the nervous system in acute yellow atrophy of the liver. According to Frerichs, the formation of leucine and tyrosine, crystalline products of the decomposition of albuminous substances, may produce the nervous disturbances. Virchow, however, feels himself unable to grant this, because leucine and tyrosine are also found in typhus and exanthematous diseases, and may possibly be formed not until after death. Bamberger, on the other hand, thinks it more probable that they are produced by the acids of bile, and by the possible products of their decomposition; and Dr. Budd contends that they are due to some peculiar noxious matter evolved in consequence of decomposition, in the lobular substance of the liver; while Dr. Charles Murchison holds that the poison producing the cerebral symptoms is more probably generated in the blood and throughout the body generally than in the liver particularly.

The investigations of physiologists have shown that the liver not only excretes bile, but it forms grape sugar, and elaborates certain constituents of the blood, and exercises a continuous and important influence on the metamorphosis of matter constantly taking place in the blood and tissues.

That the arrest of the function of the liver checks or modifies the normal healthy metamorphoses of the blood and tissues is manifest, not only in the physical alterations of the blood in acute atrophy of the organ, but also in the great diminution of urea, and the appearance in large quantities of leucine and tyrosine, which possess a composition intermediate between it and the albuminoid components from which urea and uric acid are derived.

In acute atrophy of the liver, in acute phosphorous poisoning and in yellow fever, diseased states which have many symptoms and pathologic lesions in common, it appears that the albuminoid substances of the blood and organs, are split up into nitrogenous and non-nitrogenous combinations; but the combinations of the oxygen of the blood are not carried far enough to produce the final result of the normal oxidation in the healthy organism, and in addition to the formation of leucine and tyrosine, and of various nitrogenous substances, the composition of which is not perfectly known, fat results from these changes, which not only imparts an oily appearance to the blood, but also from the arrest of the oil globules in the capillaries infiltrates the textures of the liver, heart and spleen, and induces in these organs fatty degeneration.

(To be continued.)

## PERITONEAL SUPPORTS—(LIGAMENTUM PERITONEI.)

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(Continued from page 598.)

The hepatic artery produces only a slight elevation of peritoneum until it reaches the hepato-duodenal ligament, whence it aids in giving distinct outline to the border of Winslow's foramen on the right. By opening an adult cadaver, well prepared for inspection, and then carefully incising the gastro-colic omentum, one can see with perfection the shape and form of the left opening of Winslow into the lesser omental bag. To obtain the best view of Winslow's foramen, however, the ribs on both sides should be removed and the stomach lifted well up. Winslow's foramen will then be seen to have a distinct oval form as seen from inside the lesser bag, whose circumference is nearly all produced by peritoneal folds projected by the gastric and hepatic arteries.

The splenic artery, I must say, contrary to some anatomists, does not run into the gastro-splenic ligament until it nears its termination. Beginning at the celiac axis it at first passes behind the ascending layer of the transverse colon or the layer forming the lesser omental sac. It passes along the upper border of the pancreas in a spiral manner. When it approaches almost to the spleen, it suddenly bends and gains entrance rather to the phreno-splenic ligament than the right gastro-splenic ligament for the only arteries which distinctly run in the gastro-splenic ligament are the vasa brevæ. This splenic artery does not make very prominent folds in the peritoneum, or what it does make are very short.

The spermatic vessels make evident projecting folds of peritoneum and give rise to the ligamentum infundibulo-pelvicum, which is a sharp fold of peritoneum transmitting the ovarian and spermatic vessels and nerves. The spermatic vessels give origin to the intersigmoid fossa which can be best noted, so far as my experience is concerned, in a spare infant of six months. In such infants one can demonstrate by pulling on these vessels, exactly the formation of the intersigmoid fossa. The deep epigastric artery produces peritoneal folds of varying sizes and is of no particular importance except directly at the origin, where the vas deferens and spermatic vessels pass around its outer side. At its origin a fold of peritoneum is often manifest and no doubt aids in the final passage of viscera in hernia. The fold frequently makes a depression, a fossa or peritoneal pucker, which predisposes to the formation of hernia.

The veins produce some interesting folds of peritoneum which call attention to anatomic and pathologic points. The ascending vena cava bounds posteriorly the foramen of Winslow, and in embryos and the dog the vena caval boundary is plain and suggestive as to the mouth of the lesser omental sac. It produces a large, round, peritoneal fold. The inferior mesenteric vein is of both anatomic and pathologic interest. In the first place this vein varies very much in its termination. It empties into the superior mesenteric vein at the junction of the superior mesenteric and splenic veins or, finally, it empties into the splenic vein. It can be observed how this vein shifts from the middle line (superior mesenteric vein) over to the left side (emptying into the splenic). It may be stated that as animal life ascends, this

vein moves toward the left to terminate, and hence the emptying of the inferior mesenteric vein into the splenic is a sign of higher life—apes and man. The pathologic interest in the inferior mesenteric vein lies in the fact that, as it gradually shifts to the left, in the ascending scale of animal life it forms a well-known fossa—the fossa duodeno-jejunalis, which generally is about the size of a thimble and occurs probably in about 60 per cent. of subjects. The fossa is situated at the junction of the duodenum and jejunum. I have observed cases where the inferior mesenteric vein passed nearly two inches to the left of the junction of the duodeno-jejunalis and in this case there was no fossa, but still a prominent peritoneal fold produced by the vein. Hernia is liable to occur in this fossa. The folds of peritoneum produced by fetal remnants of vessels are often large. The urachus, the remains of the allantois, does not generally produce manifest folds. The two arteriæ hypogastricæ may produce peritoneal folds over an inch high, especially near the bladder. Such folds could do no damage unless their mesentery either yielded, producing a pouch, or atrophied producing an aperture, allowing hernia to arise.

The round ligament of the liver, *teres-hepatica* passes from the transverse fissure of the liver to the umbilicus. This obliterated vein raises the peritoneum into a fold from one to two inches high. It acts as the *ligamentum suspensorium hepatis* and it is surrounded by a part of the anterior mesogaster. Should the *ligamentum suspensorium hepatis* become thin in any portion of its mesentery, a perforation might arise in it which might allow a loop of intestine to pass through it as frequently happens in the mesentery of a horse.

Again, raised folds of peritoneum due to blood vessels are not the only phenomena in the peritoneum attributable to blood vessels. We have large, thin and almost transparent areas in mesenteries which are due to lack of blood vessels. The areas occur among the arches of the vessels and especially at the lower end of the ilium in the region of the ileo-colic artery. The areas in the mesentery toward the center are very thin, transparent and devoid of any visible blood vessels. Such atrophic regions I have observed in man and dog, also horses who have a thin mesentery show very thin areas. I should suppose that the perforated condition of the great omentum is similarly due to the atrophy of the peritoneal tissue lying distant from blood vessels.

The nerves of the mesentery are derived from the abdominal brain or solar plexus. They run along the blood vessels ensheathing them. The bundles of nerves and great vessels continue parallel until the anastomotic vascular arches occur, toward the distal extremity of the mesentery, where the nerves begin to leave the blood vessels and cross the areas of the vascular arches. From the beginning of the vascular arcades the nerves do not lie parallel to the vessels, but assume an independent course to the bowel. The formation of a series of arcades leads to the separation and breaking up of the nerve bundles, after which many of the nerves reach the digestive tube by the shortest route.

Dr. Waite and myself, during two years, investigated some thirty bodies in regard to the viscera. In a spare body we could strip off a fine, transparent, epithelial membrane from each side of the small bowel mesentery. This epithelial membrane on each

side was so thin that one could not perceive it between the finger and thumb. It is the real peritoneum. After these superficial layers are stripped off from each side of the mesentery, a dense fibrous layer remains—the *membrana mesenterii propria*. The strong, white, tendon-like fibers in this mesentery proper are chiefly arranged in more or less thick bundles which gradually thin as they recede further from the arteries. The membrane is thick and heavy at the roots of the arteries, binding in a solid mass the nerves and vessels.

The *membrana mesenterii propria* is rigid and stiff at its base, preventing rotation or kinking of itself or of its vessels and nerves. As the membrane reaches toward the bowel it thins, loses many bundles of strong fibers and becomes more and more transparent. As it passes between the loops and arches of the arteries, by holding it up between the eye and the light, we can see the varying directions of the fibers. These tendon-like fibers are not precisely regular in distribution, and yet they have some regularity, like the direction of the fibers in a uterine myoma.

There are several layers of fibers running in gentle curves, always, thinning and disappearing as they become more distinct from the arterial loops. In the typical cadaver, by which I now sit and write, Dr. Waite and myself stripped off about a square foot of the superficial real peritoneal membrane on each side of the mesentery and by holding the long mesentery between the eye and a strong light, we could observe the various arrangements almost perfectly. It appears that as these fibers of the membrane proper, fill the space between the arterial arches and loops, they sweep in curves from one vessel to another. But the curving and interlacing fibers of the *mesenterii membrana propria* are firmly knit and bound into a tough layer, which holds with a firm grip the nerves and vessels in definite relation. Just as soon as the membrane reaches the bowel where it divides to receive the bowel, the connective tissue suddenly increases. In this body which lies before me, we could separate the superficial, peritoneal, epithelial covering from each side of the transverse meso-colon, but the *membrana mesenterii propria* in the transverse meso-colon is exceedingly thin and as transparent as glass, except where a large vessel was firmly embedded in it. The *membrana mesenterii propria* is very thin in the meso-colon transversum just as it is in the great omentum, or gastro-colic omentum. As the peritoneum passed upward from the upper layer of the transverse meso-colon, it passes over the pancreas, but a strong layer of the *membrana mesenterii propria* extends around the pancreas firmly imbedding it, for the pancreas is intimately attached to the peritoneum which lies in front of it, as it was once in the gastro-colic mesentery, as one can typically see it in the dog. Hence, we can say with much appropriateness in the actual examination of cadavers, fitted for the inspection, that the *membrana mesenterii propria* is the real mesentery. That it is simply covered on both sides by a thin layer of epithelial cells which constitutes the serous membrane. That this serous layer can be definitely stripped off. That the *membrana mesenterii propria* is the real neuro-vascular pedicle of the viscus at the distal end of the mesentery. That it firmly embeds vessels and nerves in its bundles of fibrous tissue which generally run in parallel lines or layers along the arteries.



One can prove that the chief bundles of fibers belong to the artery by dissecting out the artery when the mass of fibers will nearly all accompany the vessel. The great bundles of fibrous tissue are held together by a fine white tissue (connective), the same kind that surrounds each vessel and makes its snowy bed. No doubt this beautiful and useful arterial bed of areolar tissue, containing elastic fibers, saves many an artery from becoming an aneurysm, by equalizing its pressure and acting as a buffer against traumatism. It would appear that as we depart from the original primitive mesentery that the *membrana mesenterii propria* lessens continually, as for example, in the mesentery of the small bowel it is typical in size, strength and thickness; it is small and thin in the meso-colon transversum and finally in some parts of the great omentum it is scarcely visible.

In looking over the chief anatomies for one hundred years, it is evident that the mesentery has been viewed as a double layered membrane springing up from the dorso-abdominal wall. This membrane was indicating as inclosing the viscus and the vessels and nerves which keep it in existence. The same view I find in modern anatomies. The view is not so expressly stated, as implied, that the mesentery is simply a double layered membrane. It surprises me very much that I can find but little reference to the fact that the mesentery is a distinctly three-layered membrane, consisting of two thin epithelial membranes and one fibrous connective tissue layer—the three together constituting the mesentery, or the neuro-vascular visceral pedicle. That the mesentery has been viewed as a double layered membrane may be seen by examining the anatomies through Meckel, Hensing; Huschke (1797–1858, German anatomist and embryologist); Luschka, Henle and modern English workers. A work not at my command, but referred to by Professor Toldt of Vienna, shows that Thomas Wharton in his "Adenographic," published in 1656 (London) was the discoverer of the idea that the mesentery consists of three layers instead of two. Wharton writes that he, in the presence of Glisson, demonstrates the three layers of the mesentery on a 14-year-old girl, whose body was very spare. Wharton's discovery was confirmed by the anatomist, Verheyen in 1718. Toldt mentions that Bartholinus in 1686, and McEuler in 1746 are credited with investigating the three layers of the mesentery, in Haller's "Bibliotheca Anatomica" (1774). But the knowledge of these few anatomists seems to have been forgotten. In later times Ranvier, of Paris (1875) with his exact methods and brilliant results took up the subject and announced that the mesentery consisted of three layers instead of two.

In very early embryonic life the mesentery—a heap of cells along the intestinal canal—shows no indication of a double-bladed structure. But it appears as a simple bed in which run the vessels and nerves. It is faced with epithelial cells. In this aggregation of mesodermic cells gradually increases connective tissue and in the last month of intra-uterine life fat collects in the meshes.

The erroneous teachings of the old anatomists one would think would be buried with them, but one can easily see these errors propagated in modern journals. I refer to what the Latin anatomical writers curtly said in the short sentence: "*Organa intra et extra peritoneum sita.*" The development of the mes-

entery will dictate that all organs lie outside of the peritoneum. No viscus lies in the peritoneal cavity. Some surgeons gravely pretend to attack the appendix posteriorly to the peritoneum. Others with equal profoundness state that the appendix is an intra-peritoneal organ. These statements and many others in regard to intra-peritoneal organs are incorrect, for all organs lie entirely outside of the peritoneum. The organs can be enveloped by peritoneum, but are never entirely inclosed by it.

The mesenteries consist of two surfaces faced by smooth, shining, pavement epithelial cells. Between the layers of peritoneum composing the mesentery is a goodly amount of connective, elastic and often muscular tissue, which serves as a bed for the veins, arteries, lymphatics and nerves. A mesentery is of varying thickness, owing to the amount of fat and other tissue lying between the epithelial surfaces. In embryos it is very thin and as transparent as glass. In horses it is sometimes over two feet long and very transparent. Its use is to anchor organs to distinct points, to limit viscera to physiologic purposes by holding them in definite relations and allowing no entanglements or undue pressure. The mesentery is a highway for vessels and nerves and possibly the peritoneal covering aids digestion, sustains relations for ovulation and preserves conditions for expansion and contraction. The deviations of the mesentery from embryonic to adult life are the most manifest in the anterior and posterior mesogaster. Such changes affect higher mammals the most notably. As the stomach alters its primitive condition, the mesogastrium posticum or great omentum stretches out into a great sac, lying behind, to the left and below the stomach. This sac (*bursa omentalis*) generally hangs down below the stomach and covers the small intestines in most mammals. It has a varying relation to the colon transversum in the ascending grade of mammal life. The great omentum begins in most higher animals to embrace the transverse colon from the right toward the left as may be typically observed in the dog. The mesentery of the digestive tube lying posterior to the stomach retains a simple primitive character, especially when it is short. The mesentery of the carnivora with their short digestive tube is far more simple than of the ruminant with his long convoluted canal. The complicated mesentery chiefly arises in mammals who, from the nature of their food, require a long colon. It is the growth of the colon and its mesentery which destroys simple mesenteric relations. If the hind gut or colon grows it must grow forward from the neck of the navel loop and this quickly brings the colon with its mesentery in interfering relations with the lower and posterior end of the great omentum.

The mesentery either arises from the heaps of cells which grow around and inclose the gut, subsequently elongating into a double loop of membrane, or the mesentery arises by coalescence of intercellular lymphatic spaces from fluid pressure aided by independent action of adjacent walls—in short, cleavage, evagination, displacement, folding and coalescence of the mesodermic layer.

The mesentery of the small intestines (*mesenterium*) is a very variable element, as well as an important one. It is directed from the lower end of the duodenum across the trunks of the great blood vessels and the vertebral column obliquely, from left above to right below. The bony landmark is the second verte-

bral lumbar and the sacro-iliac joint. The soft landmarks are the lower end of the duodenum and the cecum. The mesentery consists of a right upper blade (*lamina dextra mesenterium*) and a left lower blade (*lamina mesenterium sinistra*). These two blades are in direct contact containing the nerves, vessels and lymphatics and connective tissue. The obliquity of the root (*radix mesenterii*) directs fluids on the right into the right iliac fossa and on the left in the pelvis. The mesenteric root in early life is situated high, but gradually descends with the progress of age, and after 35 may show distinct prolapse. The middle of the root of the mesentery and its lower end descends the most. However, much of what is known as visceral prolapse is mesenteric elongation. In fat persons the adipose deposit may reach one inch in thickness. At both of the mesenteric borders the blades diverge. At the root the right blade diverges upward over the transverse colon and laterally over the ascending colon. The left blade ascends over the transverse colon and laterally it passes over the descending colon. The left (under) blade alone descends into the pelvis. At the intestinal border both the plates of the mesentery diverge to inclose the small intestines. There is no fat between the peritoneum and the gut wall.

The mesentery in its strictest sense means that fold of peritoneum which holds the small bowel to the posterior wall of the abdomen. If we take the soft parts of the viscera as the landmarks of measurements, we will see that the mesentery begins at the lower end of the duodenum and ends at the lower end of the ileum. Should we take bony landmarks as a standard, the mesentery begins at the second lumbar vertebra and ends at the sacro-iliac joint.

The root or line of insertion of the mesentery is about six inches long and extends from the second lumbar vertebra on the left side obliquely across the spinal column over the great blood vessels to the sacro-iliac joint. The line of insertion is higher in fetuses than in adults. The average distance from the root of the mesentery to its embracement of the bowel is six and one-half inches. This measurement I have gained as the average from many cadavers.

At the upper and lower ends the mesentery has no length. Treves gives eight or nine inches as the length of the mesentery. Gray gives four inches. The second seven feet of the small intestine has the longest mesentery. Hence such coils may appear in hernia. The peritoneum constituting the right blade of the mesentery is continuous with the peritoneum which invests the under surface of the transverse colon and ascending colon. The left or under layer of the mesentery passes to cover the descending colon.

I carefully posted thirty-five adults and found in every case but one, that loops of small bowel could be dragged through a hernial orifice artificially prepared for that purpose. The mesentery is relatively longer in infancy than in adult life. In many adults during autopsy, I found that the mesentery had glided downward and prolapsed, and it seems that prolapse of the viscera increases with senility. The viscera do not generally begin to prolapse much before 40 years of age. Such prolapse tend to increase a subject's chances for hernia. My measurements give an average length of the mesenteric root or insertion in the abdominal wall as six inches. The average length of the small intestine, after many measurements, was about twenty-two feet. The

shape of the mesentery is that of a truncated cone, measuring six inches at the top and twenty-two feet at the base. It is fan-shaped. In the adult the base of the cone rests at the left side of the abdomen, while the truncated apex rests in the center along the vertebral column. Very frequently the transverse portion of the duodenum passes along the line of the mesenteric insertion for one-quarter, one-third or one-half of the distance. By lifting up the small intestines with its mesentery, one is often able to see the lower edge of the transverse duodenum. The line of mesenteric insertion is liable to considerable variation. In general, the line starts high on the vertebral column in embryonic and infant life, but after 30 years of age the mesenteric insertion gradually shifts downward until senility frequently shows a distinct prolapse. The breadth of the mesentery from the vertebra to the bowel is very variable. The most variable portion is at the lower end, yet likely much of the variation is due to prolapse or elongation. I have operated for femoral hernia when the lower three inches of the ileum was the strangulated loop. Generally the second seven feet of the small intestines have the longest mesentery. However, the variation from this measurement generally consists in the bowel still further down having a longer mesentery. The changes at the lower end of the mesentery concern the variation of the descent of the cecum. Suffice it to say here that if the cecum is non-descended, the deficit is made up by the ileum running over or up the psoas muscle to meet the partially descended cecum. If, on the other hand, the excessively descended cecum lies in the pelvis, it is liable to produce a more or less elongated mesentery at the lower end of the ileum. The upper end of the mesentery is complicated by the fossa et plica duodeno-jejunalis. A few days ago I posted a man of 60, where the fossa duodeno-jejunalis looked downward and to the right and would admit the tips of three fingers. The fossa was over two inches deep and would receive a large loop of bowel. Its free horn was over three inches long and contained the inferior mesenteric vein in its free border in a most typical form. The free border of the plica duodeno-jejunalis also contained the inferior mesenteric artery for about half its length. The extremely large fossa et plica duodeno-jejunalis was very obvious in this subject, owing to the vasa mesenterica inferior, but especially the inferior mesenteric vein. Hence the variation of the lower end of the mesentery is chiefly due to the non-descent or excessive descent of the cecum. The variation of the upper end of the mesentery is chiefly due to the variation of the fossa et plica duodeno-jejunalis. The variation of the whole mesentery is mainly due to fat, prolapse or elongation—senility.

It may be stated that the mesenteric attachment is acquired or secondary. We may recall the examinations of fetuses when the whole mesentery of the digestive tube was inserted in the mid-dorsal line, from diaphragm to caloea, *i.e.*, the whole bowel, large and small, had one common mesentery. This mesenterium commune was a straight unbroken fold hanging from the backbone, but growth of viscera and bowel and increase of abdominal space changes of mesenteric insertion are wrought until very little primitive mesenterial insertion remains. Even the meso-sigmoidea, which is named as primitive mesentery, is pushed from its original mid-dorsal insertion

toward the left iliac fossa. However, in infants as old as eight months, I have found the meso-sigmoidea distinctly inserted into the middle line as high as the under pole of the kidney which appropriates the original mesentery of the meso-colons descendens. In an adult the only real primitive mesenteric insertion belongs to the rectum. For, though the meso-sigmoidea and lesser omentum are still primitive, their original position has changed from the original fetal. Hence by changes in visceral growths, by rotation of the great intestinal loop, by displacement of the mesentery and perhaps by coalescence of peritoneal surfaces, we observe the wonderful changes in the original mesenteric insertions. We note that nearly all of man's mesenteric insertions are acquired or are secondary. The adult mesentery of the small bowel chiefly represents the changed mesenteric insertion of the distance between the neck of the great loop at its base *i. e.*, the loop supplied by the superior mesenteric artery. The acquired mesenteric insertion of the jejunum-ileum is closely associated with the transverse and last ascending portion of the ring-formed duodenum, for the superior mesenteric artery and vein in the adult passes in front of the transverse part of the duodenum (an acquired condition). In many cadavers I have found that the last portion of the duodenum seemed to lie at the base of the small bowel mesentery, in fact between the diverging mesenteric layers as they were inserted on the vertebral column where the layers of the mesentery received the superior mesenteric artery. I have found no reference to a discussion of this point in regard to the relation of the last point of the duodenum to the base of the small bowel mesenteric insertion. The most certain fixed ending of the superior end of the mesenteric insertion is near the pancreas, on the second lumbar vertebra or at the lower end of the duodenum. The most uncertain ending is the lower end of the mesenteric insertion which ends in a very uncertain manner in the left iliac region due to the various degrees of descent of the cecum. I have noted the ending of the lower end of the mesentery the whole distance from immediately under the liver to the pelvic floor.

(To be continued.)

## NEW INSTRUMENTS.

### BAXTER'S PORTABLE STEAM STERILIZER FOR INSTRUMENTS AND DRESSINGS.

BY G. A. BAXTER, A.M., M.D.

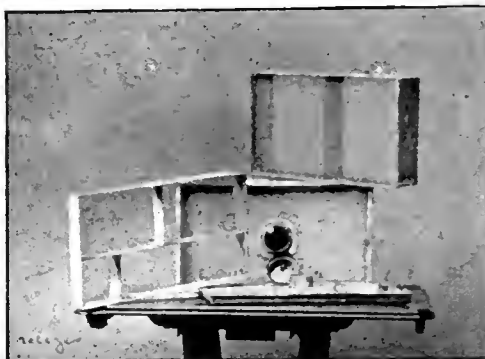
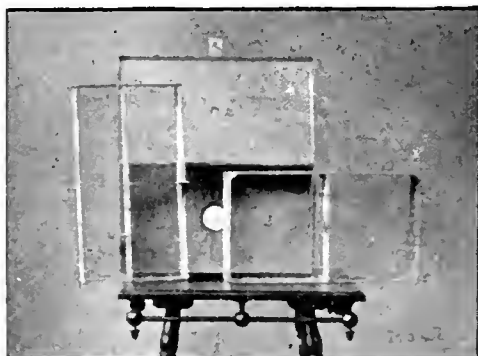
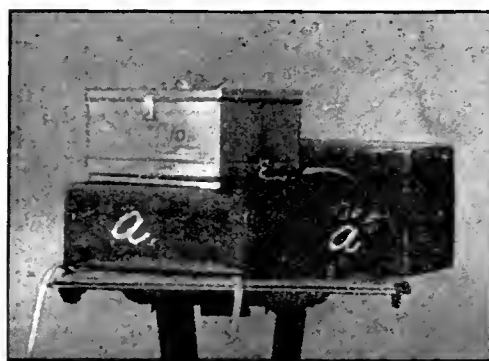
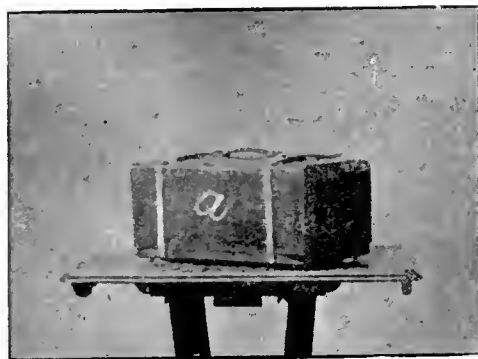
PROFESSOR OF SURGERY, CHATTANOOGA MEDICAL COLLEGE.  
CHATTANOOGA, TENN.

PLATE 1.—A, The complete package closed, showing outside telescopic case  $15\frac{1}{2}$  inches long,  $8\frac{1}{2}$  inches broad, and, when closed, 6 inches high. The case here shown is made of wood-pulp but may be made of canvas or leather. The telescopic character of the case allows other articles to be carried in it if desired, such as a Kelly rubber pad or an operating gown.

PLATE 2.—Steam chest for instruments and dressings with water-box attached by the handles of the latter to steam chest, ready for outside case.

PLATE 3.—Steam chest open and on its side, looking into its interior; large hole in bottom for entrance of steam, into which elevated flange on top of water-box fits; small hole in top of steam chest for escape of steam. The large hole below and the small one above gives a lateral distribution of the steam and considerable pressure. Both holes are fitted with screw caps for their perfect closure in transportation after sterilization is complete. Trays are provided for

instruments and dressings, which fit in steam chest. The lower has rounded corners for the upper to rest upon and is three and one-half inches deep for dressings; the upper one is one and one-half inches deep, for instruments. Both have per-

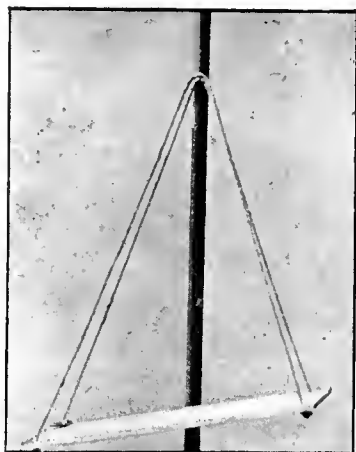


forated or wire bottoms for the passage of steam, and movable partitions fitting in slots, for the separation of dressings and to make more steady the instruments in transportation.

PLATE 4.—Shows bottom view of steam chest with flange

(one inch) to admit of application of elevated screw cap opening with screw cap for closure. On bottom of trays is shown small flange, one-third of an inch, to keep the bottoms of the trays from contact with surfaces upon which they may be placed, which fits them for operating trays also. There is a water-box one-half of an inch deep, holding about a quart of water for generating steam; with an opening in the center having an elevated flange like the top of a dinner bucket which fits into an opening in steam chest when in use, and a small opening with screw cap for the complete evacuation of the water-box.

In order to use this sterilizer, place dressings in the deep tray and instruments, sutures, ligatures, needles, etc., in the shallow tray and both in the steam chest. Fill the water-box; place steam-chest over water-box, which brings the elevated flange opening on the top of the water-box within the large opening in the bottom of the steam-chest, and fasten them together with the handles of water-box which catch on pin on end of steam box. Place both over any convenient fire, it matters not what kind, and steam



will generate soon (within five minutes or less by actual experiment over a good fire). This would give an outside time of thirty minutes as sufficient for sterilization of instruments and dressings, about the least time which would be required to prepare the patient and both could progress together in emergency cases as no special heating apparatus is required. If, however, in a previously planned operation it is advisable to make the sterilization at the office, the package can still be lessened by closing the openings in the steam-chest with their respective screw caps leaving the water-box at home. The weight of the whole package in either galvanized iron or aluminium is light and the closed package not bulky in the least. The dressings are not made soaking wet, but about the moisture of Linton moist gauze.

#### COST.

These sterilizers are made from either galvanized iron or from aluminium. For family use they can be made of tin and fitted with tray for bottles instead of instruments. When made from galvanized iron, the wire bottoms of the trays should be galvanized also, but the bottom and side of the water-box should be of copper. Such is the one I have in use, made by a tin establishment of this place and costing \$5 including the outside case. They can be made in aluminium at a cost of \$15.

NOTE.—This cost in aluminium is an actual bid from a reliable firm for the manufacture of the first one in this

metal. I can affirm positively that they can be sold with a fair profit at or very near this price, and as my only desire is the aid to my professional brothers I will agree to communicate this offer to any respectable instrument-maker who will agree to keep the price of the instrument down to a reasonable profit upon them.

#### BAXTER'S SWING SUPPORT FOR BADLY INJURED HAND OR ARM.

The above swing support I have found a very great convenience in a large class of injuries occurring in my work among railway employees. It gives no pressure upon the hand in any way, and holds it as steadily as if it were at the side in bed. I have shown this to a number of physicians, some of whom have remarked: "I have seen that before;" but upon reflection have declared themselves mistaken and said that they supposed it was its simplicity which gave them their first impression. If it is not a new device, I have been unable to find a report of its use anywhere



in the surgical references at my command, and it should be more widely known for its convenience, as it will keep many a case on foot which would otherwise be confined to bed.

## SOCIETY PROCEEDINGS.

### American Electro-Therapeutic Association.

*Fourth Annual Meeting held in New York Academy of Medicine,  
New York, Sept. 25, 26, and 27, 1894.*

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 558.)

GEORGE GAUTIER, M.D., of Paris, France, presented a paper on

#### METALLIC OR INTERSTITIAL ELECTROLYSIS.

Interstitial or metallic electrolysis is a use of the galvanic current that has many applications in electro-therapeutics. Personally, I have been experimenting for three years with this therapeutic application of the current, with a view to define more clearly its method of application and demonstrate its use to physicians.

Interstitial electrolysis takes place each time that we connect the positive pole of a pile or of a Gramme's, Siemen's or other machine with an oxidizable electrode of copper, zinc, iron, manganese, aluminium, etc., or when we decompose a solution of potassium iodid by the anode.

The electrolytic products, which are different at each pole, can be made use of in two different ways; either they can be absorbed in great part with the help of oxidizable electrodes, or they can be diffused through the tissues with the help of unoxidizable electrodes. We have at the positive pole different effects produced on the tissues, according to the nature of the electrode and the decompositions that



take place there. Thus with coal we produce a lesion deeper than with platinum and gold, which afterward suppurates and takes on all the characters of the cauterizations made by acids, fire or the thermo-cautery.

It is on this particular action that Dr. Tripiet founded an important branch of electro-therapeutics; I speak of electrolysis or cauterization and destruction of living tissues by the continued current. With oxidizable electrodes we have no destruction of tissues. We have here instead a decomposition, giving rise to new compounds which are diffused into the tissues according to the direction and intensity of the current. With iron we obtain an oxid, with zinc and copper a chlorid and an oxychlorid. If we kill the animals that have served for experiments in metallic electrolysis with copper, we find oxychlorid of copper in places distant from the point of application, and the coloration shows that the diffusion is greater according to the length of application and the intensity of the current. I have some time since made a study of these different operative factors, i. e., the current's intensity and duration, and have noted especially that operations of this kind produce neither destruction of tissue nor suppuration. Since then, several years have passed, and I now wish to present to you a method of treatment whose value increases according as it is well known and above all well applied.

I prefer copper for the oxidizable electrode and rarely use the zinc electrode, which has no advantage and possesses certain disadvantages, especially that of causing pain. Iron is indicated in the treatment of fibromata without any inflammatory lesions of the adnexa or of the uterine mucosa. In this case one avoids partially the cauterization that takes place in galvano-chemic cauterization or when the operator uses platinum or charcoal for the electrode.

The electrodes of pure copper are, according to my experiments, the ones that give the most rapid results in a great number of cases. I can not in this summary note describe all the applications of cupric electrolysis which I have made. The physicians who devote themselves to electro-therapeutics know that I have endeavored to generalize the use of this method and that to make more varied its uses there would only be necessary a few changes in the *modus operandi*, such as was described by me two and a half years ago. The following objections have been raised to this method of treatment:

1. Cupric electrolysis is said to be very painful. Indeed, it causes uterine pains which last sometimes three days; these pains are caused by the formation of gases or by a certain degree of inflammation of the mucosa. Thus in chronic inflammatory diseases of the uterine mucosa, the patient feels after the sitting general pelvic and lumbar pain, which diminishes the first day after the operation and disappears on the second day; there is then a discharge of mucus and little clots of blood, and on the fourth day there is relief from all the pains of disease felt before the operation. These post-operative pains can generally be relieved by an injection containing laudanum.

2. Cupric electrolysis is said to predispose to hemorrhage. I maintain, on the contrary, that the method is the best treatment against hemorrhage. After the sitting we have often a slight flow of blood, even for two or four days, but afterward the effects of the treatment appear, the congestion is diminished and the vascular tissues are contracted. Thus in chronic metritis, characterized by hyperplasia of the uterine connective tissue with an increase of sensibility, we can verify, after one sitting of cupric electrolysis, the most marked improvement. The menstrual flow is subsequently diminished, the sensibility disappears and the patient is greatly relieved. These post-operative reactions are easy to study in external applications. In syphilis, for instance, the lips are swollen the first day; on the second large greenish serous patches are seen at the seat of puncture; after that the skin becomes normal in color and very supple. But the treatment of external hemorrhoids shows most clearly the effects of the oxychlorid of copper. When we puncture a large hemorrhoid, the same evening the veins are dilated and swollen, the third day they are scarcely visible. In this case also there is a slight flow of blood, but this is of slight importance, as the hemorrhoid so treated remains permanently cured.

Others will explain better than I, the therapeutic action of the oxychlorid of copper. It destroys inflammatory tissues, reduces quickly and effectually local congestions and finally possesses a real antiseptic power.

#### DISCUSSION.

DR. A. H. GOELET said that another year's experience with

metallic electrolysis in uterine disease served to convince him more firmly of its value in this particular class of cases. His views had, however, changed somewhat in the past year, in that he very much preferred zinc to copper. He believed that Gautier had pointed out some time ago that the insoluble salt of copper, referred to by Dr. Morton, was deposited beneath the surface, and this would explain why the benefit was not always apparent at once. Last November he had been asked by Dr. Bryant and Dr. Lusk to see a case of persistent and obstinate hemorrhage complicating a fibroid tumor of the uterus which illustrated the delayed action of this method of treating uterine hemorrhage. Dr. Lusk had already curetted but without arresting the hemorrhage. The speaker said he made four applications of cupric electrolysis in this case and observed only slight improvement at first, but advised a little delay. One month later Dr. Bryant told him that the hemorrhage had gradually ceased. Six months later he reported that the patient was apparently perfectly well and there had been no recurrence of the bleeding. The fibroid still remained.

Dr. Morton had said that we may use any metal, but he, Dr. Goelet, thought the salts of iron were too irritating. The same might be said of cupric electrolysis as the primary effect of the copper salts were highly irritating, and in the vagina even produced excoriations. The result of zinc electrolysis was the formation of an oxychlorid of zinc which was not only antiseptic but caustic, an action often desirable. The fact that the zinc electrolysis does not cause the electrode to adhere to the surface to which it is applied as does the copper is a great advantage in its favor. Where astringency was needed, he had used silver, because the silver salt was astringent without being very irritating, and without causing the disagreeable adhesion to the tissues. He considered cupric electrolysis particularly advisable in cases of septic endometritis where for any reason it was considered unadvisable to curette. He had had a number of cases in his clinic where septic endometritis had been overcome by a half a dozen applications or less. He recalled particularly a case of distinctly gonorrheal origin which was completely cured by six applications of this kind. The case had been kept under observation for many months so as to be sure of the permanency of the result. In these cases, as well as in uterine hemorrhage, he now preferred zinc, as the result was more promptly reached and there was none of the disagreeable irritation which followed cupric electrolysis. Another application of cupric electrolysis which has not been mentioned, was in the treatment of vulvo-vaginal cysts after evacuation of the contents of the cyst. These cysts were obstinate in healing under the usual treatment, but under cupric electrolysis with a current of from 20 to 25 milliamperes applied for five minutes, one or two applications usually sufficed to effect a cure. In making use of these metallic electrodes in the uterus, it was necessary that the electrode should be in close contact with the tissues. Realizing that Gautier's electrodes were inconvenient, he had had some electrodes made which he exhibited. The hard rubber handles were so shaped as to indicate the direction of the point of the instrument. The vaginal part of the instruments were insulated with soft rubber tubing, which by moving on the shaft allowed a larger or smaller surface to be exposed for action.

DR. MARGARET A. CLEAVES said that she had had the same experience as had Dr. Goelet, regarding hemorrhage persisting for a while after the treatment and then stopping later on. If the applications were made about the time of the menstrual period there was apt to be an exaggeration of the menstrual flow, but subsequent periods were more nearly normal. In endometritis associated with dysmenorrhea, she had in three or four treatments given complete relief. She was also more inclined to use the zinc than formerly, particularly in cases of erosion. She had treated trachoma in the third stage by means of zinc electrolysis, and the improvement had been very marked and permanent, although only a few applications had been given. Gautier said that iron was indicated in fibromata, providing there was no inflammatory condition in the neighborhood. She had used aluminium for a few months past in endometritis, but was not prepared to speak as to its value. She continued to use cupric electrolysis in atrophic rhinitis with success, also in follicular pharyngitis. In several cases of acute follicular tonsillitis a single application of cupric electrolysis, 3 to 10 milliamperes, had resulted in complete resolution. In an epithelioma with extensive ulceration, she had had relief from symptoms, and tendency of ulcerated surface to heal from margins and bottom, from two applications of cupric electrolysis, but had not been able to follow the case

up and could not give ultimate results. In a case of beginning suppurative in a nurse's finger, from infection, a cupric puncture with 2 to 3 milliamperes of current established resolution. In specific urethritis in the female, she continued to find it prompt and efficient in action.

DR. WALKER said he had had a case in which he thought this treatment would show the advantages of metallic electrolysis. A lady, ten years married, suffered from excessive menorrhagia every two weeks. All medicinal means had been used before he saw her. Copper electrolysis was tried between the periods and was followed by extreme menorrhagia. As the next period was no better than the previous one, another application was applied given in the interval. This was followed by much the same result. With much difficulty she was persuaded to submit to still another application. The result was the same, and the electrical treatment was discontinued. After this menstrual period, as she was going to New York City, she was advised to call upon Dr. Goelet, but a few days ago she had come into his office and reported that she was well. She said that she had not been to Dr. Goelet's because her next period had lasted only seven days, and the next only five, so that she did not deem it necessary to seek further advice.

DR. O. S. PHELPS, of New York, said he wished to report a case in which this treatment had been tried. It was one of mucous cysts of the tongue occurring in a patient 25 years of age. The tumor was about the size of a hen's egg. It had been operated upon once in Germany and several times in this country, so far as could be ascertained, by evacuating the cyst and by injecting iodine and similar remedies. The speaker evacuated the cyst and made two applications of cupric electrolysis about five days apart. The result was a perfect and permanent cure. The Doctor also exhibited a set of ellipsoid electrodes which he considered quite a triumph for the instrument-maker. They were made by depositing copper on hard rubber with the idea of avoiding the great weight of an electrode made entirely of metal. The particular form of the electrode had been selected because with the egg-shaped electrode he had found that it was often difficult to withdraw it in cases of urethritis.

DR. DICKSON asked Dr. Goelet as to the present status of cupric electrolysis in the treatment of uterine fibroids.

DR. GOELET said that his personal experience had been that cupric electrolysis was only useful in the way of controlling hemorrhage and that no greater reduction of the size of the growth had occurred than with ordinary electrolysis. He had found that zinc would control the hemorrhage just as well as copper, and the beneficial effect was more quickly obtained. Others had had a similar experience. Zinc also affected, more materially, the size of the growth.

DR. J. J. PUTNAM asked what was the effect upon cell growth of this deposit of metal by the current in the deeper tissues. Was there any effect from the treatment other than that on the circulation and nutrition?

DR. BEAVER said he would like to hear further from Dr. Morton regarding the results he had obtained in the treatment of trachoma by metallic electrolysis. So far as they had reported them they appeared to be exceptionally good, as he understood the average duration of treatment had been only about one month.

DR. MORTON replied that the details of most of the cases would be published.

PROFESSOR DOLBEAR said that Dr. Morton had spoken of the value of copper, and Dr. Goelet of the value of zinc in metallic electrolysis; he would suggest that brass, which was an alloy of these two metals, might be as good as either of the metals separately.

DR. MORTON said he had tried brass electrodes, and had found that they gave a prompt deposit of copper. He remembered that Gautier had made allusion to the possible presence of an insoluble salt in the tissues, but he did not recall any absolute demonstration of its existence. In all his experiments in the laboratory with iron, he could not induce the deposit of iron to spread far from the electrode, which was in marked contrast to the behavior of copper. He thought the zinc diffused as well, or possibly even a little better than the copper. A patient had come to his clinic with a tumor of the parotid gland, and it had occurred to him to test metallic electrolysis upon it. A copper needle was plunged into the tumor and the metal freely dissolved off the needle by the current. Before doing this a piece of the tumor had been removed by the trocar. The microscopic examination of this showed it to be a round-celled sarcoma. The metallic electrolysis had not the slightest effect on this sarcomatous growth. In answer to a question by Dr. Putnam as to the action of this form of electrolysis

on cell growth in general, he could only say that he knew of no exact observations on this point. There were certainly no effects on the cell growth in the case of sarcoma just alluded to. He thought there would be an effect on the nutritional processes by the presence in the tissues of a soluble and an insoluble salt of the metal of which the electrode was composed.

THE PRESIDENT said that his experience with metallic electrolysis had been chiefly in treating inflammations of the surface membrane—in endometritis and in gonorrhea—and he thought that in these cases there was a wide field for its action. In almost all the applications of local remedies hitherto made, the albumin of the tissues has been coagulated by these applications, and the bacteria in this way shut off, as it were, from the effect of further applications. On the contrary, by metallic electrolysis one was able to ferret them out and destroy them. He had never found anything so satisfactory for the treatment of gonorrhea, and his assistant had reported that she had obtained remarkably good results with it in endometritis.

## SELECTIONS.

**Contributions to the Theory of Respiration.**—(R. Arnheim, Du Bois-Reymond's Arch. 1894, and Inaugural Dissertation, Berlin, 1894). A digest of this work is stated by the writer as follows: I, the acceptance of a single co-ordinating center is necessary for a satisfactory interpretation of the normal mechanism of respiration; II, the stimulation of Gad's respiratory center in the medulla oblongata alone results in strong activity of the whole process of respiration; III, the changes of respiratory activity which hitherto have been attained, experimentally, from all portions of the central nervous system above the medulla oblongata, do not depend on stimulation of specific centers, but are to be regarded as effects of irritation of the tracts leading to the respiratory center.—*Centralblatt für Physiologie*.

**Contribution to the Study of Gastric Digestion, Under Unusual and Abnormal Conditions.**—(Penzoldt, *Deutsche Archiv. für Klin. Medicin*, Bd. LIII, Hft 3u 4.) The investigations comprise the behavior of hydrochloric and lactic acids, albumin, peptone and sugar. The time of appearance of free hydrochloric acid in health depends, aside from slight variation in the individual, upon the quality and quantity of the food. Very generally food which remains long in the stomach draws out the muriatic acid later than that of short duration. The former commonly contain much albumin, a circumstance which as unprejudiced experiments showed, is responsible for the delay of muriatic acid. The positive reaction of muriatic acid continues longer in the case of food containing little albumin than in that rich in albumin.

The writer ascribes no practically useful importance to the Uffelmann lactic acid reaction. It appears in health after ingestion of the greatest variety of food and drink, either from the beginning to the very end, as it is so variable in its appearance, that it furnishes no positive diagnostic points. Albuminous substances in solution are found in the stomach only in small amount and are altogether absent in the last part of gastric digestion. Peptone reaction follows albumin reaction with only unimportant variations. One can therefore assume, that, as the coagulated albumin begins to dissolve under the influence of the digestive fluids, the formation of peptone also begins. Search for sugar after ingestion of carbohydrates always results negatively, unless the percentage of carbohydrates in the food is over 10, while after food containing large amounts of carbohydrates, sugar can be regularly demonstrated. Comparatively often the sugar reaction disappears early, even long before the stomach is empty. It appears therefore that the prevailing rule for other substances, as peptone, is applicable to sugar, that materials dissolved in water diffuse more quickly out of the stomach than in any medium acting as a solvent in the stomach.—*Centralblatt für innere Medicin*.

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

## SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

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SATURDAY, APRIL 27, 1895.

## THE COMING MEETING.

Every reader will notice that the program of the papers to be read at the Baltimore meeting is of more than usual interest. The topics are less hackneyed, newer and more suggestive, and the readers include many of the leading medical men of the country. The central location of the meeting should attract a large number of persons who have not been regular attendants.

Notwithstanding the foolish criticism and even condemnation of many persons, the fact has become more prominent than ever, that this ASSOCIATION represents the progress of medical science in America more distinctly than any other organization. In its membership are the teachers and specialists and general practitioners from all over the country. The theorists and dogmatists who arrogate to themselves all there is of science, come in contact with the village and country physician and go away wiser. The teachers and specialists, from the circles of flattery and hero-worship, are astonished at the low estimate their theories sometimes receive. The papers read before admiring friends receive cold criticism from strangers, and scant comment. The surgeon and obstetrician are startled to find the same operations have been made, and sometimes improved on, by men from smaller circles of life. Thus the process of disillusionizing and breaking up the narrow conceptions of truth, and the personal equation of enthusiastic men, give the ASSOCIATION meetings a value that the real student fully appreciates. The credulity and jealousy of narrow circles of professional activity, disappear in the open frank opinions of men from widely separated sections who rise above per-

sonalities. This is the point toward which the scientific work of the ASSOCIATION is rapidly drifting. The reader of papers is judged from a different point of view than at home in his local or State society. His work comes to a relatively higher court, and must rise or fall on its merits alone. Many men overlook this fact, and lose their energies in the natural friction of the organization and management of the ASSOCIATION. They forget this is only a small part of the real work, and the precise rules and plans of working, while essential in many ways, are largely self-limited and self-perpetuated.

The real work—which will live, are the contributions to science, the discoveries of new laws and new phases of old truths. Papers embodying new facts go into the world's literature through these ASSOCIATION meetings more positively than by any other source. The physician who aspires to lead in the march of scientific discovery has an open field here with fewer rivals. He can plead the cause of truth at the bar of the world, and its judgment will be just and clear. Literally, the physician in every section of our country should consider it a rare privilege to become a member and attend the meetings. Every year the topics of medicine are widening and deepening in interest and no man can practice successfully and not keep in personal touch and contact with these great issues. The man who excuses himself from joining the ASSOCIATION because of its politics, its Code, or the possible "rings," is losing his sight and, like a belated traveler, is struggling in the darkness of his own conceit. The man who sneers at and condemns the scientific and literary work of the ASSOCIATION is like a camp follower far in the rear, shouting frantically to the warriors in the front line of their mistakes, and how to conduct the battle. Finally, the man who is ashamed to join the ASSOCIATION and take an active part in its yearly meetings, because it will bring him in contact with persons less trained and of lower caste, is hopelessly stricken with *marasmus*, and needs all the time possible to prepare for heaven.

What shall we say of the *Ego-Maniasts*, whose great erudition and high attainments are not quickly recognized by the ASSOCIATION, in the bestowal of honors and offices? Men who drop out of the ranks disaffected and chagrined, we leave to their fate. The coming meeting should bring to our members an inspiration and wider spirit of devotion and interest to medicine, and personal acquaintance, with the rest of new scenes and new surroundings that will be felt through all the year.

The city of Baltimore offers rare attractions, and the annual pilgrimage of the AMERICAN MEDICAL ASSOCIATION will find here a veritable *Mecca* that will help us all far on the road to the ideal society and ideal meeting.

# DIFFERENTIATION OF SPECIES BY THE BACTERIOLOGISTS.

The Water Committee, of the American Public Health Association, which is organizing a co-operative investigation into the bacteriology of water supplies, is making haste in a slow sure way. We learn that every bacteriologist of note in the United States and Canada, and many of the earnest younger workers, have volunteered in the cause. As a result of a preliminary inquiry into the methods to be adopted, there has been developed the weak point of bacteriologic laboratory work. The subcommittee on the methods of laboratory procedure, after a full consideration of the schemes in use by the various volunteer laboratories, has concluded that it would be unwise to make any effort at the differentiation of species by our present inexact methods. Differentiation is now made with comparative certainty only after studying a dozen or more physiologic characteristics. It is true that under unvarying conditions constant results may be obtained and parallel results under parallel conditions; but it is well known that varieties may arise from divergent conditions in laboratory methods; and hence the necessity for the best scheme of laboratory work in such an investigation as that proposed by the committee. In the opinion of those who have given the matter most consideration, there appears to be little doubt that the present bacteriologic methods fail to inhibit the production of varieties during the course of laboratory study, and that until life histories can be controlled and reasonably normal environment be obtained, there is little hope of a satisfactory differentiation of species. In fact, with increasing knowledge of bacteria along the present lines of investigation, comes increasing difficulty in differentiating.

The committee, therefore, considers that the time has arrived when bacteriologists should come to a halt, and ask themselves what is the cause of this state of affairs and what can be done to remedy it? It proposes to meet these questions boldly. In a circular letter just issued to the bacteriologists interested, it indicates in a general way the errors in the present methods, and calls a meeting in New York city in June, to consider and establish the first principles of the subject and place them on a more substantial foundation. To facilitate discussion and to aid the bacteriologists of the several laboratories in gathering together the evidence which they have at hand, the committee submits twelve questions on which it is assured that the laboratories can bring forward much valuable and hitherto unpublished data. The settlement of these questions will enable the committee to elaborate its scheme of laboratory procedure and permit the co-operative work on the bacteriology of water to progress on lines leading directly to the advancement of bacteriologic knowl-

edge, as well as to the practical sanitary results desired by the American Public Health Association.

The work of this Water Committee carried out in the careful and effective way indicated by the present action of the committee promises to be one of great value. It is a work, however, that should now have been in progress under the supervision of a United States Commission, such as was proposed by the bill introduced into Congress by MR. BARTHOLDT, for the investigation of the pollution of water supplies where such pollution affects or threatens to affect the sanitary condition of the people of more than one State, or better still, under the direction of a Department of Health such as has been urged by the members of the AMERICAN MEDICAL ASSOCIATION.

## PERMANENT CURE OF RHEUMATISM THROUGH MISADVENTURE.

DR. ALAN T. SLOAN reported in the *Edinburgh Medical Journal* for February a very interesting case of successful cardiocentesis. In a hurried attempt to tap the pericardial sac, the right ventricle was entered. The patient, a young woman of 19, was at the time in a very low condition—"practically moribund," as some one has expressed it. The attack was one of acute rheumatism, subsequent to a sharp attack of facial erysipelas; there was the complication, well-nigh fatal, of pericarditis with effusion. In fact, the announcement had been borne to him that the woman had died. DR. SLOAN found her with a pulse too feeble to be counted and with the facial pallor of death. He gave her two subcutaneous injections of ether, whereupon pulse and respiration ceased. In the excitement of the moment the physician took up his aspirator and plunged the needle in the fourth interspace about half an inch to the left of the sternum. Much to his surprise there flowed rapidly into the bottle of the aspirator eight or more ounces of pure blood, showing that the right ventricle of the heart itself had been entered by the needle. The physician felt that all chance for recovery was gone forever. He adds:

"As I was slowly withdrawing the canula, regretfully telling the nurse that it was all over, and to close the patient's eyes, to my surprise the heart made first a feeble irregular movement, then gave a sudden strenuous jump, and finally, like a pendulum regaining its swing or a runner his stride, it started to beat again in the race for life. In moments of intensity it is difficult to estimate time, but I should say fully half a minute had elapsed between the introduction of the needle and the re-starting of the heart-beats. It was an extraordinary sensation to feel the heart beating more and more forcibly against the point of the canula, which was gradually withdrawn so as not to further injure the heart wall. I was standing thus, with my thumb on the puncture made by the needle, when DRs. BRAMWELL and SMITH made their welcome appearance. My uppermost feeling at first was one of regret that I had converted



a patient practically dead into one apparently dying, and sincerely did I lament that she had not been left to pass away in peace, for a most pitiful scene was now enacted for an hour. Occasionally there was given a heartrending shriek; quantities of frothy mucus were half-coughed, half-vomited, and had to be swept out of the mouth with a towel; the blood went ebbing and flowing from the cheeks, which were first ashy gray then purplish in hue; the pupils were dilated to their fullest extent; the running following pulse was quite unaccountable; and the patient had every appearance of one dying asphyxiated."

The cardiocentesis was supplemented by ether subcutaneously injected, the result of which was a maniacal excitement that required opiate treatment. DR. SLOAN continued free stimulation by the mouth with brandy and champagne. The patient's condition improved, so that forty-eight hours after the puncture there was a return to normal temperature and to a pulse of 40. Two months later she was sent away into the country, and four months still later she reported as being restored to perfect health.

There have been other cases of accidental puncture of the heart, when the intended operation was only a paracentesis of the pericardium. One by ROGER, in 1872, the right ventricle of a child was entered, drawing off six ounces of blood; the child was suffering from pericardial effusion. The patient recovered from the effects of the operation, but died five months later from failure of compensation.

DR. SLOAN, in looking up the literature of the subject, found other cases where relief was obtained by cardiocentesis, but his own is the first he was able to refer to as a "permanent cure." He opines that, among other conditions, narcosis from chloroform will be found to be one that will sometimes respond to the aspiration of the heart.

#### THE MANAGEMENT OF PREGNANCY COMPLICATED WITH UTERINE FIBROIDS.

It is generally held by gynecologists that the presence of myomatous masses, either subperitoneal or invading the uterine cavity (especially the latter), favors sterility, and, in the opinion of EMMET and other competent observers, the converse of this proposition is also true, since uterine fibroids are most frequently encountered in unmarried women. In many instances this particular form of hyperplasia is associated with gross lesions of the tubes and ovaries, abnormal conditions of the endometrium, and functional irregularities, which in and of themselves are unfavorable to impregnation, and which are so intolerant of the presence of impregnated ovum that miscarriage frequently occurs. In other cases, the abnormality of these associated organs permits the escape of the ovum into the peritoneal cavity, and abdominal pregnancy is the consequence. Even when gestation proceeds regularly, the development of the uterus must be unsymmetrical, and much pain

and discomfort is occasioned thereby. The growth of the tumor is also likely to be stimulated by the gravid state of the organ, and its rapid enlargement may give rise to pressure symptoms, or produce conditions which cause a more or less serious problem for the consideration of the accoucheur. Finally, the danger to the mother does not terminate with the safe delivery and birth of the infant, for the complication causes the puerperal period to be extended, part of the growth may slough during involution, or gangrenous endometritis may give rise to fatal septicemia. At the last meeting of the Philadelphia Obstetrical Society, DR. ANNA M. FULLERTON reported a case of this kind. It was a primagravida at term, in which labor was complicated with a large fibroid, over the site of which the placenta had been attached. Two hours after a forceps delivery, sudden death occurred, which was attributed to the entrance of air into the uterine sinuses, rendered persistently patulous by the non-contractility of the fibroid tissue.

The uncertainty as to the prognosis concerning the puerperium of a woman suffering with uterine fibroids, was well illustrated by the reports in the same communication of several cases occurring at the Woman's Hospital. The first died as above stated. The second, by constant medical attention, was carried to full term. Labor was greatly protracted owing to the inefficiency of the uterine contractions, and was terminated by the forceps; the child, a large boy, was born asphyxiated and could not be resuscitated. The mother made a good recovery. The third case was especially interesting. It was a farmer's wife, 42 years of age, a primagravida. She had multiple fibroid growths, some in the lower uterine segment, and had been previously advised by two distinguished gynecologists to have a Porro operation performed at term in order to accomplish delivery. Premature rupture of the membranes occurred, however, at the end of the eighth month, and delivery was accomplished by high forceps; the child, a female weighing 2,710 grams, was extracted, and three weeks later mother and child left the hospital in good health. Thirteen months later the patient again presented herself, pregnant and near full term. The tumors had increased in size, so that version had to be performed; the after coming head was caught by a projection from one of the tumors and caused some delay. The child, a large boy, lived only twenty-four hours. Eighteen months later, the patient again applied at the hospital, as before, and was delivered at term, instrumentally, of a girl weighing 3,100 grams. Both mother and child did well. It is most interesting to note that since the last delivery the tumors have markedly decreased in size. A fourth case, primagravida, 29 years of age, aborted at the termination of the sixth month of utero-gestation. After expulsion of the product of conception, it was found that

a large submucous fibroid, about the size of the fetal head, completely filled the uterine cavity. The uterine wall in the part which had covered the ovum, was exceedingly thin. The patient did well until the thirteenth day, when sepsis developed. Hysterectomy was recommended; but consent was not obtained until six days later, when the patient was moribund. General sepsis preceded death and rendered any operation improper. The specimen showed the uterine cavity filled with the large submucous myoma, in a state of degeneration; the endometrium was gangrenous. Death was caused by the sloughing of the fibroid and gangrenous endometritis which had produced septicemia. Other specimens were shown of large uterine fibroids removed by hysterectomy and supra-vaginal amputation. Two presented deep-seated fibroids, which were attended by distressing pressure symptoms, in the removal of which the reporter felt that the supra-pubic method of treating the stump would have been extremely difficult, if not impossible.

The occurrence of pregnancy often constitutes a grave complication of uterine myoma, and the majority of cases so complicated require surgical interference, even when the growths do not encroach upon the area of the superior strait in such a way as to make delivery, *per vias naturales*, an impossibility. The records of the cases cited showed the period of gestation to be one of unusual suffering and discomfort with a constant disposition to premature delivery, rendering protracted rest in bed and the free use of anodynes a necessity. When labor comes on, it begins usually with premature rupture of the membranes, and is characterized by the irregularity, inefficiency and severity of the pains. The paper was followed by an instructive and spirited discussion. DR. B. F. BAER boldly maintained that a woman suffering with fibroid tumors of the uterus ought not to be required to furnish citizens to the State, unless she wished to do so, with a full knowledge of the risk incurred by pregnancy, and if she demanded relief, it was the duty of the surgeon not to withhold that relief, but to proceed to operate, either by removing the uterine appendages or by hysterectomy. He reported a case of a woman who was four and a half months pregnant when the tumor dropped into the pelvis and pushed the uterus up into the abdominal cavity; it could not be replaced and the woman was exceedingly ill. He advised laparotomy and performed a hysterectomy, because the growth appeared sarcomatous, amputating at the supra-vaginal junction. The patient made a good recovery and is still in perfect health, although the operation was done a number of years ago.

DR. CHAS. P. NOBLE spoke of the dangers of peritonitis and sepsis, and said that the mortality of the complication was 50 per cent. When the fibroids are of considerable size, the case should not be left to

nature. He advocated a Porro operation rather than a subsequent hysterectomy; but the cases have to be individualized and can not be treated according to any fixed rule.

DR. M. PRICE favored the Porro operation, and especially directed attention to the mental state attending fibroid tumors. These patients are not only chronic invalids, but many of them are in a nervous condition bordering on insanity. He said that in the last two years he had not operated upon a single one that was not mildly insane.

DR. J. M. BALDY considered that the dangers of the complication had been much exaggerated, and cited cases where all the preparations had been made for a Cæsarean section, but the women had delivered themselves without any difficulty. He would be very loth to act upon the assumption that because a woman has a fibroid she should be denied children, or that her pregnancy might be ended if she wished to have it so. He mentioned a case in which celiotomy had been decided upon for fibroid growths, but for some reason it was not performed; the woman afterward went home and became the mother of a child. He referred to one of DR. FULLERTON'S cases which had been three times delivered and had two living children. He denied that any special nervous conditions or mental disturbance belong to the clinical history of fibroids more than to other instances of pelvic disease. He objected to the extra-peritoneal method of treating the stump, and asserted that hernia was a common result. By dropping the stump, he eliminates a large and important factor in the production of abdominal hernias.

The difference of opinion brought out in the foregoing discussion, serves to illustrate the unsettled state of the subject at the present time. There is much information to be gained as to the direct and indirect causes of fibroid growths of the uterus, and their life history, before anything like a settled rule of practice can be formulated which would apply to a large proportion of the cases. Especially are the difficulties of the problem enhanced by the unusual complication of fibroids with pregnancy. When authorities disagree so widely as to advocate hysterectomy or removal of the uterine appendages, in opposition to those who are perfectly willing to allow the case to proceed to full term without interference or only symptomatic treatment, the plain ordinary everyday practitioner will have to rely upon his own judgment in the management of his cases, feeling assured that whatever course he decides to pursue, he can find good authority to sustain him. As a matter of fact, no general rule can be laid down for the management of these cases of complicated pregnancy. Each case must be treated on its individual merits in the pious spirit in which good old AMBROISE PARÉ practiced surgery, saying to his patients: "*Je te panse, Dieu te guerit.*"

## A GENERAL WITH PRONOUNCED SANITARY IDEAS.

GENERAL DUCHESNE is the chief commander of the French forces that are to be sent to Madagascar. He has recently issued an order or proclamation, showing the profound respect he has of sanitary regulations for troops that are to go to a strange country and climate. In this order he advises with his men to the end that they will observe with strictness all the regulations framed to protect the troops from disease, and especially from malarial disease. On this point he is quoted in the European edition of the *Herald* as saying:

"One of the greatest dangers which the troops will have to encounter will be that of the malarial fever of the country. All possible measures have been taken to combat it, and the GENERAL hopes that the efforts of the sanitary staff will be rendered efficacious by the obedience of the troops to the orders given them. 'The best commanded regiment,' he says, 'will for me be the one in which the fewest cases of illness occur.'

"The most severe orders are given for the humane treatment of the natives. All the persons and property of the friendly Malagasy are to be respected, and the soldiers of the enemy, once they are disarmed, are to be accorded all the rights of civilized warfare and are to be treated with justice and humanity."

AMERICAN MEDICAL EDITORS.—DR. CANFIELD, of the *Maryland Medical Journal*, has completed the arrangements for the editors' banquet. Members of the Editors' Association desiring to attend will please send him their names at once, stating the number of plates they wish reserved.

NOTICE.—All persons attending the meeting who desire to secure return transportation at Baltimore, must obtain a certificate from the agent of the railway at the starting point, showing that they have paid full fare to Baltimore.

## CORRESPONDENCE.

## Pennsylvania and "That Awful Code."

MARIENVILLE, PA., April 15, 1895.

To the Editor:—In the *JOURNAL* of April 13, Dr. Simonton takes one more whack at the Code, and the Philadelphia County Medical Society. That society is amply able to defend itself without my help. But the position of the Philadelphia County Medical Society is the position of the Pennsylvania State Society, and as a member of that body I wish to say a few words in reply to the Doctor and incidentally to all others concerned. I was the wicked fellow who presented the resolutions regarding the *JOURNAL* and the proprietary advertisements at the Philadelphia meeting, 1894. Those resolutions were handed me by some of the most distinguished members of the Society. Dr. E. E. Montgomery, one of the AMERICAN MEDICAL ASSOCIATION Trustees, was, I think, on the floor of the convention at the time. Not a man there but what respected and honored Dr. Montgomery, and our personal or professional relation to him was not called in question. So with the Editor; every member of the Pennsylvania Society who knows of the ability of

Dr. Hamilton has but the highest praise for the successful management of the editorial department of the *JOURNAL*. If this subject must be opened again let it be in that spirit, and undue sarcasm and personalities be completely dropped out of sight. They are uncalled for among gentlemen.

Dr. Simonton says: "The only way to have consistency between the Code and the practice of the profession in regard to patent things in general, is to remove the clause referring to the same, from the Code." That is precisely the argument used by the liquor dealers of New York in regard to Sunday opening of the saloon. They say: "The Sunday law is not enforced nor obeyed; therefore the law should be repealed; and the saloon legally be opened." Any one can see that that principle applied to law would soon be subversive of all law—expediency, not right, be the governing principle. Yield to a wrong, instead of maintaining the right. From my point of view, the editorial in the *JOURNAL* of March 30, "Print the Formula on the Label," covers quite completely the position of the great majority of practitioners. There can be no great objection to even a proprietary combination, if the composition is fully known. It is the name, label or mark, that constitutes the copyright or "patent." The mixture, drug or drugs used can not be tied up for exclusive commercial use. There is no law on earth that can prevent a practitioner from using the formula, compounding it himself, or by prescription at his druggist, if he so chooses to do. Proprietaries of that kind, if used by practitioners under the copyright name, are so used for convenience, and not of necessity. The use of such may possibly be a violation of the letter of the Code, but hardly, I think, of the spirit. Everybody knows that it is the unknown quantity that is objected to in special preparations. No man can intelligently defend the use of a "secret nostrum." The practitioner has a right to know, and in all cases ought to know what his patient is taking. It is tough enough on the laity for us to experiment on them, as we often do, with a known quantity, but to fire into them only a name, so far as our knowledge goes, is tough on the profession, as well as the laity, and is utterly devoid of science.

Dr. Simonton draws comparisons between patented surgical instruments and secret nostrums. In one sense there is no comparison. The practitioner knows what he has got in an instrument; there is no secrecy, no going it blindfold. Let me illustrate this whole subject by a few fancy pictures: Many years ago I sat looking down on President (then Professor) Donald Maclean, screwing down an aortic compressor on a patient. It was not a very fancy affair, if my recollection serves me correctly. He had it made by a blacksmith, and the Doctor had tried it on himself the day before. This instrument successfully controlled the circulation at and beyond the field of operation. Suppose Dr. Maclean had used that instrument then and for all these years on the quiet, and next May appeared before the AMERICAN MEDICAL ASSOCIATION, as its honored President, and said: "Gentlemen, years ago I contrived an instrument that has been successfully used in my hands for such and such purposes. For \$10 I will give you the right to use it, and explain its merits." Suppose he turned from the surgical to the medical, and continued in this way: "At the same time that I thought out this instrument some one blundered, and in consequence a number of students went down with the smallpox. I had unusual opportunities to study out the disease and its treatment, and discovered a remarkable remedy. I am having this put up in convenient form, and you can be supplied at the rate of \$1 per ounce; a small sample will be supplied gratis." Fancy Dr. E. E. Montgomery saying: "Gentlemen, I also, like the President, have made an important discovery; a new operation for the removal of fibroid tumors. Any of you who have patients afflicted in that way who will send them to me will receive 10 per cent. of the amount charged. Operations are private." Fancy our own Dr. Hamilton writing an editorial on the cause of epilepsy, and winding up with: "I have found a most remarkable remedy for this disease, and the members of the AMERICAN MEDICAL ASSOCIATION can have it for \$2 per ounce."

I have used these names because that sort of thing would be so utterly foreign to the nature and the disposition of these gentlemen that misconstruction of the picture is impossible. Fancy the picture, however, and then imagine the result. Yet all this would be just as legitimate as an advertisement of an unknown and unknowable remedy in the ASSOCIATION JOURNAL.

Dr. Simonton speaks of the inconsistency of we sticklers for the Code in taking other medical journals that have the same objectionable advertisements. So we do, but we do not take them for the advertisements, but in spite of the advertisements. We take them on account of valuable reading matter. Because a private publisher uses the brains of an able editor to promote the value of his advertising pages is no reason why the brains of the JOURNAL editor, and the wealth of knowledge he succeeds in getting from his contributors should be used for the same purpose. I am safe in saying that every man of us is proud of the scientific and literary ability displayed in the JOURNAL. Hence we regard it as a shame that its advertising pages should in any sense lower its character and tone. Dr. Simonton's tirade on the inconsistency of the membership is exceedingly weak. Inconsistency of membership or of followers is no argument for the repeal of a standard of faith. The proper thing to do is to lift the erring brother, if possible, to the level of the standard. We can not afford to throw down the fence in this respect; it lowers us to the level of a trade, and finally lands us in a position to say to suffering humanity: "You are sick; you will die without help; we have the secret of your recovery; pay our price and live. If you can not raise the dollars, die." That is the logical outcome of secret proprietary remedies.

From the Pennsylvania point of view, it is a question of right and wrong. In that light, the profession of the Keystone State are not to be moved from their sense of duty, by the calling of names by the gentleman from California. The trouble really seems to hinge on the question of finance. I think that can be easily removed by all of us "whooping it up" for the JOURNAL and making it pay, minus the objectionable advertisements, by a large subscription list. That is a much better way than lowering the columns to the level of the patent medicine almanac. No bickering, gentlemen. "Let all things be done decently and in order."

S. S. TOWLER, M.D.

### Antitoxin.

PHILADELPHIA, April 19, 1895.

To the Editor:—I have had my attention called to your editorial, in the April 13 issue of our valuable JOURNAL, in which you describe "A Fatal Result following a Hypodermic Injection," Behring's antitoxin being the injected remedy. I send you the following notes, trusting that they will be accepted in the spirit in which they are offered. The only comment I have to make, is, that had I known the opus number of the antitoxin used in Brooklyn, I should probably have refused the bottle sent to me.

Friday, April 4, I was called to see Mrs. L. S. W., aged about 30. Her statement was, that on the previous evening she had gone to the theater and on returning home had felt no particular symptoms other than a stiffness in the throat and general malaise. Friday morning she found spots in her throat and at noon had become so depressed as to become alarmed in regard to her condition. The temperature was 101.3-5, respirations 22, and pulse weak, thready and 90. There was excessive dysphagia, the face was slightly flushed, the eyes bright and feverish, and the patient exceedingly languid and anxious. On examining the throat, I found the velum pendulum palati of a dark purplish red, the anterior and posterior half arches being of the same color, saving a small area on the right posterior half arch, which was covered with a suspicious gray membrane about a quarter of an inch in length, and an eighth of an inch in breadth, easily removed by a dossil of cotton on an applicator. The tonsils were apparently normal, the post-pharyngeal wall acutely hyperemic. There was no engorgement of the nasal mucous membranes, though there was a rather too free discharge of a watery character from the nose. Patient was at once placed upon the most vigorous measures, as the patch seemed exceedingly suspicious. At 6 o'clock in the evening of the same day, the spot on the right posterior half arch had entirely disappeared, but the velum and half arches otherwise presented the same appearance as earlier in the day. The patient's face, however, was greatly swollen, hands slightly puffy, and the statement was made that the

urine had been very scanty. The only change in the treatment made, was the addition of strophanthus and digitalis. On the following morning at 8 o'clock there was still no recurrence of the patch on the right side, but there was a patch on the left side exactly simulating that which had disappeared from the right. All of the half arches, moreover, were very much more swollen and the velum was slightly edematous, while the injection of the posterior pharyngeal wall seemed rather to be increased. At noon, sterilized tubes had been secured and inoculation was made. By the kindness of the Polyclinic Hospital Laboratory, the inoculated tube was promptly placed under the most favorable conditions for an early examination. The report from the laboratory was made in a little over twenty-four hours and confirmed in every way the opinion first formed, that the case was one of diphtheria. In the interval, the area covered by the membrane on the left side rapidly increased, the spot first affected on the right side became again involved, and the membrane there rapidly spread until it completely covered the posterior half arches, which were greatly swollen and thickened, and involved the upper third of the anterior half arches on both sides, while a small patch also appeared upon the velum which was now more edematous. To further complicate matters a small circular spot appeared on the posterior pharyngeal wall nearly centrally placed. All this in spite of the most active measures taken to combat the disease. The patient's general condition fortunately rather improved, the temperature fell to very slightly above normal, the pulse somewhat improving in character, and the action of the kidneys greatly improved.

April 8, I obtained through Frank E. Morgan, pharmacist of Philadelphia, a white labeled bottle of Behring's antitoxin solution. The entire contents of the bottle were promptly injected in the left thigh at its inner aspect and middle third, two punctures being made, antiseptic precautions being taken. The patient complained of very little distress, and the fluid was rapidly absorbed. The local treatment, as well as the general treatment, was in no way altered. The change in the appearance of the half arches at the end of twelve hours was simply astonishing. During the late afternoon and evening of the day of the injection, the attendants reported to me that the membranes came away in great masses, and on the morning of April 9, I found nothing but a series of healthy looking ulcerations on the anterior posterior half arches, velum and pharynx. Frequency of the local applications as well as their character were greatly changed, with the idea of simply encouraging rapid healing of the parts. The patient progressed without accident of any kind, and on Friday, April 12, the throat was perfectly clean, and practically normal, barring the slight hyperemia of the velum. On Monday April 15, even this slight hyperemia had disappeared and the patient was discharged after having been subjected to a thorough antiseptic bath from head to foot. At this time, Dr. C. P. Franklin, who had assisted me in the treatment of the case, called my attention to your JOURNAL, and to the fact that the number on the bottle of Behring's solution corresponded with the number of that used in the Brooklyn case, namely, operation 159.

Very sincerely yours, CONRAD BERENS, M.D.

### Cherokee Strip Fossil.

The Remains of an Enormous Extinct Animal Found by a Settler.

HUMBOLDT, ALLEN CO., KAN., April 3, 1895.

To the Editor:—The fossil skeleton of a huge sea animal was recently discovered by a settler in the Cherokee Strip, while searching for driftwood along the banks of the Arkansas River. The beak or bill, was projecting from the sand and on breaking it off, it was found to be bone. This aroused the finder's curiosity to the extent that he set to work to exhume the skeleton. The beak or bill, a few vertebrae, some ribs and propellers were in a fair state of preservation, but the remainder crumbled as soon as exposed to the air.

The discoverer stored his find in a shed, and thought little of its importance. By chance, Henry Patterson heard of it, went to the Strip and purchased it, had a wagon with a cushioned platform built, suitable for the safe transportation of the relic of the antediluvian period, and is now realizing a bonanza from his investment, exhibiting it in the cities and towns of southeastern Kansas. A description of the



remaining bones was sent to the Director of the National Museum at Washington, and the following reply has been received by me:

"The matter is one of great interest from a paleontological point of view, and I have taken the liberty of at once submitting your letter to the Director of the Smithsonian Institution, asking him to write you in regard to the matter and send a qualified paleontologist to investigate the discovery, classify or coin a name for it, and obtain it. The skeleton you speak of is certainly larger than any on record anywhere in the world and it is highly important that it should be preserved in the National Museum."

It has been named by local scientists *monocerosichthysaurus* and *plesiosaurus*. It evidently belongs to neither. By comparisons with descriptions, and from recollections of the larger casts of fossil saurians, the head and vertebrae belong to neither of them. The eye sockets are four feet in diameter, with the supra-orbital notch the same as in the human cranium, with a space of twenty inches between the sockets, making the diameter of the skull nine feet and eight inches, with a small brain cavity comparatively. The vertebrae measures twelve inches each way, and the distance from tip to tip of the transverse processes is forty inches, and resembles those of a mammal rather than a fish. The os hyoides is thirty-eight inches long, a rib thirteen feet eight inches long, circumference thirty-three inches, and two triangular-shaped bones corresponding to right and left, three and one-half by twelve feet, the use of which is conjectured, but supposed to be propellers or fins.

Local scientists who have expressed an opinion, and many have examined it, do not pretend to name it and believe it to belong to no recorded species. It has been variously estimated to have been from sixty to three hundred feet long. I think the latter more nearly correct.

Yours truly,

R. L. PATTERSON, M.D.

### Expert Witnesses.

CHICAGO, ILL., April 20, 1895.

To the Editor:—The following bill is now before the Illinois State Legislature as House Bill 767, and the Committee on Legislation of the State Medical Society asks every member of the profession in the State to assist in its passage by writing at once to his State Senators and Representatives, urging their support of the measure.

D. W. GRAHAM, Chairman.

#### A BILL.

*For an Act to Regulate the Taking of Expert Testimony in Civil and Criminal Proceedings.*

SECTION 1.—Be it enacted by the People of the State of Illinois, represented in the General Assembly, That in any case on a trial in a court of record in this State where expert testimony is to be introduced by both the prosecution and the defense, and also in any other case in the discretion of the court, the presiding judge shall, either of his own motion, or at the request of either party to the suit, subpoena one or more persons who shall be known as court witnesses.

SEC. 2.—Such court witnesses shall be citizens of the State, of known personal probity, and only such as are recognized in the communities where they reside as having special knowledge and experience pertaining to the subjects upon which they are to testify; and if physicians, they shall have been not less than five years in lawful and active practice.

SEC. 3.—The presiding court shall fix the fees of such court witness or witnesses, but in no case shall the fees allowed such court witness exceed fifty (\$50) dollars per day. Such witnesses shall be paid in the manner provided by law for other witnesses, except that in criminal cases the fees of such witnesses shall be paid by the county.

### Wants It Published.

[TELEGRAM.]

PHILADELPHIA, PA., April 23, 1895.

To the Editor:—Philadelphia County Medical Society earnestly requests immediate publication of decision of Judicial Council referred to in Editor's comment on Dr. Roberts' letter.

CHARLES H. THOMAS, Chairman.

ANSWER:—The Chairman was informed that permission would be asked of the Chairman of the Judicial Council to print the decision as requested, and Dr. Brown was accordingly asked by the same mail for such permission.

## ASSOCIATION NEWS.

### The Quimby Amendment.

JERSEY CITY, N. J., April 19, 1895.

To the Editor:—Please find inclosed a letter from Dr. Strong (of Colorado) to me, which I would like very much to have you publish in the JOURNAL. This letter of Dr. Strong's advocates the amendment which I proposed at San Francisco last year. You may remember that I offered to amend the Constitution by striking out the words, "Surgical Instruments" in line 2, clause 5, Article 1. These words should never have been placed in the Constitution in their present relation, as they are disjointed and out of harmony with the rest of the Article. It causes a severe strain of the imagination to find any logical relation between quack or patent medicines and surgical instruments. This amendment I offered last year, I think ought to pass at our coming meeting, as it is in the line of progress of the present age, and in exact justice to the laborer, who is certainly worthy of his hire.

I hope, Mr. Editor, you will see your way clear to advocate the amendment in our valuable JOURNAL.

Yours very truly, I. N. QUIMBY, M.D.

April, 1895.

Dr. I. N. Quimby.

Dear Sir:—Permit an old M.D., who has seen two generations of Doctors of Medicine come and go, to express his gratification upon the resolution offered by you at the last meeting of the AMERICAN MEDICAL ASSOCIATION, to so amend the so-called ethical Code of the profession, as to encourage useful surgical inventions, by permitting members of the profession to avail themselves of the protection the government furnishes to the inventor of any novel and useful instrument or appliance. I think I speak *auctoritate doctissimi Hippocrati* in what I have to say briefly in support of your proposed amendment to our Code.

To those who know my horror of all patent nostrums, of all quacks and quackery, of all self-advertising by medical frauds, I need make no personal defense for my argument. To any one who has witnessed the wonderful achievements of the present century in the domain of useful inventions under the protection and stimulus of patent and copyright laws, inventions that have wrought changes in human existence, human progress and human enjoyment upon the earth, more marked and marvelous than the dream of Utopia or than the imagination portrays of the possible enjoyments permitted to the inhabitants of some far-distant and favored planet, the fact that there still exists among the musty unwritten statutes of the medical profession, a law in effect prohibiting the granting by the government to any member of that profession any protection, any property right, in an original discovery or invention made by him for the benefit of his fellow-men, however useful to the world, and at whatever sacrifice of time, and by whatever exercise of mental gifts; such a law must seem a strange anachronism—a relic of some past age of ignorance, the age of Savonarola or Galileo, when it was a crime to think, to invent, to make any progress that should endanger the hold of superstition upon the human mind. God knows that our profession is a most toilsome, weary, almost slavish vocation—to live to toil, to toil to live; to die generally *de bonis non*, trusting our brief and narrow fame to the kindly memory of surviving neighbors, and our families to the tender mercies of the followers of more lucrative callings.

Can it be that there is a moral wrong in encouraging members of our profession, gifted with inventive power, to discover new and better instruments and appliances to be used in the profession of surgery? In all the most advanced nations a reward is supposed to be offered for every useful invention. This is done by the government protecting the property of the inventor; and this protection is based upon the indisputable moral right of every man to the possession of what he shall create or produce—hence patent and copyright laws. Most of the inventions which have added so much to the well-being of society are the result of the property protection afforded by the patent law. It savors of barbarism to argue that the man who manufactures reapers and steam engines and telegraphs has a better property right than the man who invented them, without which in-

vention they would not be manufactured. While it is not possible to know how many of the most useful inventions are the result of the reward thus offered to the discoverer and producer, we do know that in those countries where no such reward is given, through the protection of the government to the inventor, there has been little progress made from the semi-barbarism of the Dark Ages.

The arguments against giving to the inventors in surgery the protection guaranteed to all other novel and useful inventions, rests upon what might be called a moral theory, which is expressed by saying that it is immoral for a surgeon to accept the reward that all other inventors receive. If so, then it is immoral for the government to create and protect property-rights in inventions, the purpose of which is to relieve physical suffering, while it is in every way proper and commendable that the government should protect the property-right in a locomotive, an incubator or a mouse trap. This conception of the distinction between these two classes of inventions and inventors rests upon the supposed deteriorating influence the giving of such property-right would have upon the character of the inventor, and upon the *morale* of the medical profession—for I insist that my assumption is logical, that if by reason of its bad influence upon the profession, of rewarding the surgeon who by long study, experiment and expense, does invent a successful instrument, he should not be permitted to accept any compensation for his time, labor and expense; then it is wrong for the government to offer such a compensation. It has never been contended that such a reward has had a deteriorating or in any way baneful influence upon the character of the great inventors in the field of the useful arts and in the scientific and literary vocations. In the half century most productive of such inventions, beginning with Morse and coming down to Bell and Edison, it has never been contended that they or Tennyson and Browning and Longfellow and Emerson and Froude and Bancroft and Macaulay and Spencer and a hundred others, venerable, lovable, adored by all good men, and who have done much to elevate and sweeten human life, did anything immoral or anything that cast the thinnest cloud, the adumbration of a shadow upon their glorious lives and their eternal fame by accepting the reward given by the government in the property-right it guaranteed them, in the divine creations they gave to world. Except for that reward, most of the best things in all our literature would have no existence, for these men lived by their pen. Longfellow resigned his professorship at Harvard that he might give us "Evangeline"; Emerson left the old church in Boston, where his unremembered ancestors preached, that he might give us "The Conduct of Life"; Spencer quit the office of an engineer that he might think and evolve and write. Macaulay relinquished a government salary that he might give to posterity his great prose epic of the Stuart dynasty. Except they had assurance that their country would protect her most worthy citizens against a piracy less honorable than Algerine, there had been no "Evangeline," no "Conduct of Life," no Macaulay's "History of England." If there be one field where, above all others, every possible encouragement should be offered by the government and the profession to the devotion of the most intelligent and able minds in the discovery of health-saving, pain-saving appliances, that field is surgery. It is but a remnant of an old and abandoned ethical theory that there can be morally no contract entered into by a professional man that his services shall be paid for, and that the *honorarium* must ever be his entire dependence. We have come upon a practical age, a common sense age, of which one important postulate in its moral code is that every man shall be entitled to just compensation for his services to mankind in whatever field he shall choose to labor. Wishing you all success, I am yours truly,

H. STRONG, M.D.

#### To the Medical Profession.

At the meeting of the AMERICAN MEDICAL ASSOCIATION, held in the city of Washington, in 1884, it was a matter of remark that among the numerous statues of eminent men of National reputation at the National Capital, there was none of any representative of the medical profession, and the suggestion that in Dr. Benjamin Rush there was a man so conspicuously identified with the period of the Revolution as to make him especially entitled to this distinction, was enthusiastically received and a committee appointed by the President, Dr. Austin Flint, to undertake the collec-

tion of the necessary funds. For various reasons, chiefly the difficulty of appealing directly to the widely distributed members of the profession, the enterprise has made slow progress, and statues to men who did not have Rush's pre-eminent claim as a founder of the Republic have been successfully completed by bodies of comparatively very much smaller membership.

The most imposing statues of military heroes at the Capital have cost from \$20,000 to \$50,000, and having in mind the great services rendered by Dr. Rush to his country, the dignity and paramount position among learned bodies of our profession which is to be honored through him, and the many thousands of the intelligent and cultivated citizens of the community who fill its ranks, at least this minimum sum should be collected for the procurement of a fitting memorial. Fifty cents from every member of the profession would suffice to erect the most imposing statue at the Capital; but allowing for the assumed indifference of one entire half of the profession, the committee hoped that subscriptions of \$1 would have been spontaneously and speedily tendered. In this they have been disappointed, and it must now be a matter of pride and duty with every member of the profession, not only to contribute but to assist actively in inducing his colleagues, friends and acquaintances to forward to the committee without further delay, as much as they are able, bearing in mind that this statue is not merely to Benjamin Rush, Doctor in Medicine, however successful as a practitioner, accomplished as a teacher, able as a professor, eloquent as an orator, elegant as a writer, profound as a thinker, exemplary as a citizen, and eminent as an alienist, sanitarian and social reformer, but to the "Father of Scientific Medicine in America," and "the most distinguished physician this country has ever produced." Member of the Continental Congress, signer of the Declaration of Independence, member of the convention which framed the Constitution of the United States, and first Surgeon-General and Physician-General of the Army of the Revolution. Eighty-two years after his death from the epidemic of typhus he was combating, his fame is as resplendent as during the half century of his life, when he was so conspicuous a figure in our national history. No similar train of circumstances has since arisen, nor probably can ever again arise, to enable any other man, however gifted, to acquire the distinction that has made his memory a sacred trust with every medical man of this day and of the future. Let us all, therefore, earnestly unite in fulfilling the obligations of that trust.

THE COMMITTEE.

**Section on Surgery.—Preliminary Program.**—Joseph Ransohoff, Cincinnati, Chairman; R. H. Sayre, New York, Secretary.

TUESDAY AFTERNOON, MAY 7.

1. Address of Chairman, Joseph Ransohoff, Cincinnati Ohio.
2. Cystoscopy, Catheterization of the Ureters and Catheterization of the Kidneys in the Female, by Howard A. Kelly, Baltimore, Md.
3. Aëro-Urethroscopy with the Exhibition of a new Instrument, by W. K. Otis, New York, N. Y.
4. The Value of Urethroscopy in Chronic Urethritis with demonstration of the Nitze-Oberländer, Casper, and Posner Urethroscopes and other Urethral Instruments, by Ferd. C. Valentine, New York, N. Y.
5. Movable Kidney, by Homer Gage, Worcester, Mass.
6. Movable Kidney, by W. E. B. Davis, Birmingham, Ala.
7. The Radical Cure of Hydrocele, by D. C. Hawley, Burlington, Vt.

WEDNESDAY MORNING, MAY 8.

8. Appendicitis, by John B. Deaver, Philadelphia, Pa.
9. Atypical Cases of Appendicitis, by J. B. Emmert, Atlantic, Iowa.
10. Report of One Hundred Cases of Appendicitis, by S. F. Forbes, Toledo, Ohio.
11. Paper, by J. McFadden Gaston, Atlanta, Ga.
12. What Advance has been made in the Surgical Treatment of Hernia, by W. B. DeGarmo, New York, N. Y.

WEDNESDAY AFTERNOON, MAY 8.

13. The Treatment of Malignant Tumors by the Toxins of the Streptococcus of Erysipelas, by Nicholas Senn, Chicago, Ill.
14. Tumors of the Mammary Gland, by W. L. Rodman, Louisville, Ky.

15. Foreign Bodies in the Esophagus, and a Report of five Esophageal Tumors, by A. Vander Veer, Albany, N. Y.
16. Is Total Extirpation of the Rectum ever Justified, by J. M. Matthews, Louisville, Ky.
17. Colotomy vs. Extirpation in Cases of Cancer of the Rectum, by L. H. Adler, Philadelphia, Pa.
18. Branchiogenic Carcinoma, by Charles A. Powers, Denver, Colo.
19. An Original Osteoplastic Operation for the Removal of the large vascular Tumors growing in the Vault of the Naso-Pharynx, Antrum of Highmore, Sphenoid-Maxillary, and Pterygo-Maxillary Fissures, with presentation of Patient, by John A. Wyeth, New York, N. Y.
20. Electrolysis in the Treatment of Sacculated Aneurysm, through Introduced Wire, with Report of a Successful Case, by D. D. Stewart, Philadelphia, Pa.

## THURSDAY MORNING, MAY 9.

21. Scientific Uses of the Surgical Flap, by George Wiley Broome, St. Louis, Mo.
22. Effects of the New Bullet, by J. D. Griffiths, Kansas City, Mo.
23. Asepsis in Private Practice, by Carl Beck, New York, N. Y.
24. The Surgical Technique of Aseptic Wounds, by Henry O. Marcy, Boston, Mass.
25. Flat-Foot—Supra-malleolar Osteotomy with Report of a Case—Photographs and Specimens of Feet of Man, Orang, Baboon, Chimpanzee and Gorilla, by B. Merrill Rickets, Cincinnati, Ohio.

## THURSDAY AFTERNOON, MAY 9.

26. Diagnosis and Treatment of Tumors of the Brain, with a Report of Seven Cases, by Emory Lanphear, St. Louis, Mo.
27. Presentation of a Case of Microcephalus Treated by Extensive Craniotomies, by Ernest Laplace, Philadelphia, Pa.
28. Gall-Stones in the Common Duct and their Surgical Treatment, with remarks on the ball-valve action of floating Choleliths, by Christian Fenger, Chicago, Ill.
29. Skin Grafting after the Method of Thiersch, by J. C. Oliver, Cincinnati, Ohio.
30. Hypertrophy of the Thyroid Gland; an Experimental Study, by Wm. S. Halstead, Baltimore, Md.

## FRIDAY MORNING, MAY 10.

31. A Confusion of Important Terms and some of the Consequences, by R. Harvey Reed, Mansfield, Ohio.
32. Excision, Erosion and Amputation in Joint Disease, by De Forrest Willard, Philadelphia, Pa.
33. Exsection of the Knee-Joint, with Report of a Case of complete Dislocation of the Knee, of nine years' standing, and with especial Reference to Methods of Fixation, by S. F. Forbes, Toledo, Ohio.
34. The Relative Frequency of Joint Tuberculosis, by—

## FRIDAY AFTERNOON, MAY 10.

35. The New Surgical Splinting—Report of Cases Exemplifying it, by E. A. Tracey, Boston, Mass.
36. A Simple Method of Dressing Fractures of the Extremities auxiliary to the Bandage, by John E. Link, Terre Haute, Ind.
37. Deformities following Fractures of the Shafts of Bones, by Thomas H. Manley, New York, N. Y.

**Section on Laryngology and Otology.**—J. F. Fulton, St. Paul, Minn., Chairman; Thos. J. Gallaher, Pittsburg, Pa., Secretary; Executive Committee: E. Fletcher Ingals, Chicago, Ill.; E. L. Shurley, Detroit, Mich.; J. E. Boylan, Cincinnati, Ohio.

## TUESDAY AFTERNOON, MAY 7.

1. Address of Chairman, John F. Fulton, St. Paul, Minn.
2. Electrolysis in Treatment of Intra- and Post-Nasal Fibroid Tumors, by J. F. Schadle, St. Paul, Minn.
3. Deflection of the Nasal Septum, by Eugene S. Talbot, Chicago, Ill.
4. Electro-vibratory Massage of the Turbinate Tissue, by J. Mount Bleyer, New York, N. Y.

## WEDNESDAY MORNING, MAY 8.

5. Electrolysis by a Current Controller for the Reduction of Spurs of the Nasal Septum, by W. E. Casselberry, Chicago, Ill.
6. The Vaseline Spray-producer vs. Surgical Means as a Successful Treatment of Nasal Inflammation, by Thos. F. Rumbold, San Francisco, Cal.

7. Carcinoma of Larynx, with Report of Case, by Norval H. Pierce, Chicago, Ill.
8. The Bleeding Polypus of the Nasal Septum, by W. Freudenthal, New York, N. Y.
9. A Case of Congenital Mucous Polypus of the Nose, with Remarks, by Dunbar Roy, Atlanta, Ga.
10. History of a Case of Recurrent Nasal Fibroma, by Price Brown, Toronto, Can.

## WEDNESDAY AFTERNOON, MAY 8.

11. Operative Treatment of Purulent Disease of the Antrum of Highmore, with Exhibition of New Instruments, by Walter J. Freeman, Philadelphia, Pa.
12. Report of a Case of Caries of the Sphenoid Bone, with Specimen, by Ewing W. Day, Pittsburg, Pa.
13. Further Observations on the Sub-mucous Injection of Creasote in Laryngeal Tuberculosis, by Walter F. Chappell, New York, N. Y.
14. Proper Climate for the Treatment of Consumption with Laryngeal Tubercular Lesions, by John N. MacKenzie, Baltimore, Md.

## THURSDAY MORNING, MAY 9.

15. (a) Breathal Bands, with Demonstration in Situ Nature; (b) Relations of Food to Laryngology, by E. Cutter, New York, N. Y.
16. Laryngology as a Diagnostic Factor in Gynecology, by Carl Seiler, Philadelphia, Pa.
17. Notes on Several Cases of Laryngeal Neuroses, by S. K. Merrick, Baltimore, Md.
18. A Case of Recurrent Fever of Two Years Duration, Cured by the Removal of a Rhinolith; Chemic Analysis of Rhinolith and Nucleus, by W. Sheppegrell, New Orleans, La.
19. New Septum Forceps, by A. J. Erwin, Mansfield, Ohio.

## THURSDAY AFTERNOON, MAY 9.

20. Excision of the Membrana Tympani, Malleus and Incus, in Chronic Purulent Otorrhea, by Chas. H. Burnett, Philadelphia, Pa.
21. Preventable Deafness and its Influence on Career, by Jas. G. H. Nichols, New York, N. Y.
22. What are the Curative Effects of Pneumo- and Phono-Massage on the Middle and Internal Ear, by Louis J. Lautenbach, Philadelphia, Pa.
23. What the Patient Expects and What We Can Do in Chronic Catarrh of the Tympanum or Middle Ear, with Deafness, by Lawrence Turnbull, Philadelphia, Pa.
- (Discussion to be opened by Dr. H. V. Würdemann, Milwaukee, Wis.)
24. Fibrino-plastic Exudates, Etiology and Pathology, with Report of two Cases, including Laboratory Investigation, by D. Braden Kyle, Philadelphia, Pa.
25. A Further Contribution to the Subject of Middle Ear Operations, by S. MacCuen Smith, Philadelphia, Pa.
26. The Importance of Aural Anatomy in Routine Clinical Practice, illustrated with Stereopticon, by B. Alexander Randall, Philadelphia, Pa.
27. Behold, "They Tinker," by J. G. Carpenter, Stanford, Ky.
28. The Surgical Treatment of Chronic Suppurating Otitis Media, by J. H. Bryan, Washington, D. C.

## FRIDAY MORNING, MAY 10.

29. The Upper-Tone Limit in the Normal and Diseased Ear, as Determined by the Galton Whistle, by H. A. Alderton, Brooklyn, N. Y.
30. The Causes of Halitosis or Fetid Breath, by Wm. T. Cathell, Baltimore, Md.
31. Venous Cavernosa of the Nasal Mucous Membrane, by F. E. Boylan, New York, N. Y.
32. A Double Pediculated Naso-Pharyngeal Myxo-Fibroma, by C. W. Richardson, Washington, D. C.

## SOCIETY NEWS.

**Rocky Mountain Medical Association.**—The surviving members of this Association will meet as the guests of Dr. John Morris, Secretary and Treasurer, at the Athenæum Club, Baltimore, on Tuesday evening, May 7, at 6:30 o'clock, P.M.

**Association of Acting Assistant Surgeons of the U. S. Army.**—A special meeting will be held in Baltimore, Md., May 8, during the coming session of the AMERICAN MEDICAL ASSOCIATION. It is earnestly desired that every member of the Association will make an effort to be present, to consider matters of importance. By direction of the President.

W. THORNTON PARKER, M.D., Recorder, A.A.A.S.  
Groveland, Mass.

## BOOK NOTICES.

**Twentieth Century Practice.** An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In Twenty Volumes. Volume 11. Nutritive Disorders. New York: William Wood & Company. 1895.

The contributors to this volume are: G. S. Dujardin-Beaumont, M.D., of Paris;\* Sir Dyce Duckworth, M.D., etc., of London; Archibald E. Garrod, M.D., etc., of London; Henry M. Lyman, M.D., of Chicago; Thomas J. MacLagan, M.D., etc., of London; Carl H. von Noorden, M.D., Frankfurt-on-the-Main; Max J. Oertel, M.D., Munich.

The topics are: Addison's disease and other diseases of the adrenal bodies; diabetes mellitus; rheumatism; gout; arthritis deformans; diseases of the muscles, and obesity.

The work is well done, as may well be imagined from the names mentioned, but now and then there crops out an eccentricity; for instance, it certainly sounds a little queer to read in von Noorden, page 73, where he writes of the syphilitic theory of diabetes: "More than that, it may be remembered that diabetes was a disease recognized by Greek and Roman physicians, while syphilis is supposed to have been communicated to Europeans by the Indians, after the discovery of America, as if in revenge for their discovery and annihilation." Sprengel, who gave this question much study (*Hist. de Med.*, vol. 11, p. 499 et seq.), asserts that the statement of the American origin of syphilis rests on insufficient proof. In the ancient literature of the Chinese and Japanese, in the writings of Moses, the lament of David, and particularly in the Book of Job may be found such descriptions of the disease, and there is little question that in some form or another it has existed from the earliest times.

The chapter on gout, by Professor Lyman, the only American author in this volume, is complete and interesting. Not only is his style pleasant, but there is breadth of treatment and such thorough knowledge of medical literature displayed as to make this section extremely entertaining.

The volume, as a whole, is quite equal to its predecessor.

**Transactions of the Antiseptic Club.** Reported by ALBERT ABRAMS, a member of the San Francisco medical profession. New York: E. B. Treat. Pp. 206.

This is an alleged funny book, written by a funny man, who seeks to make sport by poking fun at the doctors. It must be confessed that the author sometimes succeeds. The doings of the club are set forth with much humor.

**Charaka Samhita.** Charaka Samhita, translated into English. Published by AVINASH CHANDRA KAVIRATNA. Published at 200 Cornwallis Street, Calcutta.

This is the twelfth fasciculus of the series, the appearance of which we have from time to time chronicled. This fasciculus, which is not less interesting than its predecessors, touches on the very practical topics of wine, water and milk. The student of medical history must receive this book with the keenest interest. The views of the ancient Hindus on water and milk will be read with pleasure.

## NECROLOGY.

GUSTAVUS FRAUENSTEIN, M.D., of New York City, died Feb. 27, 1895. He was an alumnus of the College of Physicians and Surgeons, New York, class of 1868, and a member of the Academy of Medicine, of the County Medical Association, and of the Medico-Legal Society.

AUSTIN SAMUEL CLUTTERBUCK, M.D., died March 28, 1895, at the Memorial Hospital of Morristown, N. J. He was a native of County Tipperary, Ireland, born there Sept. 15, 1864. He came to this country about five years since. His wife was a Dublin lady, Miss Mary Cashin, to whom he was married in Dublin in 1892. He was a licentiate of the Royal College of Surgeons, Ireland, in 1886.

\* Deceased.

MOSES D. VAN PELT, M.D., of New York City, died April 13. He was a graduate of the New York University, in the class of 1835. Until recently he had been in practice at 348 Willis Avenue, but he was temporarily removed to New London, Conn., where death took place suddenly in the eighty-seventh year of his age. He was a member of the Academy of Medicine, the Society for Widows and Orphans of Medical Men, and other organizations. His funeral took place April 16.

WILLIAM HUNTER BIRCKHEAD, M.D., of Newport, R. I., died Friday, April 12, aged 56 years. He was the son of James and Eliza Hunter Birckhead, and allied to several old Rhode Island families. He graduated in arts at Trinity College in 1861, and in medicine from the New York College of Physicians and Surgeons in 1864. He became a member of the resident staff of Bellevue Hospital directly after graduation. This was under competitive examination, and at a time when typhus fever was cutting down interne after interne. He passed through his service with credit and advantage, serving chiefly in the First Medical Division. He was interne at the New York Woman's State Hospital, from 1866 to 1868. In the latter year he became attending physician at the Children's Hospital at Newport. He went abroad in 1871, and spent several months at the clinics in Paris and Vienna. From 1869 to 1879 he served as visiting physician and surgeon at the Newport General Hospital. His specialty, as indicated by the line of careful preparatory study, lay in the direction of the diseases of women and children.

GEORGE FRANK WESTBROOK, M.D., of Brooklyn, died April 12, in his forty-fifth year. He was born in St. Louis, Mo.; graduated from the Long Island College Hospital, first in honor, in the class of fifty-seven, of which he was the youngest member. Five years later he was placed upon the Summer Faculty of that school, teaching anatomy and surgical pathology. He held the position of visiting physician to the Methodist Episcopal and to St. Mary's Hospitals for a number of years, and was a member of the American Climatological and Laryngological Societies, of the New York Academy of Medicine, and of most of the Brooklyn medical societies. He was a frequent contributor to medical literature, and had devised, among other things, a daring method of drawing blood from the overcharged right side of the heart with a fine hollow needle, in otherwise hopeless cases of pneumonia. His health broke down four years ago, but he was entirely his vigorous self again for some months last summer, at the end of his long vacation. For the past year he had been writing extensively for a system of therapeutics, and at his death was engaged on a large work on medical diagnosis. He was an independent thinker and a close student, and studied his patients as individuals, with a thoroughness few men use. His patients were his warm personal friends, and he had the power to develop strong personal affection in his students and colleagues through his kindness, his heartiness and his honesty, as well as a wide faith in his quiet power. The cause of his death was pneumonia, the duration of the attack being about four days. He leaves a widow and one child.

GEORGE CUPPLES, M.D., of San Antonio, Texas, April 20.—E. J. Lawton, M.D., of Rome, N. Y., April 19, aged 60.—A. C. Nixon, M.D., of Hanover, Ohio, April 17, aged 72.—John P. Wall, M.D., of Tampa, Fla., April 18.—H. W. Foster, M.D., of Pittsburg, April 14, aged 23.—D. L. Starr, M.D., of Pittsburg, April 13, aged 83.

## PUBLIC HEALTH.

**Demography of France.**—The report of the French Department of Statistics for 1893 has been published in the *Journal Officiel*, from which it appears that there were registered 287,294 marriages, 6,184 divorces, 874,672 births and 867,526 deaths. This is a slight improvement over the figures for 1892, being 18,825 more births and 8,362 less deaths, so that in place of a loss of 20,041 inhabitants for the country in 1892 there is a slight net increase of 7,146. While the total number of marriages shows a falling off of 3,025; it is nevertheless, superior to the mean of 280,000 for the decimal period between 1881-90. The increase in the number of marriages—since the large population immediately following the year 1870-71 has arrived at a marriageable age—renders it probable that the low birth rate for the last twenty



years, on account of the large number of young men killed in battle, will begin to rise again. This seems to be indicated by the increase in 1893 after a three years deficit. Although as above stated, the total number of marriages was 3,025 less than in 1892, yet in 28 departments the number of marriages increased. The number of marriages corresponds to 7.56 per cent. of the population. As usual, the mountain departments, which furnish the most adult emigrants, have the smallest number of marriages—5.6 in the Lower Pyrenees, 6 in the Upper Pyrenees, 6.3 in Corsica and Savoy, etc. The largest proportion, 9.3 per cent., is in the Seine department. The divorces, which numbered 5,772 in 1892, increased to 6,184 in 1893. The northern departments and Paris had the largest number—110 and 171 respectively per 100,000 families. Births, which had been lowered since 1890, increased by 1882, 5, with a total of 874,672, of which 446,957 were boys and 427,715 girls. It may be stated that the increase was general, for it prevailed in 71 departments and only decreased in 16. The general birth rate was 22.9 per 1,000, varying from 14.9 in Gers to 33.5 in Finisterre. Natural births increased in 1893 to 76,562—the highest ever observed, being a proportion of 8.8 per 100. These were most frequent in the departments in the north and northwest; in the Seine department the proportion was 24.3 per 100. Deaths amounted to 867,256, of which number 449,682 were men and 417,844 women, the rate being 22.8 per 1,000. While the mortality in 1893 was 8,362 less than the year preceding, it is still too high. The mortality in France rules the increase or diminution of the population, and the attention of municipalities and hygienists should be directed toward it, especially in the first years of life.<sup>1</sup>

**"Kissing the Book."**—The Legislature of Pennsylvania has decreed that the oath on the Bible shall be dispensed with. The Governor of the State has indicated that he will approve of the enactments to that end. While it has always been at the option of the swearing citizen to "affirm" or to take the oath, the average person has not known of this alternative, and has done as directed when told to "kiss the book." This latter has the tradition and awe of the ages of court procedures behind it, but the multitude can not fail to recognize the change as a modern reform. The silent work of the theory of the germ production of disease has undermined the time-honored process that has been winked at and tacitly continued by the police and other magistrates. These latter are not all of them "posted" on the properties of a kiss-moistened leather-covered book to hold and to propagate the bacilli of disease, and the presumption is that not a few of the Pennsylvania Dogberries will regard the amending act as a blow against the defenses of justice. To such, no doubt the removal from their desks of the dirty greasy Bible will appear as a misfortune and an ill-advised innovation. To our bacteriologists and sanitarians, however, it will stand as a mile-post on the road of progress.

**Diphtheria Antitoxin.**—A circular of the Massachusetts State Board of Health.

The investigations of Behring and Roux with reference to the value of serum-therapy in the treatment of diphtheria, and the later experience of its use in diminishing the mortality from this disease, are widely known and fully understood. The State Board of Health, in accordance with its organic purpose as defined in the statutes, having in view the "interests of health and life among the citizens of the Commonwealth," and recognizing the value to the people of any agent which will measurably prevent the ravages of a disease capable of destroying more than a thousand of lives annually in Massachusetts, and of causing suffering which can not be expressed numerically, has in this State prepared a supply of antitoxin, for the benefit, primarily, of such communities as find it difficult or impracticable, for any reason, to supply themselves with the new agent from reliable sources. Great care has been exercised, in the preparation of this supply, to fulfill the most exacting technical requirements for obtaining a pure and trustworthy product, and the tests of its strength have shown satisfactory results. The board does not propose to offer it for sale, but its gratuitous distribution will be under strict conditions, designed to prevent abuse and waste, and to obtain the most beneficial fruits. Each bottle is marked with a number and the

date of the preparation of its contents. No antitoxin will be issued except upon a pledge that a full statement of the observed effects of its use will be returned to the board at the termination of the case. In all cases possible, a bacterial diagnosis will be insisted upon. The board desires to emphasize the importance of using such appliances only as are adapted to the proper administration of the remedy, of remembering that experience has demonstrated that antitoxin is most useful in the earliest stages of a diphtheritic attack, and of realizing that trained medical skill is required to administer it successfully. A blank form for the report and a detailed statement of instructions as to methods will accompany each bottle of the antitoxin serum. For the needs of persons living within twenty-five miles of Boston, it will be required, for the present, that personal application at the office of the board shall be made by the attending physician in the diphtheria case, or by some person authorized by him. For the convenience of more distant parts of the State, local agencies at public hospitals or municipal health offices will probably be established by the board in accessible centers. The office of the board (Room 141, State House Extension), is open each week day, except Saturday, from 9 A.M. to 5 P.M., and on Saturday from 9 A.M. to 2 P.M. SAMUEL W. ABBOTT, Secretary.

State House, Boston, March 25, 1895.

**Health Reports.**—Sanitary reports to the Supervising Surgeon-General Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Iowa: Des Moines, April 17, 1 case.  
Missouri: St. Louis, April 6 to 13, 21 cases and 2 deaths.  
Ohio: Cincinnati, March 28 to April 18, 31 cases and 2 deaths; Cleveland, April 6 to 13, 1 case; Coal City, March 28 to April 18, 1 case. (Removed to hospital at Cincinnati); Columbus, April 13 to 20, 1 case; Wellington, March 28 to April 13, 2 cases.  
Pennsylvania: Chester, April 13 to 20, 1 case of varioloid; Philadelphia, April 6 to 13, 11 cases.

SMALLPOX—FOREIGN.

Argentine Republic: Buenos Ayres, January 1 to 31, 7 deaths.  
England: Birmingham, March 31 to April 6, 1 case; Derby, March 31 to April 6, 1 death; Liverpool, March 31 to April 6, 3 cases; London, March 31 to April 6, 53 cases.  
Germany: Prague, March 23 to 30, 2 cases.  
Gibraltar: April 1 to 7, 2 cases.  
Holland: Amsterdam, March 31 to April 6, 1 case, 1 death; Rotterdam, March 31 to April 6, 3 cases, 2 deaths.  
Mexico: Nogales, April 6 to 13, 2 cases, 2 deaths.  
Russia: Batoum, March 26 to April 2, 10 cases, 2 deaths; Odessa, March 23 to 30, 3 cases, 2 deaths; St. Petersburg, March 23 to 30, 7 cases, 1 death.  
Scotland: Edinburgh, March 31 to April 6, 8 cases, 1 death; Glasgow, March 31 to April 6, 45 cases, 2 deaths.  
Switzerland: Basle, March 16 to 23, 7 cases.

YELLOW FEVER—FOREIGN.

Italy: Bologna, March 31 to April 6, 1 case.  
Mexico: Vera Cruz, April 4 to 11, 1 death.

CHOLERA—FOREIGN.

Argentine Republic: Buenos Ayres, January 1 to 31, 27 deaths.  
Japan: Hiroshima, March 29, 1 case; Moji Naval Station, March 19, 18 cases and 10 deaths. March 22, 1 death.

YOKOHAMA, JAPAN, March 29, 1895.

Sir:—I have the honor to inclose copies of official dispatches with regard to what appears to have been a slight outbreak of cholera, at the station of Moji, southern Japan. The very active measures taken by the Japanese authorities seem to have been successful in stamping out the disease, as no new cases have occurred since the 19th or 20th inst. I may say that, in the military and naval posts, not only are the regular quarantine and sanitary laws applied, but they are backed by a specially stringent code administered under the War and Navy Departments. The Japanese Government fully recognizes the imminent danger of the importation of disease with returning soldiers, sailors, and above all, through the large bodies of coolies which are employed in army transportation, and have taken such measures as seem best adapted to meet the emergency.

The danger is, undoubtedly, a grave one. Cholera is, practically, endemic; in more than one Chinese city all the maladies which so often follow in the train of war and famine are of possible occurrence, and the distance between the

<sup>1</sup> Bulletin Medical.

Chinese and Japanese coasts is covered in but a very few days.

I regret to say that already, through the native authorities, I have official information of the appearance of several cases of the plague at Hongkong, within the past week. The recurrence of this disease with the advancing spring has been confidently expected by all familiar with the history and laws of this malady, especially in view of the so far, very perfunctory action of the Government of Hongkong. \*

\* \* \* \* I am, Sir, Very respectfully,  
(Signed) STUART ELDRIDGE, M.D.,  
Sanitary Inspector, U. S. M-H. S.  
ENCLOSURES.

FUKUOKA, March 18.  
At the town of Moji, Fukuoka Ken, cases of acute vomiting and purging have appeared since the 8th inst., to the number of eighteen, with ten deaths. Careful clinical and post-mortem examinations by two able physicians, who declare the disease to be cholera. The first case had been in communication with a vessel that came from the China coast.

(Signed) GOVERNOR of Fukuoka Ken.  
FUKUOKA, March 20.  
There is no new case since yesterday, and disinfection and preventive measures are fully carried out.

(Signed) GOVERNOR of Fukuoka Ken.  
FUKUOKA, March 21.  
To-day every house has been suspected and disinfected, and there is no new case.

(Signed) ARITA, Chief of Police, Fukuoka Ken.  
FUKUOKA, March 22.  
There is no new case since 20th inst. One death yesterday, five remain under treatment.

(Signed) ARITA, Chief of Police, Fukuoka.  
HIROSHIMA, March 29.  
Yesterday cholera attacked a coolie who has worked on the transport ships at Ujina. Forty men who had been living with him, and thirty more who had communicated, are isolated and under observation.

(Signed) GOVERNOR of Hiroshima Ken.

## MISCELLANY.

**Change of Address.**—Dr. Jas. T. Jelks, to 218 Central Avenue, Hot Springs, Ark.

**The Samaritan Hospital for Women**, Montreal, was opened by Her Excellency, the Countess of Aberdeen, Jan. 17, 1895.

**Dr. Bayard Holmes.**—Dr. Bayard Holmes, has been re-appointed as Secretary of the College of Physicians and Surgeons of Chicago.

**New York Ophthalmic and Aural Institute.**—This institution has been named in the will of the late Mary Putnam Bull, formerly of Tarrytown, N. Y., to receive the sum of \$2,000, to be applied to the sustentation account.

**Professor Schnabel.**—Dr. Stellwag (von Corion) late the Professor of Ophthalmology in the Faculty of Medicine, University of Vienna, has been retired on account of age. Dr. Schnabel, of Prague has been appointed to the vacancy.

**Many Indorsements.**—The Chicago Medical Society, the Chicago Gynecological Society and the Chicago Academy of Medicine have passed resolutions requesting Mayor Swift to retain Dr. A. R. Reynolds as Health Commissioner of Chicago. The judgment of the JOURNAL as expressed last week on this subject is thus seen to be the voice of the whole profession. Will the Mayor heed it?

**The Code Question.**—The Code question will not down. The premature publication of a hasty resolution passed at a poorly attended meeting of the Cleveland Medical Society has resulted in a renewal of the agitation of this subject throughout the medical press in such a way that it will force itself upon the attention of the AMERICAN MEDICAL ASSOCIATION meeting at Baltimore. It is to be hoped that this question will soon be settled, so that the valuable time of the ASSOCIATION may be better occupied in the discussion of scientific papers.—*Cleveland Medical Gazette.*

**The Royal College of Physicians.**—The Royal College of Physicians of London held an extraordinary comitia for the purpose of electing a President. Sir J. Russell Reynolds was re-elected. In his annual address, President Reynolds stated that "the committee appointed to carry out the decennial revision of the nomenclature of diseases had practically completed their labors, had passed the volume in proof a few days since, and it was about to be issued by the Queen's printers."

**Vermiform Appendix in Hernias.**—Kraft reports seven cases of hernia, in three of which the appendix alone was herniated, in the other four there was a loss of intestine in addition. After searching the literature and comparing his cases the author concludes that if the appendix is neither perforated or gangrenous it is to be reduced; in case of perforation or gangrene, resection of the appendix is indicated. The intestine if present in the hernia, whether gangrenous or not, is to be uncovered for inspection, as in all cases of gangrenous intestinal hernias.<sup>1</sup>

**Instance of Longevity.**—I was born in 1793, and since then I have never been ill a single minute," is the statement of Dr. de Bossy, the oldest of French physicians, who is still in active practice at Havre. He has never followed any special diet, and is opposed to anything of the sort. He rises at 7, summer and winter, and as soon as he is dressed starts on his rounds, usually on foot. He has drank coffee all his life, has no objection to a glass of bitters, and tobacco is "a poison which he regularly absorbs." He attributes his longevity to moderation in all things. His father lived to be 108. Dr. de Bossy took his degree in 1818, then went to England, and later to India, where he practiced medicine, and returned to Havre, where he has since been at work, sixty-four years ago. He has two sons, the elder 68 years old.—*Tribune.*

**Legislation for the Prevention of Blindness in Missouri.**—Several weeks ago a bill was introduced into each house of the Missouri Legislature, which contains in substance the same provisions as already exist in the laws relating to this subject in New York, Maine, Rhode Island, Minnesota, Ohio and Maryland. In Missouri the bill has passed both houses with little or no opposition; but still awaits the signature of the Governor. It would be a real misfortune to the State if he failed to adopt the advanced policy which has actuated lawmakers in so many States already, and is interesting the more intelligent leaders in still other parts of the Union. The Committee of the AMERICAN MEDICAL ASSOCIATION will make its report at the meeting in May, and we surely hope that the Governor of Missouri will not deprive his State of the privilege of being counted among those adopting this enlightened policy of the prevention of blindness from ophthalmia neonatorum.

**Treatment of Strangulated Hernias.**—Chalita has in the last eight years treated ninety cases of strangulated hernia in the Jewish Hospital at Kieff. If the general state of the patient is good, taxis should be tried under narcosis. It was successful in thirty-three cases after the strangulation had lasted from one to five days. If symptoms of peritonitis or collapse are present, immediate operation is necessary. The exact method to be used varies with the case. The author performed twenty herniotomies with 15 per cent. mortality; twenty-nine operations on hernias already gangrenous with resection of the intestine had 3 per cent. of deaths; three intestinal fistulas were successfully treated by the enterotome and one stercoral fistula was sutured. Herniotomy was followed in seven cases by the radical operation which is always indicated according to this author if the intestine is healthy.<sup>2</sup>

**New Hemostatic.**—Hederich recommends a new hemostatic, ferripyrin. This substance is a definite combination of perchlorid of iron and of antipyrin in the form of a reddish-orange powder, readily soluble in cold water. It has some appreciable advantages over the perchlorid. It is not

<sup>1</sup> Nord. Med. Arkiv.

<sup>2</sup> Rev. Int. de Med. et Chir. Prat.

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, MAY 4, 1895.

No. 18.

## LECTURES.

### LECTURES ON INTRACRANIAL SURGERY.

#### VII—BRAIN TUMOR AND ITS SURGICAL TREATMENT.

BY EMORY LANPHEAR, M.D., PH.D.

ST. LOUIS, MO.

Resuming description of cases of tumor of the brain and its envelopes, upon which I have operated, I next wish to relate the history of an

*Osteoma—Operation—Recovery.*—W. L. W., of Fairport, N. Y., aged 28 years, I first saw in June, 1889. His family history was good and his health excellent until 1884, when he had syphilis. In June, 1887, he fell and injured the right side of his head, from which he was unconscious for several hours. Soon afterward he began to have headache with a tender spot just in front of the right parietal eminence; then there was a change in his disposition; he became irascible, shiftless and vulgar, began drinking heavily and taking morphin for the head pain. Some time during 1888 he had a "stroke of paralysis" after a hard debauch, the left hand and arm remaining paralyzed for some weeks; motion gradually returned under large doses of iodid of potassium. During the latter part of May, 1889, he had intense headache over the motor region of the right side of the head, accompanied by vomiting and much difficulty in walking. He again drank heavily and on June 1 had a second paralytic attack. He was found unconscious; completely paralyzed upon the left side, and with aphasia, agraphia and word blindness, as was noted June 2 after he regained consciousness. His entire vocabulary consisted of "God damn fool" and "morph," the latter being a request for morphin uttered in a piteous tone. For several days convulsive movements of the paralyzed side were noticed, leading to the conclusion that the lesion was superficial. He was placed in my care June 5 and remained under observation for a number of weeks, the aphasia continuing unimproved, only a slight degree of motion returning in the leg and none in the arm, in spite of the most vigorous antisymphilitic treatment and the use of electricity. The frequency and severity of the convulsions of the affected side became less and finally this symptom disappeared. The "morphin habit" was cured. His general condition improved to a remarkable degree and he became fat on immense doses of iodid of potassium. On August 1 he could read the newspapers and novels for hours, was feeling well and decided to return home; the paralysis and aphasia continued the same, so I accompanied him to his home in New York. He came to me again Feb. 5, 1891, anxious to be trephined, as he had heard me say that was the only chance of relief. The paralysis of left arm was still complete, but a little motion was found in the leg and he could walk with the aid of a crutch. Some command of language had returned, but speech was child-like in character. General health fair.

At 10 A.M., Feb. 22, 1891, with the assistance of Drs. W. S. Allen and John Puntton, I opened the skull with chisel and mallet and attempted to enlarge the opening with bone forceps, but the tissue was so hard at the point of attack that a very strong pair broke and it was necessary to complete the operation by carefully chiseling away the bone, bit by bit. A tumor of the bone was found, extending from near the middle line at a point just over the Rolandic fissure downward and forward over the motor area for a distance of nearly three inches. A cross-section presented the appearance of the accompanying illustration.

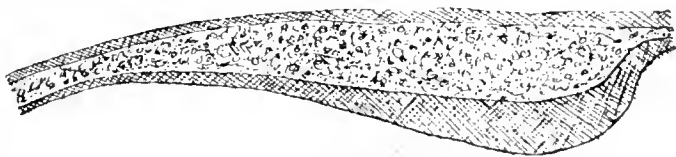
The external table was not at all raised or thickened but the vitreous plate was very thick and excessively hard. After removing the bone, I opened the dura and inspected the brain. The cortical substance of the arm center and the posterior lower part of the frontal convolutions appeared

blanched—"atrophied," as Dr. Puntton expressed it—and he further expressed the opinion that the speech center was, in this patient, in the right hemisphere. I then explored the subcortical tissue and white substance to the internal capsule at two points, but found no sign of old hemorrhage. I closed the two wounds in the dura with fine catgut, checked oozing with hot water, inserted a drainage tube and closed the scalp at the end of one hour and forty minutes.

At 6 P.M., he was in fine shape. He spoke much better than before the operation, said he could move his leg with greater ease and expressed himself as very hopeful of permanent benefit.

My entry for February 24 says: "Eats and sleeps well. No fever. Says he feels much better than before the operation. He can completely flex leg and thigh of left side, which was impossible before. Got out of bed and walked around ward last evening! And to-day went to water closet for bowels to move. Passes urine with far less straining than any time since paralysis began."

The drainage tube was removed February 26 and permanent dressings applied. The wound was in good condition and at the next inspection (March 2) was found healed by primary union. March 14 he was walking without a cane, the paralysis of the leg having almost entirely disappeared and the arm much better—some movement in the fingers being perceptible. He then said: "My bad headache is gone with all my other bad feelings; things look clearer and more natural than in years." There was little more improvement during his stay in the hospital. He was discharged April 27 in perfect health—paralysis much better than previously and mental condition decidedly better.



Section of osteoma; actual thickness.

He returned to the hospital on June 1, in good condition, but under the influence of whisky and with but a few dollars in money—hence very much discouraged. As he was not ill he was discharged from the hospital June 2. He committed suicide at Leavenworth, Kan., June 3. The post-mortem examination was made by Dr. M. S. Thomas, who recorded that: Rigor mortis was complete and firm on the right side, but not so complete on the left. Left arm one inch less in diameter than right, and left thigh one and one-half inches less than right. A somewhat circular opening was found on the right side of the head covered by scalp with large C-shaped cicatrix. Calvarium removed having in it a roundish opening (loss of bone)  $2 \times 3\frac{1}{2}$  inches. There was no evidence of suppuration; there was an adhesion of the dura mater at the edge of the bone and a thin ligamentous filling-in of the opening already begun. *The brain seemed to be perfectly healthy everywhere.* The conclusion, made before the jury, was that a recent surgical operation had been performed on the head and that he came to his death from morphin taken hypodermically, etc.

It is to be regretted that this patient killed himself so soon after recovery from the operation, as it would have been instructive to note the amount of improvement that might follow removal of such a long-continued pressure. Is it possible that complete regeneration would have eventually been noted? I think it hardly probable. But in spite of this, I was well satisfied, indeed, with the decided change wrought by the operation. If I had had the courage of my convictions, and operated when he first came under my

care, I believe a cure might have been effected. Three other points are worthy of notice:

1. The fact that the patient stood the prolonged operation so well. Had I not spent much time in trying to cut the bone with forceps, and had I omitted the useless exploration of the brain, I might have completed my work inside of an hour; yet in spite of the severity of the operation, the long-continued anesthesia, and the use of the mallet and chisel, there was practically no "shock." I account for this chiefly by reason of complete hemostasis—there was not more than four to six ounces of blood lost altogether.

2. The rapidity of convalescence. As noted in the history, this man insisted upon getting up inside of twenty-four hours, and never could be kept in bed except at night after the second day. Yet no harm resulted, so far as we could determine.

3. Aphasia with right-sided lesion. Since the physician who made the autopsy is positive in his assertion that there was no lesion discoverable in the brain, we must conclude that the paralysis was due to the pressure of the tumor, and the aphasia also to the same cause; if this assumption be correct, the speech-center must have been located upon the right side. He was, he asserted, ambidextrous, but wrote with the right (paralyzed) hand. He learned to write his name with his left, after convalescence from the last comatose condition.

Another case, of especial interest on account of the favorable result, as well as the localizing symptoms, was the following:

*Subcortical Tumor—Operation—Recovery.*—A. C., stockman from Montana, consulted me Dec. 18, 1890. He was a Swede, 41 years of age, married fifteen years. His family history was good, and health excellent until 1876, when, in Southern Kansas, he had what the doctor called "malarial fever," from which he was in bed many weeks, and did not completely recover for more than a year; never had been as well since as he was before this attack. He suffered from heat stroke in 1878, after long exposure to the hot sun of the prairie; he was very sick for several hours, and convalesced slowly, being in bed fully two weeks. Afterward he was subject to "sick headache," *i. e.*, attacks of pain upon the top and left side of his head, accompanied by great prostration, vertigo, and vomiting of mucus; these were promptly relieved by a brisk cathartic. The last attack occurred in March, 1889, but a dull pain in the left side of the head began soon after, and had been pretty constant since. In September or October he began to have trouble with his right arm and side of face—slight spasmodic contraction, with muscular weakness. The paroxysms had increased in frequency and severity, until the spasmodic contraction of the muscles was so great as to be exceedingly painful; and he was positive that the uniform course was this: spasmodic contraction of muscles of the right side of the face and head, especially marked in the eyelid, quickly involving the hand, then the arm and forearm, and neck, causing violent spasm of the flexor muscles of the arm, forearm and fingers; the convulsion always begins with pain and severe contraction of the muscles about the outer side of the right eye and the temporal region; during the attack the head and eyes turn violently to the right, and he gasps for breath; he becomes totally aphasic for a period of ten to fifteen minutes after each spell, but there is never any loss of consciousness. He was very positive as to the constancy of this course. The attacks appeared two or three times a week, but though increasing in number, more than two weeks elapsed between the last two before the examination. He felt very much exhausted for some hours after more recent convulsions, and a numbness persisted in the hand and arm for several hours. Examination showed no trouble with the urine—specific gravity 1026—or with the organs of the chest and abdomen. The retine were pale—no evidence of choked disc.

While there was no history and no signs of syphilis, I put him upon appropriate treatment for gummy tumor for some weeks, and kept him under careful observation. This was the only alternative, as he would not consent to operation. He had only two attacks in January, 1891—one on the 15th

and the other on the 27th. January 30, I suspended the antisyphilitic remedies, and ordered Charcot's "black mixture," bromid of sodium, pepsin and charcoal in glycerin and water. He disappeared.

April 7 he again consulted me, expressing himself as anxious for operation, as the convulsions returned early in February, and were getting very hard and numerous—sometimes two in one day. Two or three general epileptic seizures had occurred within two weeks, the pain in the head was becoming unbearable, and his general health failing. He had an attack of minor degree in my office, tallying well with his previous description; urine passed about an hour later showed specific gravity of 1032, with sugar in considerable quantity, but no albumin or phosphates. I prescribed 6 drops of the fluid extract of *syzygium jambolanum* thrice daily, and a tonic of arsenic and bitters. Under this he improved in his general condition, the glycosuria disappeared, and he was in such good shape that I sent him to the hospital April 24.

Operation April 26, assisted by Drs. Monks and Maxson. On removing a portion of bone 2x3 inches over the speech and arm centers, the dura presented an unduly tense feeling, but did not protrude into the opening, nor present any evidence of abnormal growth upon it—so it was incised in a horse-shoe flap and turned back. The brain showed through the pia as slightly reddened beyond the normal; closer inspection showed what appeared to be a tumor, and palpation revealed a hardness that ought not to be present, situated just at the lower end of and anterior to the fissure of Rolando. I therefore attempted to raise the pia, but finding that too much traction wounded vessels of considerable size, I carefully tied vessels running in the direction of the affected area by slender catgut, and then cut through the somewhat elevated cortical tissue—very gently, for fear of wounding tissues which should escape injury. A small tumor, of pinkish-white color, was thus disclosed, and examination showed that it did not present firm attachments;

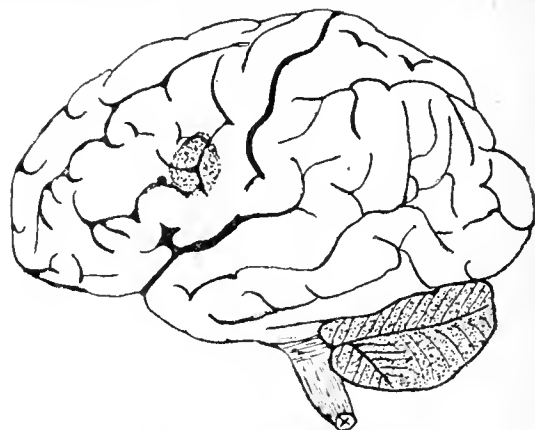


Diagram showing location of tumor.

that is, it did not infiltrate surrounding structures. Attempts at enucleation, however, proved futile, and I was therefore compelled to remove the tumor by means of a sharp spoon, thus preventing microscopic examination—much to my regret. The tumor was the size of a very large cherry, and was quite vascular; the surrounding tissue, too, was engorged, and consequently hemorrhage was very brisk. However, I succeeded in curetting away all diseased tissue, and then tried to arrest the bleeding with hot compresses; this failing, I was compelled to pack the cavity with iodoform gauze, quite lightly, and close the dura and scalp around the protruding gauze. No attempt to replace bone was made. Duration, fifty minutes.

The patient was put to bed in bad shape—shock profound and pulse weak and thready. Eight hours after operation the patient appeared to be conscious but could not speak; the right arm was paralyzed, and so much difficulty in swallowing was present that all medicine was given hypodermically and stimulants and food per rectum. His pulse was 140 and weak and his temperature 102 degrees, and I feared much for his safety. During the night his condition improved somewhat, but the paralysis continued all the next day and the difficulty in swallowing persisted.

April 28, the condition was much the same at 8 A.M., pulse 148, temperature 102.5 degrees. He had slept some during the night. The dressings were removed and the iodoform gauze drainage carefully withdrawn. Very little oozing



had taken place and no bleeding followed removal of the packing—so the separated margins of scalp were pressed together and permanent dressings applied. This day he improved rapidly so that in the evening he murmured, "Water, water," and drank greedily with but little difficulty, Evening temperature 100 degrees.

April 29, speech returned to a remarkable degree and voluntary movements of the right side were noticeable. From this time on, convalescence was satisfactory in every respect, the aphasia and paralysis totally vanishing. He had but one Jacksonian attack—very slight—which was noted the day before his discharge, May 19. He appeared to be in excellent health. I saw him again on June 5, and again upon July 9 at each of which visits he declared himself perfectly cured. He promised to keep me informed of future progress, but I never saw or heard more from him.

It is peculiarly unfortunate that the character of this subcortical growth could not be ascertained. It had the peculiar appearance of glioma. The absence of implication of surrounding tissues would lead one to believe it was not malignant, though the rapidity of growth (October to April) would indicate that such might be its nature. It is possible that it may have begun much earlier than the date set, but from the marked increase in number and intensity of the paroxysms in the few weeks prior to operation, I believe the tumor must have been growing with a deal of rapidity.

I can not leave the subject of tumors without giving a short description of my other fatal case:

*Cyst of the Arachnoid—Operation—Death.*—Wm. K., from the Indian Territory, was brought to me by Dr. O. W. Krueger, Jan. 8, 1892. The previous history was not obtainable to my satisfaction, but it seems that he was as intelligent as other boys until about the age of 14 years when he began to have epileptic convulsions of the right side, followed by temporary aphasia. The spasms finally became general, partaking of all the characteristics of *grand mal* including the mental deterioration. Finally, partial paralysis of the right side gradually made its appearance accompanied by difficulty in remembering names and other nouns. As the epilepsy increased in severity this paralytic influence deepened until at last he was completely paralyzed in the right upper extremity, the use of the lower was so greatly impaired as to prevent walking, and language became totally obliterated. He frequently read the papers for a little while at a time and seemed to understand much of what was said, though his intelligence was evidently greatly impaired.

Owing to the fairly clear, though not wholly satisfactory evidence, that the convulsions invariably began in the right hand, then spread until the whole body was involved, and also to the existence of the aphasia, I had him sent to the hospital where I opened the skull, assisted by Drs. Krueger and Maxson. Upon opening the dura a cyst of the arachnoid was found, much larger than a hen's egg, lying over the speech and arm centers. This I tried to remove entire, in doing which I fear I exerted too much pressure upon the brain, for the patient ceased breathing (although no chloroform had been given for several minutes) and only revived by long-continued artificial respiration. I hastily cut away the cyst and closed the dura, only stopping to notice that the speech and arm centers were of a very pale hue wholly unlike the surrounding cortical tissue, and that the impress of the tumor upon the brain did not disappear with removal of the cause. While closing the dura, another suspension of respiratory efforts was noted and again artificial respiration had to be instituted. The wound was quickly closed and dressed and the patient placed in bed as hastily as possible, when every possible means to combat shock was employed—to no avail; he died within a very short time. An autopsy was not obtainable.

What the result might have been in this interesting case can be only a matter of surmise; but from the long continuance of the pressure upon the two important centers, I feel sure that the prospect of complete recovery was not good, but probably the mental condition would have vastly improved had he lived.

While the direct cause of this patient's death is

somewhat of a mystery to me, I can not but feel that I did wrong in attempting to secure a beautiful pathologic specimen—it would have been better surgery to simply open and drain the cyst, which was evidently not malignant—but I did not know at the time that such treatment would yield satisfactory results. Since then I have treated one other simple cystic tumor by such means and with perfect results. My seventh and eighth cases were in young patients, of tubercular character, and gave no points of especial interest save the satisfactory and speedy recoveries. They will be reported in due time in some medical publication.

Based upon this experience, and a careful study of the subject of brain tumor, I give you these

#### RULES FOR TREPHINING.

*When to Operate*—1. A headache, which becomes more and more intense, persisting for weeks, with later exacerbations of an agonizing character, followed by stupor, disturbed sleep, loss of memory and optic neuritis, is a strong indication of tumor in the frontal region and warrants exploratory trephining; upon both sides, if necessary, in order to find it.

2. A tumor of the frontal convolutions, as indicated by the signs just enumerated, may encroach upon the motor zone so as after a time to give rise to some focal symptoms (spasm or paresis); in which case the trephine should be applied just in front of the coronal suture of the side opposite to the motor symptoms.

3. Tumors of the mid-brain may present as evidence of their existence, a tendency to stupor, occasional irritability and childishness with disturbances of the motor area (Jacksonian epilepsy) and papillitis—generally choked disc; craniotomy over the upper Rolandic region is the proper treatment.

4. Disturbances of the muscular sense, with the usual mental impairment and with choked disc, are sufficient to justify examination of the supra-marginal gyrus.

5. When the symptom-group consists of word-blindness and lateral hemianopsia, with moderate loss of power in one-half of the body, the skull should be opened over the region of the inferior parietal lobule and angular gyrus.

6. Homonymous hemianopsia, not dependent upon other cause than tumor, indicates operation over the cuneus and first occipital convolution.

7. When hemianesthesia accompanies lateral homonymous hemianopsia, the lesion lies between the cuneus and the primary optic centers; trephining should be done so as to expose the point where the occipital, parietal and temporal lobes meet.

8. A tumor giving word-deafness as its most prominent symptom, may be reached by opening the skull on the left side in the region of the posterior part of the first and the upper posterior part of the second temporal convolutions.

*When not to Operate*—1. It is useless to attempt operation in cases of undoubted brain tumor, when the growths are situated in the corpus callosum and the optico-striate region.

2. It is questionable whether or not operation is advisable in cases in which the usual symptoms of tumor are accompanied by disturbances of speech as the only "localizing" sign; the lesion will probably be found to be not near the speech center, as one would infer, but affecting the pons, medulla and the point of origin of the cranial nerves.

3. Nystagmus, either unilateral or double, permanent or temporary, complicated by paralysis of the motor nerves of one or both eyes, constitutes a barrier to operation as the trouble is unquestionably basal.

4. When nystagmus appears in the history of a case suspected to be tumor, associated with epileptic attacks or hemiplegia, the tumor may be upon the convexity just behind the fissure of Sylvius, but so often this is *not* the location that operation can not be advised.

## ORIGINAL ARTICLES.

### FORCIBLE ALVEOLAR EXPANSION IN THE TREATMENT OF CONSUMPTION.

BY W. H. WEAVER, M.D.

CHICAGO.

In the search for a cure for this most deadly of diseases, it seems that experimentation has been directed entirely toward the discovery of some wonderful specific, (to the exclusion of the simple truths of physics, anatomy, physiology and pathology). All the energies of the profession and of manufacturing chemists have been spent in the vain hope of finding this specific,—to their great pecuniary advantage.

Now that the specific hunters in Germany and elsewhere have about lost themselves in the mazes of organic chemistry, it might be profitable to work over some old knowledge in these branches, which has been at a discount for some time past.

A classic paper on this subject was read in the Philadelphia County Medical Society, by Dr. Thos. J. Mays, and appeared in the *New York Medical Journal*, March 10, 1888, entitled, "Apex Expansion vs. Pure Air in Pulmonary Consumption." Concerning the cure of consumption, the following conclusions were drawn: "That the question of curing the disease did not depend on the purity or freshness of the air, nor upon the number of bacilli the atmosphere might contain, nor upon the amount of oxygen which might be introduced into the body—for these were all secondary considerations; but it was simply a mechanical question,—a question as to the best mode of expanding the lungs, and especially the apices of round-shouldered and flat-chested patients, of removing the infiltrated products already existing, and of enhancing the constitutional resistance."

It may be said that the tubercle bacillus inhabits the lung tissue as an infection of tissue already damaged by hereditary malformation, sluggish circulation, or the extension of catarrhal bronchiolitis, plugging the alveoli. The bacillus aids in the extension of the infiltration, the same as other infectious germs poison tissues which have been injured. Dr. Prudden has recently shown how the presence of the germs of suppuration hastens the destructive processes by cavity formation in a previously tubercular lung, when the two processes of tuberculosis and suppuration run a simultaneous course.

Has it never occurred to these "specific" hunters that if a remedy should be found which would kill the bacilli *in situ* in the tubercularized tissue, the alveolar plug of gelatinous matter would still remain as a spore—containing a source of irritation; and as soon as the remedy should be withdrawn, the disease would break out anew? "An empty house is better than a bad tenant." The treatment which

does not drain the alveoli, empty them, and restore ventilation, will never be of very great benefit. In the case of mastitis, where the galactiferous glands and tubes are plugged, their drainage is accomplished by nursing, the tubes are emptied and healthy conditions and functions restored.

Minute anatomy and physiology tell us that the alveolar wall is composed largely of elastic tissue, which aids in the expulsion of air when released by the relaxation of the muscles of inspiration. Air pressure will dilate them the same as any elastic vessel, and as soon as the pressure is removed, this elasticity together with the expiratory muscles, forces out the contained air as well as any fluid which happens to be in them. The alveolar plugs are composed of a thick gelatinous and albuminous fluid. These plugs irritate the lung tissue and become the foci for extended infection. The elasticity of the alveolar walls is retained until the inflammatory process has progressed to the destructive stage, then there is necrosis of portions of the consolidated area. If we succeed in an effort to empty the air cells of this plug, the cell walls retain their continuity and a return to health is inevitable. In surgery, drainage of wounds and cavities probably septic, is absolutely necessary to the healing process. Physiologic drainage of the alveolar cavities is just as certain to give good results. This drainage is a simple mechanical procedure possible of accomplishment by every patient. The gelatinous plugs with their bacilli are carried out by the air current into the larger tubes and expectorated. These principles have been the basis for the method I have pursued in the treatment of the cases in this report.

The method was described in an article which appeared in the *New York Medical Journal* Oct. 13, 1894, entitled, "Forcible Apex Expansion in Incipient Phthisis." It consists not only in full breathing, which has been recommended in various ways, but after a full inspiration, the breath is held for a moment by closing the glottis—*just as the breath is held while straining at stool*, so as to increase the air pressure in the lungs. It should produce a ballooning of the chest and consequently of the air cells themselves. The effect is increased if, during the holding of the breath, the lower chest is compressed with the hands, which action forces the air into the upper chest where the consolidation usually is, and at the same time lifting the weight of the arms and shoulders off the chest. After a time the inspirations become much fuller and a higher tension develops. If the patient is weak, the breath should not be held more than two to five seconds; with increasing strength the time may be extended a few seconds at each effort. But the length of time the air is held is not important, the tension which can be developed being the end desired. These efforts may be continued regularly every two hours during the day, before arising in the morning and after retiring at night, as there is probably more air inspired in the recumbent position, because the weight of the arms is removed from the chest. Holding the breath has been mentioned by some writers, but usually the patient is directed to exhale slowly at the same time. It is thus performed without closure of the glottis, by simple exertion of the inspiratory muscles. No tension is developed and it is consequently only an inspiratory exercise, and fails to accomplish the end desired because it does not forcibly dilate the alveoli. The

direction to hold the breath is very indefinite without specifying the manner in which it must be held. An inhaler may be used with some antiseptic and soothing inhalant and to stimulate interest in the treatment. The patient may be told to inhale deeply so as to get the medicament well into the lung tissue. It will require some practice in order to get the best results, but an ambitious patient will pick it up very quickly. The immediate result will be an increased amount of oxygen in the blood, a strengthened heart's action, and a facilitated expectoration, which alone gives relief. In young persons the elasticity and capacity of the chest will be permanently increased, the progress of the disease inhibited and immunity from future attacks almost insured.

The treatment by differentiation of air has a similar effect on the lungs, but in order to be of much benefit more than one treatment a day would be required.

The contra-indications are hemorrhage, and for a few days after it has stopped, the pulmonary gymnastics should be suspended. But, I think in my cases the treatment has had rather a beneficial effect on the hemorrhagic tendency, probably because the pressure tends to close up the bleeding vessels. A weak right heart and possibly any heart disease would require great care in introducing even a slight and temporary obstruction to the pulmonary circulation. However, such cases are quite rare and will not greatly interfere with the general adoption of the method.

The existence of cavities seems to be no contra-indication, as in one case not in this report the whole left lung seemed to have been reduced to cavities and the treatment has been followed with success for over a year. Pleurisy, if quite general, will be aggravated by the chest movements for a time until the consolidation begins to disappear. To overcome the muscular atrophy about the chest any gymnastic exercises will be of benefit. At the same time, proper medication should be employed in order to increase the chances and rapidity of the recovery, improve nutrition, stimulate blood formation, or in any way improve the condition of the patient. For high fever, I believe bathing is the proper antipyretic.

The rapidity of the improvement will depend greatly on the extent of the consolidation, and the capability of the patient to understand the necessity, and the zest with which he pursues the treatment. A frivolous person will not put forth enough energy to take a full breath and hold it, or even test the treatment,—as in one of my cases I could not get the patient once to take a full breath; although the case is reported, I do not consider that the treatment was ever tried twice in this case.

The histories of the following cases demonstrated the efficacy of the treatment as well as the accuracy of the principles which lead up to it:

*Case 1.*—Mrs. M. J., aged 35, no tubercular family history. During the winter of 1892-93 had a severe attack of bronchitis and in March, 1893, asthma was added to her torture. In May and June there was improvement in the asthma, but the expectoration was profuse. There was then afternoon fever, rapid pulse, night sweating, and emaciation—pleuritic pains and soreness through the right upper chest. Examination of the sputum revealed the presence of tubercle bacilli. Physical examination showed a marked area of dullness posteriorly over the right apex, by the slight dullness, bronchial respiration, bronchophony and rales. The treatment included an inhaler using a eucalyptol mixture, tonics when they seemed to be of any benefit, a trip to a

farm in the country, and the pulmonary gymnastics or breathing exercises, holding the breath as described and other physical exercises with Indian clubs, the exerciser, or any means which tend to develop the muscular system. In December, 1893, physical examination showed that the area of consolidation had entirely disappeared, and there had been steady general improvement during the whole treatment. At present she is practically proof against the tubercle bacillus.

*Case 2.*—Miss H. M., aged 28, stenographer; mother died of consumption. Began treatment August 9, 1893, for hay fever, which was readily cured by the removal of some post-nasal hypertrophy. Had been feverish and losing weight and strength, sweating at night, and coughing of late. Physical examination showed a marked consolidation at the right apex. As the expectoration was scanty, no microscopic examination was made. Treatment much the same as in Case 1, save that the patient had only a short vacation of two weeks from work. As she was ambitious to get well she pursued the treatment with great determination. In this case I was able to examine the patient frequently enough to observe the rapidity with which the infiltration disappeared so that I was able to foretell almost the exact time it would take to remove it and pronounce her practically cured. Feb. 1, 1894, the lung had entirely cleared and the symptoms of the trouble had disappeared. Her weight had increased to normal and to this day she is well.

*Case 3.*—Mr. J. A., aged 32, student, whose family history reveals the fact that four sisters have died of consumption. He came to me Nov. 1, 1893, feeling very miserable, was coughing, losing weight, sweating at night, afternoon fever; temperature 100 to 102, pulse 96 to 110. Physical examination disclosed a considerable area of consolidation over upper half of left apex. Microscopic examination showed numerous bacilli. Treatment brought about a complete recovery by the latter part of March, 1894. At this writing he assures me that of all the colds he has had this winter not one has extended below the larynx, when previously every cold he had descended to the chest, and that he is entirely well and weighs 148 pounds.

*Case 4.*—R. D., aged 26, began treatment Dec. 23, 1893, having hypertrophic rhinitis and catarrhal laryngitis. Weakness, emaciation and fever induced me to examine the lungs when the evidences of consolidation of the apex of the left lung were unmistakable. As one reputable physician had previously diagnosed the case one of tubercular laryngitis, I felt considerably interested in the case. Treatment was followed by complete recovery, in the month of April, 1894, and his health remains good to this day.

*Case 5.*—Mr. H. P., aged 49, carrier, came to me Feb. 18, 1894, having cough with profuse expectoration, pain in the right side, emaciation, having lost twelve pounds, losing rapidly the past month. Physical examination showed an area of consolidation in the lower anterior portion of the middle lobe of the right side. Patient often had an evening temperature as high as 102.5 degrees F. Pulse rapid, especially during fever. Bacilli numerous in the sputum. Treatment brought about a slow but steady recovery and all signs of the local lesion had disappeared in November, 1894. This patient was almost constantly out of doors, and if fresh air will prevent tubercular consumption, he should never have developed the disease.

*Case 6.*—Miss B. A., aged 18, began treatment March 23, 1894, having had hemoptysis, the two nights previous. Has coughed for some months, fever every day, mostly in the afternoon, ranging from 101 to 103 F., emaciation and night sweating. Examination showed consolidated left apex. Treatment included ergot for hemorrhagic tendency and tonics. Pulmonary exercise was neglected by this patient. I endeavored in every way to induce her to continue the practice, but failed, and in the course of two months she passed from my charge and has since died.

*Case 7.*—Mr. C. H. M., aged 38, came to me April 12, 1894. Had had attacks of stomach disorders for several years, emaciation, slight cough, scanty expectoration, containing a few scattering bacilli. Physical examination showed infiltration of the apex of the right lung. Temperature 100 F., pulse 90 to 100. Treatment removed every trace of the trouble in eight months.

*Case 8.*—Miss L., age 24, came April 18, 1894, having a temperature of 101, pulse 90, hypertrophic rhinitis, slight cough, and scanty expectoration, emaciation and profound prostration, tired all the time, weight 95 pounds. Physical examination showed increased expiratory murmur over right apex, also voice and whisper sounds, with dullness on percussion. Treatment was energetically carried out and in

August every sign of the lung infiltration had disappeared, her general condition improved and weight increased to 115 pounds.

*Case 9.*—Miss E. P., aged 25, came to me May 7, 1894, having severe pain and tenderness in back of upper dorsal region. Had been failing rapidly during the winter, with irritating cough and scanty expectoration, afternoon fever and rapid pulse. Physical examination found consolidated right apex, with some pleuritic friction, sounds, soreness, and pain in that region, chest expansion twenty-six to twenty-seven inches. Treatment removed the area of consolidation by November.

*Case 10.*—Mr. C. J. D., aged 24, consulted me June 26, 1894, for relief from fever, night sweating, loss of weight and strength, and cough. Weight 112 pounds. Upon examination I found dry râles, and the usual evidences of a consolidated right apex extending as low down as the third rib. Temperature 101 to 102, afternoons. Pulse ranging about 100. Microscopic examination showed numerous tubercle bacilli in the sputum. Treatment at once instituted and followed out vigorously, brought a complete cure. August 29 there were no râles or other signs of the consolidation discoverable; and later in the fall he recovered all his lost weight.

*Case 11.*—Miss L. K., aged 29, consulted me July 20, 1894, for supposed nasal catarrh, and a generally run down condition, weight 99 pounds. She had afternoon fever, cough, but scanty expectoration. Upon examination, the usual signs of consolidation of the left apex were found. In two months treatment she had gained ten pounds, and in one month more the lung tissue had resumed a normal condition.

*Case 12.*—M. H., aged 23, book-keeper, consulted me Feb. 27, 1895 for an irritating cough and general weakness, following a recent attack of la grippe. Patient was never in good flesh, being tall, thin and pale, recently losing strength, and what little superfluous flesh he had. Had afternoon fever, pain in the left upper chest, expectoration mostly in the morning, which on microscopic examination was found to contain numerous bacilli. Examination of the chest showed moist râles, slight dullness and bronchial breathing over left apex, anteriorly and posteriorly. Treatment at present writing is giving the best results, having reduced the afternoon fever from 101 to 99, increasing the weight by six pounds and restoring almost his normal strength and feeling.

*Case 13.*—R. W., aged 30, merchant, seen in consultation with Dr. A. Salter at Lena, Ill., April 15, 1893. For six months or more previously had night sweating and emaciation, weight 128 pounds, temperature, morning 95.51 to 97, and every afternoon as high as 102 F.; pulse 90 to 100. Examination disclosed a complete consolidation of the right upper lobe. Treatment including tonics and 10 minim doses of creosote three times daily, alternating with hypophosphitis. Breathing exercise was begun and improvement began in two weeks, which was steady until January 1894, when there were no signs remaining of the lung infiltration. His weight at present is 150 pounds, and he is an active business man.

*Case 14.*—Mrs. H., aged 33, was also seen with Dr. Salter, Feb. 4, 1894. Had been taking various remedies for a year or more for a cough and other pulmonary symptoms, complaining mostly of pain in the shoulders and upper chest. Upon examination the right apex was consolidated, and slight infiltration of the left apex. While before treatment the patient was so poorly that she could do no housework, she has recovered sufficiently to do her own housework, gaining twelve pounds in weight, and two inches in chest expansion. There are at present no signs of the old consolidation.

*Case 15.*—Mr. J. H., aged 28, book-keeper. This man was seen in consultation with Dr. P. L. Anderson of this city, June 1, 1894, having in all about fifteen hemorrhages; night sweats; temperature 102 F.; pulse 120; profound weakness; barely able to do light work. Sleep greatly interrupted by coughing and a great amount of expectoration. Microscopic examination showed very large numbers of bacilli. Patient had attacks of asthmatic coughing, and hay fever symptoms during September. Upon examination of the chest the lower lobe of the left lung was found consolidated, also the apex of the same side. This patient has not been seen for some months, but at my request he came in for examination. He says that he had considered himself cured, having increased in strength so as to be at work every day—weight increased from 128 to 145 pounds. He coughs some, however, and expectorates most in the morning. He says that he has

not practiced the pulmonary gymnastics for some time. Upon examination pulse and temperature are normal, as also were the respirations. The left chest was found somewhat contracted, and the respiratory capacity diminished. Percussion note same on both sides; auscultation revealed no bronchial breathing or voice sounds, or anything that would indicate consolidation. There were, however, a few fine and some coarse mucous râles, with diminished vesicular murmur over the left lower lobe and the upper half of the left upper lobe. Also there were heard some faint pleuritic friction sounds over the left apex. This case is interesting, in that it shows how extensive and how rapid the tubercular processes may be, and still be entirely checked and recovery take place in a comparatively short time by this system of treatment. The condition of the left lung at the present time may be considered as practically restored; although there still remain catarrhal processes in the bronchial tubes, some few scattering plugged alveoli and others which are entirely collapsed or obliterated and replaced by cicatricial tissue which interferes with its normal elasticity and respiratory capacity.

*Case 16.*—Mrs. B. P., age 33. This case was also seen in consultation with Dr. Anderson some time in March, 1893. A diagnosis of pulmonary consumption was made in September, 1892, by Dr. Anderson and confirmed by Dr. Wm. E. Quine of this city, and the patient advised to go immediately to Albuquerque, N. M. Patient remained in New Mexico about four weeks during which time she suffered greatly from pleuritic pain, becoming extremely weak, night sweating, chills and fever, temperature at times as high as 103 degrees F., lost all appetite and it was with the greatest difficulty that she stood a stage ride of thirty miles to the nearest railroad to Colorado Springs. During a stay of two weeks in Colorado Springs she was much worse than in New Mexico. Believing there was no hope for recovery she came home. Soon after her return to Chicago, she began to improve and was able to come to the office for consultation. I made an examination of the chest and found the usual evidences of tubercular deposit in the apex of the right lung, accompanied with the most extensive pleuritic friction sounds I think anybody ever heard over the upper half of the chest. Deep breathing caused a great deal of pain in the chest. Pain was the most distressing symptom in the case, while there was also a great deal of emaciation, anemia and night sweating. Weight 110 pounds. She was cautiously trained in the pulmonary gymnastics and light physical exercise. Notwithstanding the pleurisy and the pain caused by the taking of full breaths, this patient continued the pulmonary gymnastics until every sign of the consolidation had disappeared, which was in September, 1894. There is still considerable pleuritic pain but nothing compared to what she had previously suffered.

It would seem from the results in this case that chronic pleurisy is no important contra-indication, and it must be decided by the results after a cautious trial in each case. Some patients with sufficient practice may be able to hold the breath at a tolerably high tension, enough to inflate the alveoli without much chest motion.

To recapitulate the cases:

Recoveries 13; improved and under treatment 2, dead 1.

I consider that of the sixteen, fifteen are consecutive recoveries, the remaining one not having followed out the treatment.

Phthisis is curable by the application of well-known mechanical principles, viz., the inflation of an elastic air sac with elastic air, which gradually during expiration expels the semi-solid or fluid contents. It is necessary in order to get the quickest and best results, to begin treatment while the sac wall is still intact and elastic, for when it is once broken down and cavity formation has begun, then the area must heal by cicatrix.

In the matter of prevention of consumption, the same process of alveolar ventilation is necessary and absolutely certain of results. During the years of physical growth and development the puny, flat-chested, round-shouldered children should be taught proper methods of breathing, together with occasional forcible expansion of the chest. While the



bony chest wall is still elastic it should be developed. After the age of 25, the capacity for chest development is necessarily limited.

126 State Street.

# SERUM THERAPY IN PULMONARY TUBERCULOSIS, WITH AN EXPLANATION OF SECONDARY SYMPTOMS FOLLOWING THE ADMINISTRATION OF ANTITOXIN.

BY CHARLES WILSON INGRAHAM, M.D.

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Much has been written in regard to certain unpleasant and untoward symptoms attending the administration of antitoxin in cases of diphtheria. There has been a disposition on the part of physicians to attribute these symptoms to some peculiarity of antitoxin after its introduction into the system of diphtheritic patients. Some regard them as due to secondary septic infection. I believe, however, that I shall be able to prove substantially that these identical symptoms will follow the administration of pure serum with the same certainty and severity as they follow the use of antitoxin. I base this statement upon the manifestations which I have observed to follow the administration of serum from the blood of the mule in cases of laryngeal and pulmonary tuberculosis.

The most constant and unpleasant symptom following the administration of mule serum is the intense eruption which covers every portion of the body and gives rise to terrible itching. The eruption is of a bright red appearance and if scratched too persistently will assume for a short time the form of a large "water blister" which appears suddenly. It remains for a greater or less length of time, usually a few hours, and then disappears as suddenly as it made its appearance. Accompanying the onset of the eruption there is marked anorexia and depression.

Another symptom which fortunately does not appear as frequently as the eruption, but which is very much more painful and serious, is the "neuralgic pains" which are most apt to occur in the neighborhood of the point of injection, but which may occur in a remote part of the body. The pains are usually of so severe a nature as to deprive the patient of sleep, even after an opiate has been administered. I have known them to continue for twenty-one days without interruption, although this is an unusually long period.

In my experiments with serum, I used that obtained from the mule, because of the recognized immunity of that animal from tuberculosis.

In December, 1894, I obtained a full grown, healthy mule, and after he had by good care and feeding been brought to an excellent standard of vitality, tapped the jugular vein and drew therefrom a quart of blood. The most careful antiseptic precautions were observed in the operation. The hair was shaved for a radius of several inches around the site of the intended incision. The skin was then cleansed and finally washed with pure alcohol. The lancet used, was procured especially for the purpose and was thoroughly antiseptic. The blood was received in a glass jar, especially prepared. (I mention these precautions to show that the results finally obtained from the serum were not due to any infection consequent upon its preparation.) The blood was allowed to

stand twenty-four hours, and the serum was then drawn off and filtered through antiseptic filter paper. This work was done in a cold room to protect against putrefaction changes. After the first filtering the serum was allowed to stand a few hours, when it was observed to have thrown down a slight sediment. After a second filtering no sediment was observed. An effort was made to add a 5 per cent. solution of carbolic acid, but by every method tried, a precipitate was thrown down and the serum became cloudy. The serum used was, therefore, the pure article, without additions of any description. The serum was preserved in antiseptically prepared vials, which were hermetically sealed and only opened as immediately needed. Syringe used was an ordinary one drachm, rubber piston, and when not in use was kept filled with alcohol. The greatest care was observed in cleansing it, following its use. Gold needles were used.

The first case treated was one of tubercular laryngitis, with secondary pulmonary involvement. Cough was severe. Expectoration profuse and purulent.

Dec. 31, 1894. First injection was administered in the lower part of the thigh. The amount given was 1 drachm. On the second day dose was increased to 2 drachms. Cough seemed to improve at once and expectoration diminished slightly. No other appreciable improvement either in symptoms or local condition. The site of injection gave rise to no swelling or inflammation, more than that attended by needle-puncture, and I was congratulating myself upon the ease with which these treatments could be administered when my hopes were severely crushed. On about the tenth day the patient complained of severe pain shooting up and down the thigh. Examination of the limb gave no indication of inflammation. Next day, however, the limb was swollen, the pain was worse and patient was put to bed. Pain was so severe that a hypodermic injection of morphin was given and poultices were applied over the painful area, but with little relief. Patient slept but little for nearly a week, at the end of which time the pain was a little better, but it did not disappear until the twenty-first day from its beginning. The limb was at no time much swollen and there was scarcely any rise of temperature, except during the period of eruption which appeared soon after the pain set in and continued about four days. Subsequent injections, after the pain had entirely disappeared, did not give rise to any further pain or eruption. Patient received a total of between forty and fifty injections of the serum of 1 drachm each, but at the end of the treatment no improvement whatever, either in symptoms or physical signs, had taken place.

At first I was inclined to believe that the pain and eruption were due to something peculiar in my supply of serum, or perhaps also to some extent due to the condition of the patient, but seeing in current medical literature reports of cases of diphtheria treated with antitoxin which gave rise to symptoms so closely identified with mine, I concluded that the origin of these unpleasant manifestations was to be found in the primary serum.

In eight cases of pulmonary tuberculosis, subsequently treated with the serum injections, the eruption was a typical attending symptom, while the pain did not occur unless a large amount of serum had been injected in a short period of time. From

my study of and experience with these cases, I came to the conclusion that a very minute quantity of serum would give rise to eruption as intense and in every way identical with the eruption following the administration of large quantities; that the pain was not a constant after-effect, only appearing when a large amount of serum had been given; and that with proper precautions, and by not throwing too much serum into the system in a short period, the pain would be wholly obviated. The eruption would appear in from three to ten days following the first injection. In one case where only one injection was given, the eruption was very severe. The eruption would usually continue for a period of from three to seven days and would be accompanied with a marked rise of temperature, which in a few instances reached 104 degrees. I have noticed that the eruption was more severe in cases of pulmonary tuberculosis of an acute nature. The most remarkable phenomena or results following the eruption is a total disappearance of fever for a period of from twenty-four to forty-eight hours and a temporary improvement in general symptoms. I am sorry to say that this marked relief following the eruption is only temporary. I have never seen any results of a permanent nature. Cases of acute tuberculosis in whom the temperature ranged from 103 to 104 degrees daily, previous to the injections, would be entirely relieved from the fever for a period of from two to three days, only to be followed, however, by its return to its former height and persistence, nor would there be any appreciable improvement of symptoms or physical signs of a permanent nature.

Although the injections were administered for a sufficient length of time for them to manifest any curative properties, I am obliged to record that I did not in any individual case see an improvement that would warrant a continuance of the treatment.

I do not, however, wish to be understood as condemning this line of treatment for the relief of pulmonary tuberculosis, although I am of the opinion that serum therapeutics will find its greatest range of usefulness in the treatment of acute diseases and in the prevention rather than the cure of chronic diseases.

The results which I have obtained, certainly show that serum from the blood of the mule has a limited control over tuberculosis, and even though the results are only temporary, it is highly probable that by increasing the antagonistic properties of the blood by the systematic injection into the animal of toxins designed to increase these natural anti-tubercle powers, the serum might be brought to a state in which its administration would give definite results, as a preventive of tuberculosis and perhaps as a curative agent in the very incipient stages of the disease.

This paper will prove, however, that the eruptions and the pain which have followed the administration of antitoxin in cases of diphtheria are not dependent upon anything peculiar to antitoxin or to its injection into the system of a diphtheritic patient.

The effects of simple primary serum from the blood of the mule, injected hypodermically into the system of persons afflicted with pulmonary or laryngeal tuberculosis may be summarized as follows:

1. A fine rash or eruption producing intense burning and itching, which appears usually from three to ten days following the first administration, and con-

tinues from three to seven days, when it disappears permanently. In some cases it appears only at night, disappearing completely during the day. Exposure to the cold open air makes the eruption more intense. Rubbing or irritation of the rash will produce large eruptions having the appearance of "water blisters" which soon disappear. The intensity of eruption bears no proportion to the amount of serum injected.

2. Severe pains of a neuralgic character which only appear following the administration of a large amount of serum. These pains appear with no regularity whatever, neither are they manifested for any certain length of time. In most cases their severity is governed by the quantity of serum injected. These pains do not yield readily to the influence of opiates or other treatment. They usually appear near the site of the injection, but may appear in a remote region.

3. The typical eruption is accompanied with a pronounced rise of temperature. This temperature is also present some hours before the eruption makes its appearance. Temperature may reach 104 degrees or even higher. It remains at its full height with little or no fluctuation until the eruption becomes less intense.

4. Following the disappearance of the eruption, the temperature drops to normal, or even below normal. If the case is one of acute tuberculosis and has had a high temperature, the diminution of fever will be as pronounced as in the milder form. The temperature will remain nearly normal for two or three days, after which it gradually resumes its former stage. In one or two cases the temperature remained low for nearly one week, but eventually it resumed its former height.

5. Swelling or puffiness of the extremities, lips and eyelids sometimes accompany the eruption, but usually subsides as the eruption disappears. In one case the swelling of the lower limbs persisted in a milder degree for several days after the eruption had disappeared.

6. Subsequent injections of serum do not cause a second eruption, though the pain is liable to return if too much serum is given.

These symptoms or results bear so exact a resemblance to those which many times follow the administration of antitoxin that I venture to assert that one and all of these secondary manifestations, which cause so much annoyance, not to say danger to the convalescent diphtheritic patient, are due to the effects of primary serum. That these manifestations are no more severe following the use of antitoxin than following the use of primary serum.

## CAMPBOR-MENTHOL; A SUPPLEMENTARY REPORT.

BY SETH SCOTT BISHOP, M.D.

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CHICAGO.

Since the introduction of this remedy at the meeting of the Mississippi Valley Medical Association in 1891, and published in the JOURNAL, it has come into quite general use for catarrhal conditions of the upper respiratory tract. But inquiries have not ceased to come from various parts of the country concern-

ing the method of its application, and for the details of my experience with it since. The purpose of these notes is to answer such questions.

Although I did not recommend its use until long after I had discovered that the union of these two camphors resulted in a fluid of the chemic formula  $C_{10}H_{18}O$ , and after I had satisfied myself that we possessed a valuable remedy in this new drug, I am now able to express greater confidence, and to verify my former statements by the experience of others, as well as by my daily use of it up to the present time. The experimental stage has passed, and the efficacy of this medicine is clearly established. Specialists who were at first skeptical as to its virtue, have since adopted it as a standard remedy in both private and dispensary practice. I have taken pains to ascertain the results of their experiences, and add them to my own.

The field of application in which camphor-menthol has proved most efficacious is in the following diseases: coryza, hay fever, intumescent rhinitis (intermittent and alternating nasal stenosis), hypertrophic rhinitis, simple sore throat, acute laryngitis, tracheitis, bronchitis, and cauterizations to prevent hemorrhage and inflammation.

The indications for its use are made clear by a consideration of its physiologic action. It contracts the capillary blood vessels of the mucous membrane, reduces swelling, arrests sneezing and irritation, checks excessive discharges, and corrects perverted secretions.

For home use and ordinary office treatment, I do not employ a stronger solution than the 3 per cent. in lavolin, and for very sensitive cases, like hay fever sufferers, the 1 or 2 per cent. solution at first. The lavolin itself is a bland and soothing protective to the membrane, and in the combinations indicated we have undoubtedly the most effective and harmless remedy known. This means a great deal to both patient and physician, for most of the sprays in use give indifferent results—or worse. Indeed, so great has been the disappointment with the old local medicaments, that a well-known writer on nasal diseases entirely abandoned them several years ago.

Patients should be instructed to treat themselves thoroughly every night at bed time, by throwing a spray of the 3 per cent. solution from a lavolin atomizer into both nostrils while slowly inhaling. The rubber bulb should be forcibly and rapidly compressed at least eight times for each nostril. For the throat, larynx or bronchial tubes, the spray should be thrown through the mouth also during inhalation.

In diphtheria, croup, etc., in infants, when it is very difficult to throw a spray into the throat, the medicine may be made to reach the parts by volatilizing it, by placing a few drops of the pure undiluted camphor-menthol in hot water, and causing the patient to breathe the medicated steam, or a few drops can be heated in a spoon over a lamp, and its fumes will impregnate all the atmosphere of the room. Enough medicine need not be used to cause uncomfortable smarting of the eyes. Inflammation of the throat, larynx, trachea and bronchi can be effectually treated by inhaling the camphor-menthol steam from the benzoinol inhaler.

I have found that we can prevent hemorrhage and inflammation, following galvano-cauterization of the turbinated bodies, by gently packing a pledget of cotton wet with a 20 per cent. solution of the cam-

phor-menthol between the burned tissue and the septum, and leaving it there twenty-four or forty-eight hours. It is then replaced by a fresh dressing and, at the end of four or five days, instead of finding sloughs filling the passages, swelling and stenosis, the tissues appear shrunken and mummified, and the strait is clear. Unless the electrode has been allowed to cool before removing, no hemorrhage or only slight oozing occurs. There is also less discomfort following this method than after others. The cotton should not be saturated to dripping with the solution, so as to allow it to trickle down into the throat, and if too much is used, it occasions a copious serous secretion. Advantage of this power of the strong solution to cause stimulation of the glands, and osmosis, can be taken in treating ozena and dry catarrh of the nose and throat. The weak solutions diminish secretions; the strong ones increase them.

Much suffering can be prevented in people who take cold easily, by using the pocket camphor-menthol inhaler. Any one can easily construct it. I have them made, however, with an excess of camphor, while the pure camphor-menthol contains a larger proportion of menthol. By inhaling this for a moment, the instant the irritation of a cold is felt in the nose or throat, the attack can be stopped. Patients who carry these inhalers in their pockets are able to prevent colds during the seasons when they have heretofore suffered repeatedly.

In my first paper on this subject, I gave the directions for preparing this formula, but I have since come to prefer a preparation that is made more cheaply and elegantly for me by Truax, Greene & Co., of Chicago.

Columbus Memorial Building.

## CLINICAL VALUE OF THE CHEMIC ANALYSIS OF GASTRIC JUICE.

BY B. BECKER, M.D.

TOLEDO, OHIO.

Professor Bourget, at Lausanne, being looked upon as authority on all questions concerning the chemistry of the stomach, was invited by the organizing committee of the French Congress for Medicine at Lyon, to give a full report of the named question. The result of his experience, gathered during a number of years from 354 patients, differs in many respects from the views of many physicians at the present time, and a sketch of his resumé must be of interest to the readers of the JOURNAL.

Bourget examines the contents of the stomachs of his patients before breakfast, and after a test meal of 200 cubic centimeters of beef tea, 80 grams of chopped meat and 40 grams of bread. After two and one-half hours of digestion, the stomach is emptied by the stomach tube, without aspiration, simply by the contraction of the muscles of the stomach, which under certain conditions is promoted by the insufflation of a small quantity of air. Having emptied in this manner the larger amount of the contents of the stomach, he pours 100 cubic centimeters of water into the organ and empties the same immediately after. By the analysis of the diluted, as well as the undiluted fluid, an exact measuring of the quantity of the contents of the stomach at the time of the experiment is possible. Beside this, an analysis of the acidity *in toto*, of the amount of free as well as combined hydrochloric acid, of organic acids, etc., is made. For

the examination of the total acidity with one-tenth strength of the normal caustic soda, Bourget prefers azolithmin to phenolphthalein, which is mostly used as an indicator, because the latter is unreliable in the presence of peptones. The relation of the acidity of the undiluted to the diluted gastric juice allows the correct estimation of the absolute quantity of acids. For the qualitative analysis of free acid, Bourget uses phloroglucin-vanilin or Boas' resorcin test, while for the quantitative HCl test he usually uses the method of Hazen and Winter.

In young individuals with healthy stomachs, free hydrochloric acid is *always* present. Even after a meal of 300 grams of meat, a percentage of 0.03 to 0.05 of free hydrochloric acid is found, while the quantity of combined hydrochloric acid fluctuates between 0.20 to 0.25 per cent. This gives the impression that the healthy mucous membrane of the stomach has the power to secrete such a quantity of this acid which is in proportion to the amount of nourishment, and that after the saturation of the bases and albuminates, a certain excess of free acid remains.

In all diseased conditions, which lower the activity of nutrition, as chlorosis, anemia, chronic nephritis, etc., the quantity of HCl is diminished. In chlorosis and anemia, free hydrochloric acid is often entirely absent. In neurasthenia great fluctuations are observed; the same patient can have hyperchlorhydria on one day and on the next day he may produce a distinctly hypochlorhydric gastric juice, according to his momentary mental disposition. During the periods of depression, the quantity of hydrochloric acid is usually diminished. In cases of gastrectasis and gastroparesis, the secretion of HCl seems to depend on the motility of the stomach. As long as the stomach is emptied in the normal way, the condition of the gastric juice is almost normal, even in well marked dislocations of the organ. If, on the other hand, the motility of the stomach is insufficient, the juice is also altered by-and-by; free hydrochloric acid disappears first, while the percentage of combined acid diminishes later on.

For some time it was thought that in malignant tumors of the stomach, especially in carcinoma, the absence of free hydrochloric acid was almost a pathognomonic symptom of this disease. That this in fact is not the case is proved by the observations of Bourget, who found free hydrochloric acid in nine cases out of twenty-five of carcinoma of the stomach.

Hypochlorhydria is found in a large number of cases of dyspeptic trouble, which are usually described under the general name of gastritis. The quantity of free, as well as combined HCl, is increased; a quantity of 0.18 per cent. of free and of 0.26 per cent. of combined acid is not rarely found. In Reichmann's disease (continued hyper-secretion of gastric juice) the relative quantity of hydrochloric acid can be normal, or hypochlorhydria may exist; while in all such cases the total quantity of the acid is rather large. In one patient of this kind, Bourget found, for instance, after the test meal, 18 grams of concentrated HCl, with a specific gravity of 1.016, diluted in two quarts of gastric juice which had gathered in the stomach after the test meal.

There is always found a sufficient quantity of pepsin in any gastric juice; even in advanced cases of carcinoma the peptic power of the gastric juice is always sufficient. It was only in two cases of atrophy

of the mucous membrane of the stomach that Bourget could observe the absence of pepsin in the juice. The mercantile preparations of pepsin show a very high digestive power in the chemic test tube, but after the addition of pepsin to the physiologic gastric juice the digestive power of the latter is largely diminished, about one-half after the addition of 0.5 per cent. of pepsin.

Lactic acid is found in those cases where the contents of the stomach remain for a long time in this organ, especially when at the same time hypochlorhydria exists. This is often the case in carcinoma. Butyric and acetic acids are formed under similar conditions. The latter is often formed in Reichmann's disease, because different kinds of fungi of fermentation can very well exist in a 2 per cent. solution of hydrochloric acid.

Now then, what is the clinical value of the chemic analysis of gastric juice? Admitted that it gives some valuable information, we can not form a definite conclusion by it as to the activity of the stomach during digestion. It considers only one side of the question and leaves three points entirely untouched, which are of the greatest importance for the act of digestion:

1. The permanent secretion of gastric juice during the whole time of digestion.

2. The absorption by the mucous membrane of the stomach.

3. The emptying of the stomach into the intestine.

Furthermore, we are not allowed to judge as to digestion in general from the energy of the digestion of the stomach. The digestion of the stomach does not represent more, in a certain sense, than a preparation for intestinal digestion. The latter can be entirely sufficient to support life, while the digestive power of the stomach is impaired. The peptones which are formed in the stomach are not ready yet for assimilation according to the views of Bourget. After the subcutaneous or intravenous injection of peptones formed by the stomach, it was observed that they were eliminated by the urine, and plain symptoms of intoxication were found during this process. If, however, these gastric peptones had been brought in contact with intestinal juice for some length of time, no symptoms of intoxication were observed after their injection, and no peptones were found in the urine.

We also should be careful in our diagnostic conclusions from the chemic analysis of gastric juice. A positive diagnosis of Reichmann's disease only can be made by this analysis. In all other affections, especially in the different forms of gastritis, the chemistry of the stomach is so changeable that upon this alone no positive opinion should be based. In one and the same disease, at certain times, hyperacidity is found; at other times hypoacidity, and again at other times, normal conditions are observed. Sometimes, during the course of the same disease, the result of the chemic tests changes entirely—a primary hyperchlorhydria turning into hypochlorhydria. This goes to show that chemic analysis alone does not justify a positive diagnosis of disorders of the stomach. An examination of the motory action of the organ should never be omitted, because we can draw better conclusions by it as to the general disorders of digestion than by chemic examination only. In consequence of this, a classification of the diseases of the stomach based on the chemic test alone, should not be made. The most important



value of the chemic analysis of gastric juice is that it serves as a guide in therapeutic procedures. We will base on it our dietary and medicinal treatment, knowing if hydrochloric acid or alkalins are indicated in a given case.

Beside the observation of the chemic and motor activity of the stomach, the estimation of the position and size of the organ should never be forgotten. To this end, Bourget recommends insufflation of the stomach. Air is blown into the stomach until the patient perceives a certain sensation of pain, which will set in as soon as the stomach has reached the limit of its normal expansibility. A flabby belly exposes the border of the stomach to the eyesight directly, and it can be marked with a blue pencil, while in a tense and fatty abdominal wall the demarkation has to be made out by percussion. The quantity of the insufflated air indicates the size of the organ. A healthy stomach usually reacts after the insufflation of fifteen to eighteen hundred cubic centimeters of air, while in certain diseases it may receive as much as five quarts before the limit of the expansibility is reached. In this way we can easily differentiate between an ordinary dilatation of the stomach and gastropstosis, vertical dislocation, etc.

### ERRORS OF REFRACTION.

A SYLLABUS OF THE LECTURE DELIVERED IN THE JANUARY EVENING COURSE TO THE PHYSICIANS OF THE SPECIAL OPHTHALMOLOGIC CLASS AT THE POST-GRADUATE MEDICAL SCHOOL.

BY FRANCES DICKINSON, M.D.

CHICAGO.

These eighteen propositions will assist the beginner to more readily understand the many pages treating of the same subjects in all our text-books.

With a second lecture on the lenses which correct the errors of refraction, and a third lecture on the frames which hold the lenses which correct the errors of refraction, we will have completed the "House that Jack Built."

1. Three essentials to sight—Light; eye; brain.
2. Three characteristics of light; it proceeds—From every point; in every direction; along straight lines called *Rays*.
3. Three directions to rays of light—Parallel; divergent; convergent.
4. Three destinies for light—Absorbed; reflected; refracted.
5. Three varieties of forms of glass reflect light—Plane; prism; curved surfaces.
6. Three combinations of curved surfaces converge rays of light—Convex spherical; convex cylindrical; convex spherocylindrical.
7. Three combinations of curved surfaces diverge rays of light—Concave spherical; concave cylindrical; concave spherocylindrical.
8. Three refracting surfaces in the eye—Anterior surface of cornea; anterior surface of lens; anterior surface of vitreous.
9. The combined effect of the three refractive surfaces of the eye on the rays of light, be they parallel, divergent or convergent rays is to—Converge the rays; converge the rays alike in every meridian; converge the rays to a point focus; as would a convex spherical lens.
10. Three positions for the foci of all rays of light entering a convex spherical lens, *i. e.*, at, before, and behind the principal focus, or—Entering parallel rays are focused at the principal focus; entering

converging rays are focused before the principal focus; entering diverging rays are focused behind the principal focus.

11. Three directions given to rays of light emerging from a convex spherical lens, *i. e.*, parallel, diverging and converging, or—Parallel emerging rays when proceeding from the principal focus; diverging emerging rays when proceeding from a point before the principal focus; converging emerging rays when proceeding from a point behind the principal focus.

12. Three positions for the foci of all rays of light entering the normal refractive media of the eye, making three possible positions for the retina—Entering parallel rays are focused at the principal focus of the refractive media of the eye or on an emmetropic retina; entering converging rays are focused before the principal focus of the refractive media of the eye, or on a hyperopic retina; entering diverging rays are focused behind the principal focus of the refractive media of the eye, or on a myopic retina.

13. Three directions given to light emerging from the normal refractive media of the eye—Parallel emerging rays when proceeding from the emmetropic retina; diverging emerging rays when proceeding from the hyperopic retina; converging emerging rays when proceeding from the myopic retina.

14. Three varieties of meridional or curvature refraction of the refractive media of the eye—Every meridian or curvature may refract alike; the two principal meridians (any two meridians at right angles to each other) may refract unequally, regular astigmatism; different parts of the same meridian may refract unequally, irregular astigmatism.

15. Three conditions of the eye refract alike in every meridian or curvature—Emmetropia; hypermetropia; myopia.

16. Three varieties of regular astigmatism—One meridian may be emmetropic, the other hyperopic or myopic, simple astigmatism; both meridians may be hyperopic, one more so than the other, or both myopic, one more so than the other, compound astigmatism; one meridian may be hyperopic and the other myopic, mixed astigmatism.

17. Three varieties of irregular astigmatism—When the meridians of greatest and least curvature or refraction are not at right angles to each other; when the cornea is conical; when different parts of the same meridian refract unequally.

18. Three refractive abnormalities—Axial myopia or hyperopia—antero-posterior diameter too long or too short; curvature myopia or hyperopia—curvature too great or too little; index myopia or hyperopia—refracting power of media too great or too feeble.

### ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.  
NEW ORLEANS, LA.

(Continued from page 633.)

#### CHAPTER X.

#### BLACK VOMIT OF YELLOW FEVER.

The following observations on the black vomit of yellow fever, are the results of labors begun in 1856,

and pursued, in various portions of the Southern States, up to the present time.

I have shown, by numerous careful post-mortem examinations, and by analysis of the blood, black vomit, and urine during life, in various stages of the disease, that:

During the active stages of yellow fever, profound changes take place in the organs and tissues, and especially in the kidneys, heart and liver; and oil and granular fibrinous or fibroid matters (altered albumin and fibrin), transude through the capillaries and fill up the cells and excretory ducts, and arrest or impair the functions of these organs.

The liver of yellow fever does not present the soft friable condition characteristic of true fatty degeneration. The jaundice resulting from the suppression of the excretory function of the liver, would appear to be due to the same causes which induced the suppression of urine, namely, to the deposit of oil and fibrinous matters in the excretory structures of the kidney and liver.

The heart, in yellow fever, appears to be as fully permeated with oil as the liver; in the latter organ, however, a large amount of the oil is inclosed within the liver cells.

Yellow fever is not only attended with what might be called "acute fatty degeneration," but also with such profound alterations of the fibroid elements of the blood as to permit the transudation of the altered fibrin and albumin, through the walls of the capillaries, into the excretory tubes.

*Black Vomit.*—This ejection of altered blood from the mucous membrane of the stomach, during the period of calm or depression, although not absolutely characteristic of yellow fever, as it may occur in other diseases, is still of so frequent occurrence in yellow fever as to demand the most careful consideration, both as to its nature and origin.

The character of the matters vomited during the progress of yellow fever varies in different stages of the disease, and with the character, relative mildness and severity, and the progress of the changes in the blood and organs.

While yellow fever is characterized, in common with several other diseased states, by an irritation of the gastric mucous membrane, the peculiar nature of the vomited matters does not rest entirely upon the congestion and irritation of the mucous membrane of the stomach, but is influenced to a greater or less extent by the changes of the blood, liver, kidneys and nervous system.

The vomiting in yellow fever may also be regarded, to a certain extent, as salutary, and as an effort for the elimination of certain excrementitious materials from the blood. In some cases, the first effects of the black vomit may seem to be salutary; the tongue improves in appearance, the febrile heat abates, and if it were not for other profound changes in the blood, liver and kidneys, lying back, as it were, of this almost universally fatal symptom, beneficial results of the most important character might flow from the relief afforded by the removal of a certain amount of excrementitious matter, as urea and ammonia from the blood.

The first ejections of the stomach of a yellow fever patient consist most generally of the ordinary secretions and contents of the stomach, then follow vomiting of a mucoid fluid, frequently at first tinged with bile, the reaction of which varies in different cases, being alkaline in some and acid in others.

After the first vomiting the stomach may remain tolerably quiet until the subsidence of the fever on the third or fourth day, when, without any premonitory symptom of nausea, the stomach, on any trifling provocation, may eject a quantity of clear, pale, almost limpid and slightly acid, opalescent fluid. At this period the disease may terminate, or make no farther progress, as if this elimination was similar to the perspiration of intermittent fever, the whole ailment vanishing at this stage. If the vomiting continues and passes on to black vomit, it becomes first streaked with dark flocculi of altered blood; the reaction, in many cases, changes from the acid to the alkaline, and careful chemic examinations have convinced me that this change in the reaction of the black vomit was due to the elimination by the gastric mucous membrane of urea, and its conversion into ammonia.

The acid reaction of the yellow fever vomit is due not to the presence of any peculiar acid, but to several, as the phosphoric acid, existing in the form of acid phosphates, acetic and hydrochloric acids. The degree of the acidity will also vary with the character of the fluids and solids taken into the stomach; thus, if much sugar be taken, the vomited matters will be much more strongly acid, and the presence of this substance will also determine, to a great extent, the presence and development of certain fungi, as the yeast plant.

The rapid generation of *torulæ*, as well as the effervescence of the black vomit, in certain cases, is referable chiefly to the presence of sugar in the aliment, and in the tea and coffee drunk.

I have observed various forms of coniomycetous fungi in the black vomit of yellow fever, but I have by parallel experiments, and microscopic examinations of urine and various other organic liquids, failed to find any distinct species characteristic of yellow fever. If the black vomit be allowed to stand for days and weeks, and be carefully examined at intervals with the microscope, we see various forms of the coniomycetous fungi, as *torula*, *sacchari* or *cerevisiæ*, *cryptococcus*, and *penicillium glaucum*; and of the hyphomycetous fungi, as *oidium lactis*, and *oidium albicans*; and of the physomycetous fungi (*mucor*); and of the *torulaci*. Upon one occasion, during these investigations, I submitted one of these fungi from the black vomit of yellow fever to the observation of an excellent microscopist of this city, Mr. Kinttschmitt, and the following is his reply:

NEW ORLEANS, NOV. 10, 1873.

*My Dear Sir:*—I have subjected the filtrate from black vomit, which you recently placed at my disposal, to a very careful microscopic examination and comparison with other fungoid growths, of which I have several prepared slides in my possession.

The fungoid growth developing in the filtrate of black vomit has certain points in common with *torula*, *oidium* and *mucor*, and if *torula* be a submerged form of *penicillium*, also to the latter fungus; it also resembles the filamentous development of bacteria, the same as the fungoid growths developing in a solution of gamboge. The diagram which Virchow furnishes of the *aspergillus* fungus discovered by him in the human lung, has a strong likeness to the black vomit fungus.

There is a doubt, however, in my mind, that yellow fever is not produced by a specific fungus; but the fungus, if produced in the human body at all, is produced by the sickness itself; but it is most likely that the fungoid growth only makes its appearance after the vomit has been ejected from the stomach.

The slides on which the foregoing remarks are based, had been prepared on 2d inst. On examining them again yester-

day, the fungus has in a measure disappeared, and granular masses seem to have taken its place. I remain, my dear sir, very respectfully,  
P. KINTSCHMITT.

The specific gravity of black vomit, as determined by weighing, with the specific gravity bottled, varies from near the standard of distilled water to near that of blood.

It is now fully admitted that black vomit is not entirely confined to yellow fever, and that it is chiefly the secretion of the mucous membrane of the stomach, and the matters introduced from without as food, mingled with the blood which oozes slowly into this viscus, from the mucous surfaces denuded of mucous epithelium.

But in most cases, black vomit is something more; it is to a certain extent an excrementitious product, containing urea and carbonate of ammonia.

The kidneys are more or less affected in every case of yellow fever; when they act continuously and freely, the blood is freed of bile and urea, and black vomit more rarely occurs than in those cases in which their functions are arrested, and the mucous membrane of the stomach assumes the excretory function.

Black vomit is due to several causes:

1. To the direct irritation and structural alteration of the gastric mucous membrane, by the poison of yellow fever. This poison is most probably received into the blood and acts in this manner, or through this medium upon the gastric mucous membrane, for we find cotemporaneous changes taking place in the heart, liver and kidneys; and these changes would most probably succeed the gastric irritation, if the poison was received in food or drink, primarily by the stomach.

2. To the structural alterations of the blood, and especially to the marked diminution of the fibrinous element, which appears to sink to a lower figure than in any other known diseased state. It is well known that the diminution of the fibrinous element, below a certain standard of health, so deranges the capillary circulation as to lead to congestion, alteration of nutrition and secretion, and passive hemorrhages. The hemorrhages and effusions of scurvy can only be referred, with reason, to the changes of the blood, and especially of the fibrin.

3. To suppression of the action of the kidneys, and retention in the blood of urea and other excrementitious products, and the elimination of urea, and carbonate of ammonia and ammonia, by the gastro-intestinal mucous membrane.

4. To the direct irritant action of the ammonia, and excrementitious materials eliminated vicariously, upon the mucous membrane of the stomach and intestines.

Bernard and Frerichs long since explained, by experiments, what we observe in those cases of yellow fever attended with urinary suppression. Thus the former experimenter found that a dog, which had a fistulous opening in the stomach, passed daily with his urine about 93 grains of urea and uric acid, and yet during the succeeding twenty-four hours after the removal of the kidneys, the blood drawn from this animal exhibited only a mere trace of these constituents, but urea in abundance was detected in the gastric juice withdrawn through the fistula; and after remaining for some time in the stomach and intestine, the urea changed into ammoniacal salts, and the gastric juice was secreted continuously and not, as in the normal condition, only after a meal.

Not only were the manner of formation and chemico-constitution of the secretion of gastric juice altered by this vicarious excretion of the main constituent of the urine, but the mucous membrane was structurally altered, and became disqualified not only for the performance of this eliminative action, but also for the elaboration of its normal secretion.

In yellow fever, the suppression of the action of the kidneys follows immediately after, or may even begin in the midst of a devastating fever, attended with repeated alteration and chemico-change of the elements of the blood, and the formation of large amounts of urea and other excrementitious matters, and the work suddenly thrown upon the already weakened and altered stomach is far greater than when the kidneys are amputated in a healthy dog, or when their sudden suppression is from the action of cold. Bidder and Schmidt have shown that the digestive powers of the gastric juice are weakened, if it be mixed with any considerable quantity of saliva, in consequence, as they suppose, of the neutralization of the free acid by the alkali of the saliva; and they also found that the addition of bile to the normal gastric juice entirely suspended its digestive property, although the mixture still exhibited an acid reaction. Bernard, Bidder and Schmidt found that gastric juice, secreted with urea, sooner or later not only became alkaline, but also lost its power of converting albuminous matters into assimilable forms; and Lehman also found that the digestive power of the gastric juice was much impaired by the addition of alkaline salts, or by saturating the fluid with peptones or other organic substances, either nitrogenous or non-nitrogenous.

In yellow fever, when there is an impairment or suppression of the function of the kidneys, we not only have a combination of these various causes, producing derangement of the gastric juice, but we also have the destruction of the fibrin of the blood, inducing passive hemorrhages from the congested and altered gastric mucous membrane, and at the same time such an elevation of temperature as is most favorable to the rapid decomposition of the contents of the enfeebled stomach and intestines.

5. To the irritant and nauseating effects of the bile retained in the blood. The bile retained in the blood, without doubt produces its characteristic effects upon the nerves supplying the stomach, producing nausea and vomiting.

6. To the degeneration of the excretory and secretory cells of the gastro-intestinal mucous membrane, attended with or characterized by the deposit of granular fibroid or albuminous matters and oil globules in the secreting cells, and in the walls of the smaller blood vessels or capillaries.

7. To the capillary congestion of the gastro-intestinal mucous membrane, similar in all respects to the intense capillary congestion which characterizes all the organs and tissues in this fever.

The chief causes of black vomit therefore are: the direct irritation of the gastric mucous membrane; intense capillary congestion, in consequence of the morbid action of the poison of yellow fever, and its products, upon the vasomotor system of nerves; suppression of the functions of the liver and kidneys, and the retention in the blood of bile and urea, and the elimination of urea from the gastro-mucous membrane, as such, and in the state of ammonia and carbonate of ammonia; and the direct irritant and sol-

vent effects of ammonia and carbonate of ammonia, upon the gastro-intestinal mucous membrane and the effects of the urea, ammonia, and other constituents of the metamorphosis of the tissues upon the blood; the alterations of this fluid by the changes excited by the yellow fever poison, and the destruction and alteration of the fibrinous element.

When careful sections of the kidneys were made with Valentin's knife and examined under the microscope, the Malpighian corpuscles and tubuli uriniferi were filled with oil globules and granular fibroid matters, which appeared to be modifications of fibrin and albumin. The excretory cells of the kidneys also contained oil globules and granular matter.

The poison of yellow fever appears to act in an analogous manner to the agent producing smallpox, or the poison of certain reptiles, which alter the constitution of the blood, and lead to the formation of altered albuminous and fibrinous products from the blood; and which in the case of yellow fever transude into the hepatic ducts and urinary tubes, and thus cause suppression of the urinary and biliary secretions.

When in any case of yellow fever the function of the kidneys is arrested, a fatal result necessarily ensues, not only from the retention of the urinary constituents, but also from the retention of the bile.

As long as the kidneys perform their normal function, the retained bile will be continuously eliminated; but as soon as these organs cease to act, the bile, as well as the urinary excretion, is retained in the blood, and certain nervous disturbances are induced, as dullness of the intellect, uremic convulsions, and in some cases violent agitation of the muscles resembling tetanic spasms.

Black vomit, therefore, is an *effect* or *result* of preceding actions or changes, and is not a cause; it is an error therefore to search, either by chemic means or by the microscope for the *cause* of the disease in one of its *products*.

Black vomit, from its great amount, may be one of the causes of death; but as it is, in many cases at least, the result of an effort on the part of the living organism to eliminate certain materials from the blood, it may be to a certain extent salutary; but it is in all cases, only secondary to the preceding changes in the blood, heart, liver and kidneys.

In the preceding chapters we have given the practical results of the microscopic and chemic examinations of the black vomit in various stages of yellow fever; similar facts will also be presented in the succeeding chapter on the changes of the urine; the following cases are presented in this connection as direct demonstrations of the generalizations just recorded:

*Case 1.*—Yellow fever, jaundice, suppression of urine, black vomit, death. G. G., age 22, laborer; native of Canada. Entered Charity Hospital Oct. 18, 1873. Attacked with yellow fever October 14. Has been driving a street car, and has resided on Napoleon Avenue near the Mississippi River, in one of the so-called infected districts. Has resided in New Orleans four years; states that his attack began with "universal pain all over the body," which was greatest in the forehead and lumbar region. Fever began with chilly sensations. October 18, evening; has just entered the hospital. This is the fourth day of the disease. Pulse 100; respiration 30; temperature of axilla 105.5 F. Tongue very red at tip and edges, and coated with yellow fur in the center. Conjunctiva yellow and congested. Surface of the entire body yellow, with marked capillary congestion. Gums red. No appetite. Body emits a disagreeable odor. Patient restless and nervous, and although answering questions slowly

appears to be in an unnatural state. Complains of pains in all parts of his body.

October 19, 8 A.M., tongue very red at tip and edges and furred in center. Gums very red. Conjunctiva of eyes congested and yellow; body deeply jaundiced, with great peripheral capillary congestion. Eyes have a wild restless expression. Stools light colored. Patient has passed no urine and his bladder is not distended. Restless, uneasy, sleepless, with great mental hebetude and confusion. Pulse 90; respiration 26; temperature of axilla 103.10. 8 P.M., intellect confused and stupid; tongue red at tip and edges. Patient very restless, tries to get out of bed incessantly and says that he wishes to go home. Face expressive of sorrow and grief. No urine has been obtained during the night or day; complete suppression. Pulse 90; respiration 26; temperature of axilla 102. Black vomit runs from corners of the mouth and appears to regurgitate from the stomach without any effort on the part of the patient, who continued very restless during the night and died at 6:30 A.M., October 20. Black vomit continued to run out of his mouth up to the time of death.

Autopsy, at 9 A.M., October 20, three hours after death. Exterior of body still warm. The warmth was diffused over the entire body. Face and limbs full and round. Surface of skin greenish-yellow; dependent portions of neck, face, trunk and extremities mottled. Black vomit running in streams from both corners of the mouth. When the body was turned on its side in placing it on the table, a considerable amount of dark blood or black vomit poured out of the mouth. The ease with which the black vomit poured out of the mouth indicated great relaxation of the muscular coats of the esophagus and stomach. Immediately after opening the thorax, I introduced the bulb of a delicate thermometer into the right ventricle of the heart, and found the temperature to be 100.5 F. It is not probable that any great degree of heat had been lost during the short period of time which had elapsed after death. Dependent portions of lungs congested, otherwise normal. Muscular structures of heart apparently greatly congested, giving the surface of the organ a deep color, as in malarial fever; but when the walls of the heart were cut through and the organ carefully washed under a stream of water the muscular structures presented the characteristic yellow color of yellow fever. Muscles of heart softened and readily crushed under the fingers. Under the microscope the muscular fibrillæ of the heart were found to contain numerous oil globules and much yellow granular matter; the oil and granular matter were, however, not so abundant as in cases in which death took place at a later stage. Cavities of heart distended with dark liquid blood; also a small golden-colored fibrous clot. Stomach distended with about one quart of dark, grumous, fluid black blood, or black vomit. Mucous membrane of stomach greatly congested and mottled, presenting deep purplish spots or ecchymoses, and from these portions the black vomit appears to have flowed from the congested and ruptured blood vessels. Small intestines contained blood.

The liver was congested, presenting a dark mottled appearance on the surface; many yellow lobuli, however, were readily discerned upon the surface, resembling in all respects the yellow color of the liver in yellow fever. The congestion of the capillaries of the liver was so great, however, that the organ presented more nearly the hue of some recent fatal cases of malarial fever. When thin sections of the liver were made, and the excess of blood gently pressed out and the slices washed under a stream of water, the color resembled in all respects that of yellow fever. Liver loaded with oil globules and yellow granular



matter. Liver cells contained oil globules and were of a distinct yellow color.

When the great excess of blood with which the kidneys were congested was washed away, these organs presented the usual color of yellow fever. Sections with Valentin's knife, viewed under the microscope revealed the Malpighian corpuscles and tubuli uriniferi, filled with detached cells, oil globules and yellow granular matter. The urinary bladder contained about two fluid ounces of urine, which represented the amount excreted during the last thirty-six hours of life. Detected no coloring matter of bile in urine. Acid reaction. Slightly turbid. Light yellow color. Urine contained albumin, urinary cells from excretory tubes and from pelvis of kidney, and casts of tubuli uriniferi. Examination of black vomit from the stomach. Reaction acid; contained numerous colored blood corpuscles, masses of hematin, oil globules, granular matter, cells from mucous membrane, casts of gastric glands, and broken capillaries. Sp. gr. 1016.7. Upon careful analysis, the black vomit contained urea and ammonia, acetic and hydrochloric acid. No hydrocyanic acid was present. The hydrochloric acid loses to a certain extent, for it could be driven off by heating the black vomit gently in a beaker on the sand bath, and its fumes reddened litmus blue, and decomposed nitrate of silver. When thrown upon a filter, the filtrate presented a brownish-red yellow color. Sp. gr. of filtrate of black vomit 1013.2. When the filtrate of the black vomit was treated with nitric acid the albumin coagulated, but the coagulum re-dissolved in boiling. I was unable to detect the biliary coloring matter in the filtrate of the black vomit. Alcohol added to the filtrate coagulated the albumin. Sp. gr. of black vomit 1016.7. Sp. gr. of filtrate from black vomit after removal of blood corpuscles and organized bodies 1013.2.

Solid residue in 1000 parts of black vomit . . . . .	56.15.
" " " " " filtrate from black vomit. 46.60.	
Hematin, blood corpuscles and organized elements in 1000 parts of black vomit . . . . .	9.55.

When the filtered liquid from the black vomit was set aside, a delicate fungoid plant resembling the torula was developed. This delicate fungus had certain points in common with torula, oidium or mucor; and if torula be a form of penesidium, also to the latter fungus. It also resembles the filamentous development of bacteria. A similar fungus has been observed developing in gamboge.

(To be continued.)

## PRE-COLUMBIAN LEPROSY.

BY ALBERT S. ASHMEAD, M.D.

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NEW YORK.

(Continued from page 626.)

Dr. Manuel A. Muniz, of Lima, Peru, in the *Cronica Medica* of 1886, contributes an article entitled, "La Lepra en el Peru." His notes were taken from the Historical Discourse on the Foundation and Rights of the Hospital San Lazaro, Lima, by Bravo de Lagunas, published in Lima, 1761. This work is in the library of Santiago de Chile. Dr. Lagunas shows the first royal ordinance for the care of lepers and for the foundation of a hospital was made in the time of Charles III. In 1693, the alms were ordered to be used for the support of a hospital for Indians. Finally, Philip II. prescribes that such sick persons

as are afflicted with contagious diseases be carried to elevated localities, from which no defiled wind having passed the hospitals, can flow down and reach the healthy population of the lowlands.

Dr. Muniz mentions the first leper hospital at Lima, built by Anton Sanchez, a citizen of that place in 1563. In 1606, according to the same authority, Lima was full of lepers, and those unfortunate persons were too much for San Lazaro; they were admitted elsewhere, and many of them died unknown and without assistance, even without the sacrament. Fear was expressed lest the infection should spread over the whole country, and the successors of Sanchez took care that all lepers should be received in their enlarged hospitals, which consisted of three houses; one for men, one for women, one for negroes. All lepers to be received, unless they were slaves. As to the latter, their master was bound to take care of them during the first year. It is said that these masters used to evade this obligation, by antedating the outbreak of the disease. These buildings are to-day tenement houses, having outlived the terrible scourge against which they had been built. In 1639, the chronicler Cobo mentions the hospital San Lazaro, slightly, saying that it was very poor, and little resorted to, which proves that the disease had already broken its wings. Bravo de Lagunas corrects the error of Echave, who states that San Lazaro was founded for negroes: "All free persons, suffering from San Lazaro's evil, whatever their social position, condition, sex or age, are received in it;" which shows, according to Dr. Muniz, how ill informed was the author of the book, entitled the "Star of Lima," (or Description Sacro-political of the Beauties of the City of Lima, published at Ambers in 1688), when he said that the hospital of San Lazaro was built for negroes, and also Melandez, who says that, failing patients of that color, the hospital would have been empty, if it had not been made into a common sick-house for the falling evil, because the south wind with the cold dryness of the Andes, loses its poisonous qualities, and rather subdues than corrupts the humors. Bravo de Lagunas gives a number of reasons, and quotes authorities to invalidate this testimony. From 1700 till October 1746, this leper hospital was financially successful. Then came the earthquake which destroyed Callao, and partly Lima, and not one stone of the leper hospital was left standing upon another. For over six years the lepers had to live in ill-made cabins or miserable huts. In 1758 the new leper hospital was inaugurated; the money for this purpose had been obtained by lottery. In 1822 the hospital of incurables and that of lepers, were made one. The old leper asylum was converted into a school, and afterward into barracks.

Lagunas tells us that physicians generally assume as a cause of leprosy in those countries, contrary humors which destroy the skin, and are much fostered by bad food, depraved constitution, hot air, uncleanness, slovenliness in places of habitation. "Others who believe in the vermicular system, see the cause of cutaneous diseases and pestilences in small insects, imperceptible gnats which penetrate into the body through the skin, assign this same cause to leprosy. These animalcules stick to the garments, walls and even stones. In this manner, they account for its contagious nature, the insects or seeds pass into other bodies from the air, or by contact with those

parts to which they are attached." Here we have then, the embryo of bacteriology in 1761!

I quote further from Lagunas: "A doctrine in which all eminent physicians agree, and which is also favored by the priests, is that scabies, psora and leprosy only differ in degree. Scabies consists in small pustules which disfigure the skin. In psora, a pernicious itch is added, and if these symptoms are aggravated or extend to the internal parts we have leprosy." Muniz says, however, that they carefully differentiated leprosy and the gallico.

An early law in Lima prescribed that parties of recently introduced negroes should be stopped at a distance of at least one league, before entering the city, and should remain in quarantine until the chapter had satisfied themselves that they were free from contagious diseases; and the city went to the trouble of building houses in the suburbs, on the banks of the river, where the quarantined people could temporarily stay, till they were sold and spread over the country. "It was the same theory of contagion," says Muniz, "which obliged all lepers to use no speech in asking alms, but to make use of bells and wooden timbrels." Evidently the negroes were suspected as a leper importing element.

In the middle of the last century, the leprosy of an illustrious prebendary of the Cathedral of Lima caused a famous litigation.

In 1761, Lagunas says, that "it has been observed in the hospital of San Lazaro, in Lima, that as far back as memory reaches, four persons have been in immediate attendance upon the patients, and never did any of them catch the disease. In this hospital there is now a young woman with furfuraceous leprosy, two patients covered with purulent tumors and who scarcely present human shape, and several others just as wretched, though with smaller deformity. There are others with feet and legs full of scabs, and almost as thick as the body, who in every other respect seem to be well, and have done for many years such services as they were able to perform. There are some whose articulations have given way, or whose fingers have fallen off, and there is another whose foot detached itself altogether, and who walks and stumps along like a trunk. There is a leper whose voice is so raucous, that it reminds you of the snarling of a dog, or of some other moaning animal."

Muniz quotes from Parra, "a Colombian physician, as unfortunate as he was intelligent," who suffered from the terrible effect of the disease, and described in eloquent and graphical pages its pains, its tortments—(Ricardo Parra, of Bogota, Colombia; his work was entitled "La Lepra," and was published in 1850-1860): "The first notable Spaniard who caught leprosy, was one of the conquerors, Gonzalo Jimenes de Quesada; he died of it. There is no doubt that he contracted the disease through contagion, and that therefore leprosy must have been here before the Conquest. In America its resort of predilection was ancient Colombia; it never gained much of a foothold in Peru."

I shall quote Parra at some length to give a clear idea of his etiologic theory: "Elephantiasis is a radical and constitutional asthenia, which tends toward partial gangrene. It is not only a nervous asthenia; it is asthenia of all the elements, organs and functions." Parra nearly forty years ago had an intuition of the microbe. "I shall show," says he, "how an impression, whatever its origin, whether from cosmos

or microcosmos, from the external world or from the organism itself; how such an impression working on a sensitive nerve interferes fatally with a nervous center; how this nervous center by means of an exodid fiber and of a special nerve apparatus, the vasomotors, acts upon the vascular system, contractible in all its extent; how this reflex action hurts and disturbs that system, causing a beginning of paralysis of atonia and weakness in the play of its power of contraction; how these vessels ceasing to act normally, interfere with the blood circulation, and every kind of circulation; how the impediment in the way of the general circulation, checking the free exchange between blood and tissues, and the free contact between the tissues, and all the fluids and humors of the economy, produces principally three things: anemia and asthenia of the nervous centers, anemia and mortification of the tissues, alteration of the composition and even constitution of the blood, and perversion and depravation of all the humors, liquid products, and all the secretions of the organs; how these causes interfere with all the functions of nutrition; how this disease of nutrition in all its functions aggravates and increases the central enervation; how this enervation, already deep-seated, and the perturbations of nutrition, produce general dyscrasia of the humors; and how all these causes together, working and acting, one upon the other, being at the same time causes and effects, engender and produce thousands of abnormal phenomena, which, united with them, in masses, every day increasing with growing and irresistible action, produce successively progressive mortification, slow disorganization, increasing paralysis, and lead finally to extensive phagedena and general gangrene."

Here is another quotation from Parra: "The wrinkles, fissures and scabrosities, the fall of the hair, the desquamation, the general debility, the consumption of the muscle between the index and the thumb, the cold, the atrophy of various parts, but especially that of the vertebral column, must be the immediate effects of the disturbance of nutrition in all its functions, interfered with by the constriction of the terminal extremity of the arteries and capillaries. The turgid countenance, the livid, bluish, ashy or purple color of the face in one form of the disease, and the discoloration of the scalp, the formication and numbness, which are symptoms of myelitis, in the other form; the feeble pulse, slow and heavy, which seems to beat through mud; the inflated, very voluminous veins—all these symptoms of either form must be the natural result of the disturbance of circulation, combined with the disturbance of hematosis and nutrition, cyanosis, black blood, fluid and fibrinless, bluish veins under the tongue, a thick and infiltrated skin, infiltrations of the cellular tissue, edema in various parts, infiltration of the corion, glandular inflammation, diseased condition of all the glandular, disorders of menstruation, epistaxis, at times frequent, affection of all the mucous membranes, are in tuberculous lepra the result of the combinations of the lesions of blood circulation; and all kinds of circulation, of respiration, hematosis and nutrition. And the nutrition perverted and working with a damaged and atonic circulation and corrupt sanguinification, added to cyanosis and swelling of the face and other parts, and to the capricious changes of color, will give us the swelling of the lingual veins, the miliary granulations, the spots, the warts, the tubercles and a

thousand other morbid products; and finally the simultaneous affection of these three functions, added to the lesions of sensibility and motility . . . will give us in combination, the curvature of the fingers, the disarticulations, the muscular debility, the numbness, the lancinating pains, the vague pains, arthritic, vertebral, and finally, the osteocopic pains, and all the pains in their terrible reality; they will give us the vacillating gait, the contracted hand, the crook-legged walking, the spinal curvature; and in another combination they will give us the jumentous urine, the cottonous skin, the forehead bacon-rubbed, exaggerated or malodorous sweat, and the absolute cessation of transpiration, the abscesses and furuncles, the spots of all size by vascular relaxation, the knots and horny spots, the tubercles and ulcers; and in another combination of the same form, all these functions (*danadas*), will give us dyspnea and suffocation, palpitations of the heart, the constriction as with a girdle, the precordial oppression, terrible nightmares, satyriasis, and violent hunger, the thirst and the hydrophobia, the blindness and the photophobia, the libido-inexplebilis, and the motiveless rage, the general despondency and unspeakable torment. And all this in consequence of primitive lesions of the circulation and innervation. All this in consequence of the loss of vital energy effected (*herida*) in the nerves, and effected in the blood, effected through the want of oxygen and effected through the want of nervous influx."

I shall give also Parra's description of a leper hospital; it will show the character of leprosy in ancient Peru and Colombia, and the mutilations which Muniz seems to find represented in the *huacos* pottery:

"in some, the muscles have become pale, weak and are slowly destroyed; in those who follow, the articulations are scooped and excavated, in another the articulation of a foot is detaching itself, in the next the hand is already detached . . . one entirely shorn of muscles and arms, has nothing left but a putrid trunk; but death disdains the mutilated trunk, and these wretches just as they are, feed with voracity, digest well, rave and blaspheme, and burning with lascivious fury, get libidinally drunk, and revel in shameful dreams and filthy faucies. . . . Look, finally, at that hundred of monstrous beings, mixed up together, piled up one on top of the other, and wallowing in the dust. Many have no noses, nor lips, nor ears, nor hair; where the face used to be you see now three or four holes.

. . . The amygdals have fallen, and they can no longer croak; their noses are stopped and they can no longer breathe through them; larynx, pharynx, esophagus have been devoured, and they can not swallow; some are mad with hunger, others devoured by unquenchable thirst. Here are some in whom the raucous roar of the lion has turned to Catilinarian voice and perfect aphonia. In another subject the lungs charged with purulent foci can hardly expand, and here is another whose heart has almost stopped beating. Some weep, others curse, others blaspheme. Others, pusillanimous and craven, tremble and cry for mercy at the least provocation; others laugh danger to scorn, and careless whatever may happen to them, die with stoical indifference. Unceasingly flowing tears and a viscous glutinous humor keeps their red and inflamed eyelids apart, so that many lie blind or grope blindly in the darkness. Many of them have frightful dreams and awake roaring like lions or howl-

ing like wolves. The urine of all these men is thick (jumentous) like that of the horse, or clear and raw, as if passed through a filthy filter; there are no sewers more mephitic than their defecations. Some of them lie motionless and entirely paralyzed, and as, at the same time they can neither articulate nor swallow, they are dying of hunger and parched with thirst, not being able to ask for help. All secrete a fetid sanies over the whole body, and breathe an air which they themselves have poisoned. . . . A horrible caries consumes all the articulations and causes the severance of the limbs, which fall off by pieces, the phalanges of the fingers are shaken off and the teeth break forth from their sockets. . . . Some of these trunks talk; demented, mad, they try to sing in their delirium, and their voice is now like the hissing of a snake, and now like the cavernous echo of a tomb. Look, now, at that horrible scene; some of these trunks, formerly men, now masses of rotten flesh, are possessed by libido-inexplebilis, and would like to indulge in pederasty and onanism with other not mutilated wretches, who having fallen into the opposite depravity, feel a horror for the sex, and all that refers to it; but who, devoured by insatiable hunger would like to eat their rotten arms."

Ulloa, in 1797, says: "Leprosy is rather frequent in hot climates; it is unknown in Peruvian highlands. The chief cause of the disease in Peruvian America has been the introduction of African negroes. Muniz mentions that Fray José de la Trinidad took charge in 1822 of the leper hospital which had been united with the incurables, in Lima, and was called del Refugio. With the exception of 1853, when nine persons succumbed to the disease, the average mortality from it was from two to six a year. The "long-bearded and small-cloaked father," as he was called, died in 1878. It is impossible, according to Muniz, to make a reliable statistic record of leprosy in Peru; the registers are few and insufficient. The decrease of the number of cases is a fact. Leprosy has been very hard on the black race. Almost all the ancient inmates were emancipated negroes. The disease affects Indians rarely. From 1870 to 1886, there died in the Refugio five men and five women; four of them Chinese.

Now considering that leprosy has become almost universal in Colombia, and that it has been almost extinguished in Peru, we are led to suppose that in the latter country great care was taken to isolate the lepers; for in no other way could that disease be extinguished. Therefore leprosy must have been rampant there. Such perfect isolation could only result from a great horror of the disease. And if such horror existed, would they be likely to bury with their dead the images of the horrible disease? It may be asserted that the influence of the Church isolated the lepers, so that no feeling of horror is necessary to explain their isolation. But the Incas never were under the influence of the Church, and the Church establishment existed in Colombia to as great an extent as in Peru.

I am inclined to believe that if these *huacos* potteries really represent disease manifestations, they must be of the syphilitic kind. To succumb to syphilis was to be the victim of a disease which was not at the disposition of the poor, who could not pay for the use of many women; and that use was considered as the cause of the disease. They had not in those ancient times any idea that a bacillus

must be the cause of the disturbance. Therefore to be buried as a syphilitic would probably be an honor, rather than otherwise, in the eyes of the general people, while to be buried as a leper would be quite a different affair. Hence we may conclude that if certain deformities are found in ancient burial places, it is more probable, at any rate, that they belong to syphilis rather than to leprosy.

In Saladoa, ancient Arizona, considerable pathologic evidence was found by Mr. Frank Hamilton Cushing of abscess of the lower jaw and perforation of the alveolar walls. In one case, part of the alveolus was lacking, giving to the jaw a very distorted appearance. Now these Saladoans have been considered by many archaeologists as allied to the Peruvians and the mound-builders of the Mississippi valley on account of their Inca bones. Such a deformation would be very similar to what we see in some specimens of *huacos* pottery; and it could be only syphilis, as leprosy has never any effect on the skull. The man could not distort the soft tissues of his jaw; the disease must be in the bone.

Mr. Bandelier, the explorer who sent to New York the *huacos* pottery which I have examined, has his headquarters on the Sacred Island of Lake Titicaca, 13,000 feet above the sea level. It was from this island that the original Inca descended to conquer and civilize the barbarous tribes of South America, and to found their capital, Cuzco, four centuries before the arrival of Pizarro, 1000 A. D. Now on these highlands syphilis had existed among the Aymaras and Quechuas many hundred years before the arrival of the Spaniards. Whatever evil these Incas brought along with them, was likely, according to all I have said before, to be syphilis.

In ancient Arizona, Mr. Frank Hamilton Cushing found some burial places which he calls extra-muros cemeteries, and he thinks they were for some kind of outcast people. It would be natural, especially for such persons who know something of the history of leprosy in Europe, to suspect that these places were leprous burial grounds. But he informs me that his examination of many hundred skeletons in the southwestern United States revealed no traces of leprosy among the prehistoric population of America. The importance of this statement consists in the special relationship more than plausibly supposed to have existed between ancient Peru and Arizona. One of the causes of this plausibility is the presence of llama, guanaco and vicuna representations in clays and in petroglyphs buried with the dead. That animal is supposed to have been extinct (by Mr. Bandelier) long previous to the sixteenth century. Another is the presence of *bolas* or sling stones, such as are now used in South America in the chase; the tombs furnished only the stones, the sling is only to be found in pictorial form. There are also the knotted cords found in sacrificial caves in the mountains surrounding Salado City, which resemble closely the *quipus* or sacred records of the Incas; these knots are the hieroglyphs, or the alphabet of those ancient tribes. There is, above all, the predominance among the Arizonians of the Inca bone.

Mr. Cushing states that he did not find in Los Muertos, one of these places of interment, either hair or cerements or anything that could have escaped destruction for a thousand years; he very naturally concludes from one thousand to two thousand years at least must have elapsed since those corpses were buried there.

The absence of any evidence of leprosy in Arizona will make the existence of the disease in pre-Columbian Peru very improbable.

(To be continued.)

## SOCIETY PROCEEDINGS.

### Medical Association of Georgia.

*Forty-sixth Annual Meeting, held in Savannah, April 17, 18 and 19, 1895.*

#### FIRST DAY—MORNING SESSION.

The Association convened at the Armory Hall at 10 A.M., and was called to order by the PRESIDENT, DR. WILLIS F. WESTMORELAND, of Atlanta.

Prayer was offered by the REV. DR. DRIPPS of the Independent Presbyterian Church.

Addresses of Welcome were delivered by MAYOR HERMAN MYERS and MR. J. F. B. BECKWITH, and DR. FRANK M. RIDLEY, of LaGrange, responded on behalf of the Association.

PRESIDENT WESTMORELAND then delivered his

#### ANNUAL ADDRESS

in which he said the Association was nearly half a century old, only a few of the original members remained with us, and each year we noticed that a loved face was absent and learned that an honored friend had passed from our midst to return no more. Within the lifetime of the Association, the history of medicine has been revised, the better part of surgery written, and every subject pertaining to medicine had widened out under the influence of broader ideas and the greater diffusion of knowledge—empiricism in medicine and surgery had almost disappeared, and that period when a great man's ideas, whether correct or not, was the standard he and his followers had for a guide, had passed away. Under modernizing influences scientific methods of research were carried out by trained observers in well-equipped laboratories in every civilized country, and under these careful and patient investigations the misty surroundings of the causation of disease had begun to clear. Medicine in its wonderful progress had outgrown the individual capacity of any one and had resulted in an elaborate division of labor and the permanent and beneficial establishment of specialism; able men by using their talent and genius along special lines, by their co-operative work had established the solid basis of the medicine and surgery of to-day. The specialists had to bear the brunt of a great deal of unjust criticism. In certain communities they had been censured as a class, when the blame was only merited by individuals. Unfortunately, there were medical men who used the broad cloak of specialism to cover the most outrageous charlatanism, and in this respect the field of gynecology presented more rank growths than any other.

A few years before the organization of the Association, in the upper portion of the State, there resided a country physician, a representative of that class of honest earnest workers, who from the vicissitudes of fortune had plucked the courage to endure and the inspiration to strive; a man surrounded by pains, care and anxiety; a man who ever proved a friend, comrade, counsellor and guide. This physician was Dr. Crawford W. Long, of Jefferson, Georgia, who by his discovery of anesthesia and his successful use of ether in an operation on March 30, 1842, revolutionized surgery and started it upon its most progressive era.

On motion, the Association adjourned to meet in the dancing hall of the De Soto Hotel at 2:30 P.M.

#### AFTERNOON SESSION.

DR. T. E. MITCHELL, of Columbus, contributed a paper entitled

TRAUMATIC WOUNDS OF THE EYE AND THEIR TREATMENT, which was read by DR. A. W. CALHOUN, in the absence of the author. For convenience of description, the author divided wounds of the eye into incised, punctured, lacerated, and contused wounds. Another classification would be into aseptic and septic wounds. So, likewise, we may have a simple, compound, or complicated wound. Simple, when the agent producing the wound and any other foreign substance carried by it into the rent is removed, and complicated when any foreign body, whether the missile inflicting



the wound or material carried by it remains in the injured member. The fundamental principles laid down for treatment of wounds in other parts of the body hold good here: 1, the arrest of hemorrhage. This will rarely be found troublesome; 2, mitigate any existing shock; 3, cleanse the wound of every vestige of foreign matter; 4, render the wound absolutely aseptic by thorough irrigation with an antiseptic solution—corrosive sublimate 1:2000-5000; 5, coaptation of the severed parts by sutures, if necessary; 6, antiseptic dressing; and 7, position and rest. The latter we accomplish with atropia or scopolamin, 2-5 grains to 1 ounce of water, and a light pressure bandage to control the movements of the lids. The author then referred to wounds of individual parts of the eye. Wounds of the conjunctiva alone are generally caused by some corroding agent, as acids or alkalis, and offer a favorable or unfavorable prognosis depending entirely on the extent of corneal involvement. Superficial wounds of the cornea are among the most frequent of accidents, and are caused by the deposition in its structure of small pieces of steel, emery, grains of sand, cinders from a railroad locomotive, etc.

As to those cases in which enucleation is indicated, no definite rule can be formulated, since the intelligence, occupation and situation of the patient from the surgeon must be taken into consideration. The object of excision is to remove the peril of sympathetic inflammation. It is fortunate that sympathetic irritation usually precedes sympathetic inflammation, and serves as a signal for immediate enucleation. A wound involving the integrity of the zone of danger, or one in which a foreign body remains in the eye, is the most prolific cause of sympathetic disturbances. The consensus of opinion of the best authorities is in accord with the observations of Deutschmann that sympathetic ophthalmitis is of bacterial origin, the microorganisms traveling by continuity of surface beneath the optic nerve sheath, by way of the optic chiasm from the offending eye to the sympathizing member.

The prognosis of sympathetic inflammation is very grave. The surgeon should not fail to so inform the patient, and if an attempt be made to save the offending eye it should be done only after a thorough understanding of the risk assumed as to sympathetic involvement. As a substitute for excision, evisceration and optico-ciliary neurotomy has been advocated and practiced by some; but the consensus of professional opinion still adheres to enucleation as the safest line of procedure.

DR. LOUIS H. JONES, of Atlanta, then read a paper entitled

#### URANALYSIS.

The author said that the rapid strides made in physiologic chemistry, and the more general use of the microscope, afforded us means for determining the composition of the urine with great accuracy, and a minimum amount of labor. No greater mistake can be made than to assume that the condition of the urine is an index to the state of the kidneys alone. Disorders of the brain, the liver, the heart, the stomach, alike tell their tale in altered conditions of the urine. The author discussed only the most reliable and simple methods of detecting such changes, and pointed out a few of the sources of error present in some of the methods in common use. There are, in making an examination of the urine, four points usually determined—namely, reaction, specific gravity, and the presence or absence of albumin and sugar. To these should always be added a knowledge of the amount passed in twenty-four hours, and the quantity of urea present, and where there is reason to suspect disease, or where the chemic analysis indicates it, the microscope should always complete the work. The reaction can be readily determined by means of litmus paper, the only point worthy of consideration being, in the event of an alkaline reaction, to know whether this represents the state of the blood, or whether it is due to fermentative changes, by means of which the urea has been split up with the formation of ammonium carbonate. Should this be the cause of an alkaline reaction, the litmus paper will regain its red color upon drying and warming. The urinometers in common use the author had found to be exceedingly unreliable, different instruments giving, with the same specimen, variations ranging from two to six points. The chemic tests generally made of the urine are a reproach alike to the chemist and the physician. What is to be desired are tests which are reliable under all ordinary conditions, which can be made without the consumption of too much time, and which require a minimum amount of skill for their proper performance. For the detection of albumin and for routine work, the essayist is partial to the ferrocyanide test, to the

exclusion of all others. It has to commend it, both simplicity and reliability. It is made by adding to, say, eight grams of urine, about six grams of a solution of potassium ferrocyanide (strength 1:20), and then adding one gram of acetic acid, when, if albumin be present, a distinct cloudiness will appear throughout the mixture.

The author called attention to the fact that often much unnecessary confusion is brought about by speaking of the percentage of albumin found in a given specimen of urine. As a matter of fact, the actual *weight percentage* of albumin present in urine never exceeds 3 to 4 per cent., and rarely exceeds 1 per cent., and yet it is common to hear of urines containing from 50 to 75 per cent. of albumin, reference being had to the bulk of the precipitate formed, usually with heat and nitric acid. This must necessarily depend much upon the time allowed for settling, and is wholly inaccurate and unscientific. The author then referred to the various methods for detecting sugar in the urine. In closing, he called attention to the centrifugal method of obtaining urinary sediment for microscopic examination. By means of a small electric motor, carrying two arms with tubes attached, and which can be run by a small battery, the urinary sediment may be obtained in a few minutes.

DR. A. W. CALHOUN, of Atlanta, read a paper entitled

#### THE MANAGEMENT OF HEMORRHAGE AFTER TONSIL OPERATIONS.

The frequency of alarmingly profuse hemorrhage after tonsil operations, with an occasionally fatal result, makes this a subject of exceeding interest to the surgeon. Such accidents should not, however, stand as obstacles in the way of performing these operations, for the necessity for them is both frequent and urgent. Especially in children is the enlarged or hypertrophied tonsil often met with, and the evil effects of the disease are so apparent to the medical and even non-medical observer, that it often calls for prompt action on the part of the physician. The ordinary hemorrhage following the operation is of but small consequence, as with a little patience and care the blood soon ceases to flow of its own accord; or, if need be, a gargle of cold salt water suffices to arrest it in the course of a few minutes. But when there flows from the cut surfaces a steady stream of blood continuing for hours, then it is that the tact and nerve and skill of the surgeon display themselves to the greatest advantage. With an experience of nearly four thousand tonsil operations, the author had seen but few cases of alarming hemorrhage in children. Young children are not very liable to dangerous hemorrhage, but it is in the adult that the great danger lies. The actual cautery applied directly to the bleeding surface, the author could not suggest; but he could recommend pressure directly applied to the wound, which is the most satisfactory of all means. Pass the forefinger, the end of which is covered with a piece of moistened sponge or absorbent cotton, into the mouth and carefully cover the cut surface, and with the wound between the forefinger of the one hand and the palm of the other hand placed externally, exercise gentle but steady pressure. The hemorrhage ceases immediately, but recurs upon the removal of the pressure. It is now a matter of courage and confidence on the part of the patient and of physical endurance on the part of the doctor. In most cases pressure continued for ten minutes to one or two hours suffices to permanently arrest the hemorrhage, but in rare instances it must be continued through twelve to twenty-four hours. In these last cases assistance must be called in, so that the persons exercising the pressure can be rested at intervals of half an hour. Dr. Calhoun has never known this mode of checking hemorrhage to fail, and he recommends it to any practitioner having such a case.

DR. R. J. NUNN, of Savannah, read a paper with the following caption:

#### SOMETHING NEW IN THE TREATMENT OF WOMEN AFTER CONFINEMENT.

It is well known that women living in a condition most nearly approaching to a state of nature do not require the "days of lying up" after confinement, nor do they keep them, as do the more civilized races, or the cultivated classes of society. The subject of the paper was a multipara who, after the birth of her first child, had suffered with prolapsus accompanied with cysto- and rectocele, continual backache, was generally puny, miserable and run down, at best a small weakly woman, but withal a most determined character, as will be seen later. One Sunday morning the patient was delivered and immediately expressed her determination of going to her work on the next day. No persuasion could change her resolution. Being a widow, she declared it to be a question of bread for herself and her children. Under

these circumstances it was determined to adopt the following method of treatment: twice daily the patient was to use a douche of a warm solution of boracic acid, immediately after which she was to report at Dr. Nunn's office. Here the uterus would be thoroughly cleaned out with aseptic water, and swabbed out with camphenodin (camphor, iodine and carbolic acid), the faradic current used with a vaginal electrode, a tampon applied, and an abdominal bandage was to be constantly worn. The treatment was carried out for about two weeks, after which it was gradually discontinued, and in about a month the patient was discharged apparently cured, not having had a single untoward symptom and declaring that her recovery had been better than after her first confinement, when she kept her bed ten days. Since this course of treatment, which is now several months ago, she has been continually at her work, not having missed a day. She enjoys better health than for years before and considers herself cured of her prolapsus.

As a guide to any one desiring to make further trial of this method of treatment, the author recapitulated the principles upon which it is founded: 1, thorough antisepsis; 2, effective internal and external support; 3, local stimulation to hasten involution of the uterus and the return of other overstrained parts to their normal condition; and 4, where necessary, the use of such appropriate general medication as may be indicated.

#### SECOND DAY—MORNING SESSION.

The first paper read at this session was by Dr. DUNBAR ROY, of Atlanta, entitled

##### THE PROPER CARE OF SCHOOL CHILDREN'S EYES—THE NECESSITY.

The author summed up the main points of his paper, as follows:

1. That the hygiene of school children's eyes should receive as much attention as that of any other portion of the body.
2. That in many cases where there is seeming physical ailment and mental inaptitude such as headaches, dull feelings, inattention, loss of the power of concentration, the cause can be found in some ocular defect.
3. That as myopia or near-sightedness increases as the pupil advances to higher grades, such treatment should be instituted as will arrest the progress of that pathologic condition.
4. That teachers should be instructed by competent ophthalmologists as to the hygiene of the eyes and the various symptoms which indicate some ocular defect.
5. That every child should have his or her eyes examined before entering school, and if necessary a certificate should be given to that effect.

Dr. FRANK M. RIDLEY, of La Grange, read a paper entitled

##### A DUTY OF THE STATE MEDICAL ASSOCIATION.

His remarks referred principally to the State Asylum, in which he said there had been dissatisfaction expressed as to the existing conditions and disappointment as to practical results. Most physicians were satisfied that inadequate legislative appropriations to a great extent lay at the bottom of these evils. According to the latest reports, there are at least 1,800 inmates in the asylum. So densely packed are these unfortunates that fresh applicants are frequently of necessity refused admission to the place, on the ground that it would be dangerous to allow the number of patients to increase. As a consequence, in a deplorable number of instances, filthy county jails, swarming with vermin and poorly furnished with beds and covering, are converted into temporary sanitariums for the treatment of the insane. Dr. Ridley urges that another scheme of investigation should be inaugurated, namely, let the Governor appoint a committee composed of seven of the ablest physicians to visit the asylum once a year, and not at stated times. Let them be clothed with full powers to make a searching sifting examination of every department from the kitchen to the superintendent's office. Submit to His Excellency a carefully prepared report to be transmitted by him to the legislative body, suggesting such improvements in sanitation and general conditions as may seem to them to be urgent and feasible. Let them urge greater attention to the moral treatment of the inmates, as may be suggested by expert study and investigation of the best systems of Europe and America. This will require some outlay of money. Money thus spent is well spent, and should be met by the funds of the State Treasury. Dr. Ridley then referred to the inadequacy of the medical staff to perform the vast amount of professional labor assigned it. For the medical treatment of the 1,800 inmates referred to, suffering a score or more of nervous ailments, there are not exceeding 5 on the medical

staff, a ratio of 600 patients to 1 physician, proportionally a greater charge on the physicians of the Georgia Insane Asylum than of any other similar institution, not only of the United States but of the world. Dr. Ridley, in closing, urged the Association to memorialize the Governor to co-operate with a committee from the Association, looking to the remediation of these conditions.

After a free discussion of this paper, the President appointed a committee of five to act upon the recommendations and suggestions contained therein.

Dr. J. M. HULL, of Augusta, contributed a paper entitled "Graves' Disease, with Cases."

Dr. W. S. ARMSTRONG, of Atlanta, followed with a paper entitled

##### REPORT OF SEVERAL INTERESTING OPERATIONS.

The first case was one of gastrostomy for impermeable stricture of the esophagus. The patient was 30 years of age and a printer by trade.

Case 2 was an interesting one, on account of the size of the stone removed from the bladder. In this case a supra-pubic operation was performed. The stone was of enormous size, elliptical in shape, flattened on two sides, and weighed at the time of removal thirteen and three-quarter ounces. Its greatest circumference was twelve inches, being larger by one-third than the stone removed by Dr. White, of Philadelphia, which has heretofore been regarded to be the largest stone successfully removed from a living person in the United States, without slough and without damaging the tissues. These stones compare as follows:

	Weight.	Circumference.
White's . . .	9½ ounces	8½ inches
Armstrong's .	13¾ ounces	12 inches, and 9¼ inches at right angles.

Patient recovered and now works on a farm.

Case 3 was one of operation for gun-shot wound of the abdomen.

Dr. F. W. McRAE, of Atlanta, read a paper entitled

APPENDICITIS—A BRIEF REVIEW OF MY PERSONAL EXPERIENCE, in which he said that in every case where there is a sudden attack of abdominal pain, especially if there be nausea and fever, appendicitis should be suspected and carefully sought for. In many cases it can be excluded, but it is always important to bear in mind the possibility of appendicitis and make a diagnosis at the earliest possible moment. Even in the beginning there are signs which point to appendicitis with more or less certainty. One of the first signs that may be observed is limited movement of the abdominal muscles of the right side during respiration. The four cardinal symptoms as laid down by Dr. Murphy are sudden attack of pain over the appendix; always nausea, frequently vomiting; elevation of temperature; exaggerated local tenderness in various positions occupied by the appendix should always be borne in mind. Occasionally the pain and tenderness has become localized on the opposite side of the abdomen or in the epigastric region. In some cases it is referred especially to the bladder, and the only symptom complained of is pain in the bladder, and either difficulty in emptying it or frequent urination. In two of the cases which the author had operated upon, this symptom had been especially well marked. In the atypical cases of appendicitis a positive diagnosis is often difficult, sometimes impossible, prior to opening the abdominal cavity. Except in the fulminant cases, the treatment should be medical in the beginning. The bowels should be thoroughly purged, the diet regulated, counter-irritation or cold applied over the seat of pain and tenderness, and the progress of the attack watched carefully. Where the symptoms do not subside after careful purging, and local treatment is indicated, the case should be considered from a surgical standpoint, and where the pain and tenderness are increasing and the general symptoms becoming more and more marked an operation should be done without delay, where favorable conditions and a good surgeon are at hand. Since the last meeting, the author had seen in his own practice, and in consultation, nine patients suffering with appendicitis, and two of them having had each two attacks. He had also seen one patient, referred to him by the patient's physician, who had treated him through several attacks of recurrent appendicitis in the intervals between the attacks. Of these ten patients he had operated on four, and assisted Dr. Nicolson in one, making five cases that had come to operation. Of the five cases operated upon, three of his, and the one operated upon by Dr. Nicolson, recovered. One of the cases operated upon by himself was an old man, who died nine

weeks after the operation from exhaustion and paresis of the bowels. Dr. McRae then gave histories of these cases.

#### SECOND DAY—AFTERNOON SESSION.

Dr. WM. O'DANIEL, of Bullards, read a paper (by title) entitled "The Hygiene of Prison Camps in Georgia."

Dr. VIROIL O. HARDON, of Atlanta, read a paper on

#### LAPAROTOMY DURING PREGNANCY.

It is comparatively seldom that the surgeon is called upon to open the abdomen of a woman who is normally pregnant. When conditions present themselves which would justify such a procedure in the non-pregnant woman, the existence of pregnancy offers a complication which leads us to consider seriously whether the interests of the patient would not be better served by postponing the operation until after confinement. There is always present a fear of interruption of the process of gestation involving a sacrifice of the life of the child in an effort to save that of the mother. Many cases therefore which would otherwise be legitimate subjects for abdominal section can no longer be so regarded when two lives are at stake instead of one. Urgent symptoms threatening one or the other of these lives constitute the sole indication for surgical interference under such circumstances. The altered conditions imposed upon the pelvic organs by pregnancy give a new and entirely different aspect to many diseases. The physiologic engorgement and the rapid structural changes which accompany pregnancy give to such diseases a different clinical history, and must be taken into consideration in discussing the prognosis and the treatment. The rapid development of tissue, most notably in the womb, but present also in other organs, extends to the new growths in these organs and causes rapidity of development of pathologic processes proportionate to the rapid development of normal tissue. This fact must always be borne in mind as a factor in the prognosis. Another question to be seriously considered in such cases is the effect which the diseased condition will have upon the development of the fetus in utero. Still another point to be considered is the effect which the operation itself will have upon the continuance of pregnancy. Experience has proved that operations for the removal of the ovaries and tubes and even pedunculated subperitoneal fibromas are not incompatible with the continuance of pregnancy. It has been shown that such operations not only do not produce miscarriage, but that they have no effect upon the subsequent development of the fetus. Probably the most frequent pathologic condition that we are called upon to consider in this connection is that of fibroma of the uterus. The technique of laparotomy upon the pregnant woman differs in no material respect from that of ordinary operations. Dr. Hardon then reported two interesting cases in which he had opened the abdomen during pregnancy.

Dr. JAMES H. SHORTER, of Macon, read a paper on

#### PREVENTABLE BLINDNESS, ESPECIALLY AS RELATED TO SYMPATHETIC OPHTHALMIA, WITH REPORT OF SOME TYPICAL CASES.

The author stated that most writers and all text-books divide sympathetic affections of the eye into two classes—sympathetic irritation and sympathetic inflammation. Some observers hold that the conditions are two distinct phenomena; that sympathetic irritation is a functional trouble, a reflex phenomenon, brought about through the agency of the ciliary nerves; while sympathetic inflammation is an organic affection, a genuine irido-cyclitis from the start, set up probably by a transference of sepsis by way of the optic nerves. The fact that in sympathetic irritation so-called, the removal of the injured eye procures immediate and permanent relief from all symptoms of annoyance in the fellow eye; whereas in genuine sympathetic inflammation such operation exerts but little, if any, influence in arresting the course of the disease, adds much probability to the truth of this theory. The author then dwelt upon the symptoms of sympathetic ophthalmia.

The treatment of sympathetic inflammation is chiefly anti-phlogistic; rest in bed in a dark room, hot applications, leeches, atropin, etc., but any and all treatment promises at best but little when once the affection has declared itself. Prophylactic treatment, on the other hand, is always infallible, and may be summed up in a few words—remove the injured eye, and to this may be added the further advice; do this in good time, at once if possible. The essayist briefly alluded to one case which from the sudden onset of the sympathetic inflammation, its destructive course in spite of early recognition of the condition and intelligent vigorous treatment resorted to, was a typical example and illustrated also

the probable futility of all remedial efforts. The author laid down as an invariable rule that every eye made totally or partially blind by a penetrating wound, and especially if the globe remains tender to touch, should be removed without delay. Even if there be some reasonable amount of sight still left in the wounded eye, this is not a contra-indication for the operation, for it may be set down as almost a certainty that a severely injured eye in which attacks of inflammation recur will be sooner or later lost.

Dr. WM. PERRIN NICOLSON, of Atlanta, made some remarks on

#### LIGATION OF THE EXTERNAL CAROTID ARTERY AS A PRELIMINARY TO AND COINCIDENT WITH OPERATIONS UPON THE JAWS.

He stated that in the history of ligation of arteries, the external carotid artery had stood for a long time as a vessel that could not be interfered with, but that Dr. Wyeth had concluded from his investigations on the subject that ligation of this vessel was feasible. Dr. Wyeth's work on surgery contains a full account and description of the normal anatomy of the vessel, its several variations, and the steps necessary to close it. The important feature about operations upon the external carotid is that in any trouble involving the external structures, in the face, about the mouth, etc., we can entirely cut off the circulation without interfering with the circulation in the brain, which has always caused a large mortality in the ligation of the common carotid. Some years ago, in an operation for removal of the upper jaw, Dr. Nicolson concluded to try the ligation of this vessel with a view to lessening hemorrhage at the time of the operation, and more especially in lessening the danger of return of the disease by a process of starvation, cutting off the blood supply from the seat of the growth. Since that time he had made the operation four times, always coincident with operations for the removal of the jaw, and more especially in connection with operations for malignant disease. He has no untoward circumstances connected with the four operations which he has made, and he feels certain that there is a wide field of usefulness ahead of this operation when it becomes more generally adopted, because the vessel is one which is easily reached and there can be no danger to the patient if the work is properly performed.

#### SCOPOLAMIN AS A MYDRIATIC IN COMPARISON WITH ATROPIN AND HOMATROPIN—A POSTSCRIPT TO A PREVIOUS PAPER.

This was the title of a paper contributed by Dr. ARTHUR G. HOBBS, of Atlanta. Scopolamin hydrobromate has been demonstrated to have some superior qualities as a mydriatic: 1, in the small dose necessary; 2, in the few minutes required to produce complete paralysis of accommodation; and 3, in the comparatively short time of its continuance. The author had used it in his refraction room almost exclusively in cases where atropin was not particularly indicated. The strength of the solutions has varied from .5 to .12½ per cent., and in the latter weak solution he finds that a complete mydriasis is accomplished as effectually and it seems as rapidly as when the forty times stronger solution is instilled. While he has, as a rule, used a .2 to a .1 per cent. strength, he does not believe that in these stronger solutions the result has been either more certain or has been accomplished in a shorter time. By all the comparative tests the weaker solutions have given quite as good results as the stronger, and in both the results have appeared to be the same as when atropin or homatropin has been depended upon as the mydriatic. In the few cases of glaucoma in which he could risk so powerful a mydriatic, no increase of tension was manifested. He does not doubt that we will find the results of the 1-160 per cent. solution, which he is now testing, will prove effectual. If so, when it is remembered that we use only from four to six drops from the pipette, the great potency of this drug is almost without a parallel. The author is using it in iritis when atropin does not promptly dilate; also in some forms of keratitis with increased confidence.

#### SECOND DAY—AFTERNOON SESSION.

Dr. J. C. LEHARDY, of Savannah, read a paper entitled "The Use of the Galvanic Current in Office Practice," in which he reported several interesting cases treated by this current with gratifying results.

#### REPORT OF A PART OF MY SURGICAL WORK FOR THE SIX MONTHS ENDING APRIL 15, WITH REMARKS.

This paper was read by Dr. J. B. S. HOLMES, of Atlanta. The author reports fifty-one cases. In no case had an ovariectomy been performed simply for the relief of nervous or reflex symptoms. He had operated only for diseased conditions that he knew could only be relieved by surgical pro-

cedure, and careful examination, post-operative, had confirmed his opinion in every instance. While he believes in conservative measures, the most radical are often the most conservative. He is ready to admit that the abdominal cavity had often been ruthlessly invaded and organs removed that should not have been touched. They had been removed for nervous symptoms due entirely to other causes, and for which they were in nowise responsible. On the other hand, tinkering gynecology was responsible for many diseased tubes and ovaries that could only be cured by removal. The introduction of various caustic remedies into the uterus caused destruction and sloughing of the mucous membrane, with a cervical canal in many cases previously constricted and so rendered by the applications that the decomposing masses could not pass out. What follows? A septic endometritis, which soon extends to the tubes and ovaries, producing trouble that nothing but the knife will relieve. This must be resorted to or the poor woman is frequently doomed to permanent invalidism, condition sometimes worse than death. Many of the cases that the surgeon is censured for using the knife upon are caused by such treatment. He does not condemn all local treatment; when properly directed, he believes there are many conditions where it is not only admissible but demanded. He does not wish to be understood as advocating the removal of every diseased ovary. Far from it. He declines operation in many cases where the patient is anxious for it. He tries to be conscientious and operates only where the disease is so advanced that it has or is likely to render the woman an invalid, and is incurable by any other means. The author's experience with catgut as sutures or ligatures has been unsatisfactory. He never uses it except when he does a trachelorrhaphy and perineorrhaphy at the same sitting. It is hard to sterilize, is soft, slips easy, is hard to tie with any assurance of safety, and is absorbed too quickly. While he had always deprecated the use of opium in abdominal work, he had used it with great care and caution. Increasing experience convinces him that those cases in which it is not given at all do much better and their convalescence is more satisfactory in every respect. Where the pain is so intense and threatens to exhaust the patient from continued suffering, he thinks it advisable to use opium moderately and with great care.

At the conclusion of the paper, Dr. Holmes exhibited a few specimens removed from women who had been the victims from one to three years of the so-called conservative treatment with iodine, iodized phenol, nitrate of silver, nitric acid, carbolic acid, and other similar caustics.

Dr. T. M. GREENWOOD, of Mineral Bluff, read a paper on

#### OBSTETRICS AS PRACTICED IN THE MOUNTAINS OF NORTH GEORGIA.

The author said that a prominent laparotomist of the South stated that healthy mothers were gradually "playing out," but thinks his observation was largely confined to the cities. Their habits before puberty are all that nature requires—plenty of pure fresh air, bodily exercise, as necessitated by their daily avocations; clothing loose and suspended from the shoulders; diet plain and simple but nutritious and plentiful. In girlhood they roam the fields and forests as boys, vieing with them in strength and surpassing them in many instances in the athletic sports; when suddenly puberty arrives, a change comes to them almost imperceptibly, and they are women, and very soon afterward become mothers. Of the 100 nullipara which the author had attended in labor and noted the age, 75 of them were 18 years of age and under, the youngest being thirteen years and two months. He had heard of a case a little over 11 years of age. They were all normal labors and made good recoveries.

Owing to lack of time, several papers were read by title and referred to the Committee on Publication.

The following officers were elected:

President, Frank M. Ridley, of La Grange; First Vice-President, W. H. Doughty, of Augusta; Second Vice-President, M. L. Boyd, of Savannah; Secretary, R. H. Taylor, of Griffin; Treasurer, E. C. Goodrich, of Augusta.

On motion, the Association adjourned to meet in Augusta the third Wednesday in April, 1896.

After adjournment, the Association enjoyed a steamboat excursion down the Savannah River to the Atlantic Ocean, and partook of an "oyster roast" on Wilmington Island.

#### American Electro-Therapeutic Association.

*Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26, and 27, 1894.*

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 640.)

#### AFTERNOON SESSION.

The meeting was called to order by the President at 2:30 P.M. Report of the Committee on

STANDARD ELECTRO-STATIC OR INFLUENCE MACHINES, by Dr. WILLIAM JAMES MORTON, Chairman.

The Committee would add to the recommendation of last year that the minimum size of machine should consist of six revolving discs of glass of at least twenty-eight inches in diameter, instead of four discs as then recommended; and recommend the *a*, inclosing case; *b*, separate exciting machine within the case; *c*, any convenient arrangement of parts to produce the static induced current. All these recommendations are now well established in practice.

Dr. W. J. MORTON read a paper on

#### ELECTRIC MEDICAMENTAL DIFFUSION.

METALLIC ELECTROLYSIS—CATAPHORESIS—SOLUBLE METALLIC ELECTRODES WITH ILLUSTRATIVE CASES OF TINNITUS AURIS, TRACHOMA, NASAL AND POST-NASAL CATARRH, URETHRITIS, TONSILLITIS, VASCULAR TUMOR, DERMOID CYST, NÆVI, SYCOSIS, ETC.

It often happens in medicine that a new method of procedure makes its way to success by a series of steps not seemingly related to each other in time or relevancy. This observation seems to me to be true of a number of individual therapeutic procedures which during recent years have been brought to the attention, particularly, of those interested in applying electricity to the cure of disease. Reaching back to the time of Fabré-Palaprat in 1833 (introduction of iodid of potassium through the skin), including the success of Benjamin Richardson in 1859 (voltaic narcotism) and culminating in recent years in the practical applications of Peterson, the writer and others (electro-cocain anesthesia, etc.), the term cataphoresis has sufficed both to name and to explain the practical facts. By aid of this principle of cataphoresis, fluids of the human tissue may be moved about, particularly in parts free from active blood circulation, from the positive to the negative pole, or medicine held in solution at a positive pole may be caused to penetrate the skin or mucous membrane at the site of that pole. The practice is equally available whether the polar electrode be the usual small one, or be a large one, as in the case of the water of an electric bath. And not only may medicines be thus introduced (as demonstrated by an examination of the urine) but they may also be removed from the human system (as demonstrated by using a bright copper plate electrode for the negative pole in the bath and finding a removed metallic deposited upon the copper). So far as relates to the introduction or the removal of medicinal substances, I have termed the process cataphoric medication and cataphoric demedication. I have also established a method useful in gouty and rheumatic joints and in other conditions of cutting off the blood supply by rubber rings or by an Esmarch's bandage and thus affording the medicine introduced greater facility to act upon the affected tissue. This process I have termed anemic cataphoric medication. Turning to another set of the isolated phenomena, which I am about to suggest may be included under one general caption and nomenclature, we are confronted with that great and fundamental principle of electrolysis without which there would be no conduction of electricity in the human tissue, and yet so diverse are its exhibitions according to the strength of the current, according to the actual decomposition of the tissue or its non-evident decomposition, and according to the fluids in solution at the poles of the applied electrode or the nature of the electrode itself when introduced within the tissue, that confusion reigns as to specific effects and methods.

Involved in this principle of electrolysis and the introduction of medicamental substances into tissue, there are a great variety of special processes as, for instance, cataphoric medication already alluded to, and furthermore, processes where the electrode itself furnishes by electrolysis of its own substance the new medicine introduced (soluble electrodes) or where an insoluble electrode conveys the current which decomposes a fluid introduced within the cavity to be treated. The two latter methods are known as the "interstitial electrolysis" of Gautier, or in the case of the soluble

Blank Applications for membership in the Association at the JOURNAL office.



electrode as "metallic interstitial electrolysis" of the same author. The simple fact which arises out of this confusion is that the electric current causes a diffusion of the medicines into and throughout the tissue.

It matters not whether the medicine in solution be applied by a sponge or blotting paper against the skin (cataphoric medication), be held in solution in the water of an electric bath (again cataphoric medication), be injected into a cavity and decomposed (interstitial electrolysis), be dissolved by the action of a current off of a needle perforating the tissue (metallic electrolysis), or be dissolved from an electrode held in contact with mucous membrane (also metallic electrolysis); the result is the same—a foreign substance in solution, viz., a medicine is caused to enter and permeate the tissue. It therefore seems to me to be a proper time to generalize the entire facts under the term of electric diffusion of medicines into human tissue or, simply, *electric medicament diffusion*.

To secure this diffusion it is only necessary that the artificial and applied electrolyte (the medicine or substance in solution) be caused to constitute a part of the electrolyte into which it is to be diffused and then the general principles of both electrolysis and cataphoresis come into play; the various ions are redistributed or diffused according to well-known laws, while also, equally, the principle of cataphoresis is at work whereby irrespective of ionic distribution, fluids are moved from the positive to the negative pole or sometimes *vice versa*. This diffusive property of the current, taken advantage of in connection with human tissue, opens out to electro-therapy and general medicine an immense and a fascinating field of study and practice, and in many important directions points out entirely new treatments of a great variety of diseases thus far not commonly treated in this manner. The field is so broad a one that I will confine myself in this communication to the electric diffusion of metallic salts, one form of the interstitial electrolysis of Gautier.

#### ELECTRIC DIFFUSION FROM SOLUBLE ELECTRODES.

The destructive electrolytic action in human tissue of either pole of a continuous electric current is perfectly familiar. The electrodes are usually of metal, and care is taken that they be unoxidizable, as is, for instance, platinum or gold, if they are to be used at a positive pole, while, if used at the negative pole, they may be oxidizable or not. The positive pole electrode, when the current is in action, forms oxygen and acids out of the tissue itself; the acids are mainly hydrochloric, sulphuric and phosphoric. The negative pole forms hydrogen and alkalis, the latter usually caustic soda and potash. Each pole is practically a little chemic workshop by itself—the one acid, the other alkaline; the analytic and synthetic energy being furnished by the electric current and the materials acted upon being furnished by the tissue. The resultant and desired destruction of tissue is due to a number of factors, chief among which are that amount of tissue used to make up the newly formed and foreign chemicals, the secondary action of these newly formed products upon the remaining tissue, and the disruptive effects upon the structural composition of the tissue of the gases interstitially liberated. And the character of the artificially produced lesion and its resultant eschar is determined, to a great extent, by the second of these actions, whether it has been an acid or an alkaline corrosion or destruction. The lesion resulting at the negative pole is rich in fluids (by cataphoresis), and is slower to heal; it leaves, however, a smoother and less contractile cicatrix (an important consideration in the removal of facial blemishes). The lesion resulting at the positive pole is comparatively dry (also by cataphoresis), is quicker to heal and leaves a rougher and more contractile scar.

It will be observed that in this, the familiar form of electrolysis, no account is taken of the nature of the active electrode employed except that it be unoxidizable, insoluble, and therefore indestructible, and that as a consequence reliance for the electrolytic effect is based directly upon the characteristic effect of the current upon the tissue and not upon its effect upon the electrode. Any action of the current upon the electrode is, in fact, carefully guarded against.

But if we turn our attention to the nature of the metal which composes the electrode, be it the positive or (as I have demonstrated) the negative, an entirely new field of investigation and of results is opened out to our view. If our positive electrode be composed of a metal which is attacked by oxygen or by chlorine (formed at that pole out of the tissue), then a new chemic compound is formed at the point of the application, and we have no longer to deal with the effect of the liberated chemicals directly upon the tissue,

but we are confronted with a new effect, viz., that of the newly formed chemic compounds (metallic salts) upon the tissue. And since, owing to the nature of human tissue, hydrochloric acid is pre-eminently formed at the positive pole, we shall find if copper, zinc, iron or other attackable metal is the metal employed at that pole, that we have formed respectively the oxychlorides of copper, zinc, iron, etc., double salts of the metal.

In this connection we may observe the further interesting fact that under the above circumstances the action of the current is almost entirely expended in decomposing the metal, and that as a consequence the undesirable destructive action of the usual electrolysis is avoided. For, as I have observed in practice and as will be seen upon reference to the cases in which this method of treatment is applicable and peculiarly efficacious, the destructive action of the current would be in the highest degree detrimental. The object is not to destroy tissue, as by actual cautery or by the application of caustics, but to implant within it and permeate it with the newly formed metallic salt. In fact, so distinctive is this new method, which is termed by Gautier, its modern author, interstitial electrolysis, from common surgical electrolysis, that it is unfortunate to use the term, electrolysis, at all in relation to it. The electrolysis is, as has been pointed out, principally of the metal, and but to a very limited extent of the tissue. A far more characteristic feature of the process is that the product of the electrolyzed metal permeates tissue, and it is for that reason that I feel compelled, in speaking of the method, to designate it as electric diffusion.

Another noticeable feature of electric diffusion of salts formed from soluble electrodes is that a remarkably low current strength suffices to set free a large amount of the metallic salt. Here, again, is a reason that very little of the usual electrolytic destruction of tissue ensues. Gautier, indeed, calls attention to this fact, and characterizes this method in its gynecologic applications as one of low current strength and long sittings, in contra-distinction to the Apostoli method of high current strength and short sittings. In practical work, I have found that very low current strength, from 1 to 10 milliamperes, gives much better results than from 10 to 50 milliamperes. In this connection it should be noted that the electrode loses in weight. Gautier has found, as would be expected, that the loss in weight is proportional to the current strength and the duration of the current flow.

Again, the solution of the metallic electrode is not confined, as thus far supposed, to the positive electrode alone. I have found by experiment that soluble electrodes may also be employed at the negative pole. One of the best of the metals for this purpose is aluminium. The extension of metallic electrolysis to the negative pole greatly widens the field of this new method, since, while at the positive pole we have thus far been confined to the oxychlorides of metals we now at the negative pole may apply to diseased tissue another class of metallic salts.

Electric diffusion, as the word, diffusion, indicates, possesses an obvious advantage over the ordinary topical applications of similar or other metallic salts of copper, zinc, iron, aluminium or other metals. For it is obvious that not only is the salt dissolved off of the metal, but by another and further property of the current it is forced into the tissue in a radiating direction around the metallic electrode. In this respect, electric diffusion is remarkably unlike the application of the ordinary solutions by a brush, spray or injection, or their injection into tissue by the hypodermic needle. The solution of the salt is not only applied but it is driven in. To use a homely simile, a wash or spray is like a nail held against a board, while electric diffusion plays the part of the hammer which drives the nail home.

#### HISTORICAL—ELECTRODES—TECHNIQUE—CASES—CONCLUSIONS.

The dissolving action of the electric current upon a metallic electrode, constituting a positive pole and applied within human tissue, had been noted by various authors in relation to the treatment of some diseases, particularly tumors, by electrolysis. Both Butler and Stevenson and Jones refer to this action upon zinc needles and point out the conjoint efficacy of the combined destructive action of the current and the newly formed chlorid of zinc.

Onimus, of Paris, and Prochownick, of Hamburg, appear to have casually used soluble electrodes at the positive pole. The latter applied a copper sound with a current strength of from 80 to 100 milliamperes in a case of gonorrheal infection of the uterine cervical canal.

But these isolated observations made almost no impression upon practice, and it remained for Dr. Georges Gautier,

of Paris, to grasp the broad idea of diffusing metallic salts from soluble electrodes and to inaugurate by a series of experiments this new system of procedure.<sup>1</sup>

At once appreciating the far-reaching merits of the new method, I established its use in a great variety of cases in my clinic at the New York Post-Graduate Medical School and Hospital as early as 1891, and also at the same time in private practice. The method was taught to matriculates by actual demonstrations. Experiments were made of its effects in trachoma, hypertrophic nasal catarrh and ozena, gonorrhea, keloid, and continued, in a great variety of diseases, and with a variety of metals at the positive pole. Obviously, the method once understood implies its application to a large number of cases and by any soluble metal. Papers and contributions to journals and societies have been published by my clinical assistants detailing my work and instruments and by Dr. Clarence C. Rice, of New York City.



FIG. 1.—"Soluble" Needles.



FIG. 2.—"Soluble" Bulbs.



FIG. 3.—"Soluble" Bulbs.

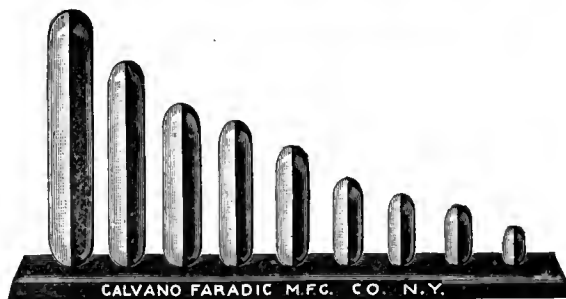


FIG. 4.—Protected Soluble Electrodes.

**Electrodes.**—Successive applications to diverse morbid conditions continually suggested new electrodes suited to the individual classes of disease. These have been made as occasion arose by the Galvano-Faradic Manufacturing Company, of New York City, and may be bought of them.

**Needles,** Fig. 1. These are manufactured of any desired metal. I use, preferably, copper, zinc and iron at the positive pole and aluminium at the negative. About 1 millimeter in diameter and 8 centimeters in length form a convenient size. Insulated material restricts the action of the current to the locality desired to be affected and prevents action upon the sound skin. They fit an ordinary needle holder.

**Bulbs,**—Figs. 2 and 3. Like the needles these are manufactured of a variety of metals. For convenience they are constructed in sizes of the French catheter scale, each bulb capable of being attached by a screw thread to a universal handle. The sets resemble those known as Dr. Fry's, and were first made of copper by Dr. A. H. Goelet.

An important modification of the bulb (Fig. 4), devised by the writer more than a year ago, is to divide it longitudinally into one-half metal and the other half ebonite, thus affording a protected and an active side of the electrode,

for it often happens as in the rectum, urethral canal, cervical canal and other canals, sinuses or cavities, and in trachoma that it is undesirable at a single treatment to attack approximating surfaces; again, it may be desired to protect a given surface.

The handle curved at right angles is used in the post-nasal cavities. The metal may be bent to any desired angle; its tip is insulated and an insulating sheath exposes any desired area for active effect.

Obviously, electrodes for special cases will suggest themselves, and types familiar in form will be constructed of soluble metals as occasion demands.

**Technique.**—I have already expressed a preference based upon much experience, for low current strength and prolonged time. It is difficult to lay down rules which shall apply in so many diverse diseases. In needle puncture (copper or zinc needles) I prefer to use no more than 2 milliamperes applied at any one site for about three to five minutes. In a case of sycosis, reported later on this was quite suffi-

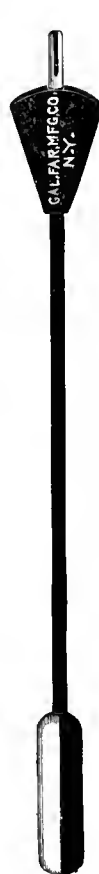


FIG. 5.—Writer's Protected Electrode and Handle.



FIG. 6.—"Soluble" Bulbs Attached to Handles.



FIG. 7.—Protected Sound of "Soluble" Metal, Copper, Zinc, Iron, etc.



FIG. 8.—Writer's Protected Nasal Electrode.

cient to cure the disease. In lupus, ulcerations, pustules and acne this is also quite enough current strength. Gautier reports using 50 milliamperes in a case of lupus, but I have found the high current strength seriously objectionable because of the consequent electrolysis of tissue and extension of the time of healing. In hypertrophic nasal catarrh with copper bulbs, I find about 4 to 8 milliamperes sufficient. In ozena the same; in trachoma 1 to 2 milliamperes and in intra-uterine applications from 10 to 20 milliamperes; in gonorrhea 1 to 2 milliamperes.

No positive rule can be laid down, since much depends upon the size of the electrode. In order to facilitate accuracy of dosage, I employ copper bulbs graduated according to the French scale of catheter or other electrodes whose surface area is a known quantity.

The operator may convince himself, if he desires, of the great rapidity of the electric diffusion of the copper salt by sticking the needle lightly into his own skin, or that of a patient, and watching the almost immediate formation of a small circular area of an apple green color. This is also well

<sup>1</sup> Revue Internationale d'Electrothérapie, July, 1891, August and September, 1892. Also Technique d'Electrothérapie, by Drs. Gautier and Larat.

seen in a small wart or similar growth; the mass turns light green. Or the copper needle may be inserted into the white of a "hard boiled egg" or into a piece of meat, and the same rapid formation and diffusion of the copper salt be noted.

A practical point of importance is to thoroughly polish each electrode immediately before using it. This is easily accomplished by the aid of a piece of fine emery paper.

The adherence of the electrode to the tissue is a peculiarity and a danger. Even with a current strength of from 2 to 4 milliampères this adherence is noticeable. Therefore even when low current strength is employed as during the application of smooth metallic surfaces to mucous membrane as in nasal and throat diseases, in trachoma, urethritis, etc., the electrode should be kept in slow movement, either longitudinal or rotatory. In the case of needles plunged into tumors and of sounds within the uterus this adherence can not be overcome by any safe manipulation; the needle must be loosened by reversing the polarity and using from 4 to 8 milliampères for about five minutes. The adhesion is due to the formation of an albuminoid salt of copper (where the electrode is of copper).

An operative outfit consists of any good galvanic battery, a water rheostat, a sensitive galvanometer needle and appropriate electrodes.

*Cases.*—I present the records of a few illustrative cases. It is needless to say that much has been learned as to technique, precision and efficacy in securing results in individual diseases since my first cases were recorded. Certain cases of lupus, cancer, etc., now under treatment are reserved until sufficient time has elapsed to enable a mature opinion to be given as to results.

#### CHRONIC TINNITUS AURIUM.

Probably there are few minor troubles more annoying to the patient than a chronic ringing in the ears; certainly there is no minor condition more difficult of cure. The cases as I have seen them are often associated with some degree of catarrhal trouble and commonly with tympanic vertigo and moderate deafness.

*Case 1.*—H. E., age 33; cured. Referred to me March, 1893, by Prof. D. B. St. John Roosa, to relieve him, if possible, of a most annoying and persistent ringing in both ears. Five years ago had a "dry throat;" had little saliva; mucous membranes cracked and bled; was treated by sprays for two years with no benefit; then used antiseptic washes. The uvula was elongated and had been cut off. Throat never ceased to trouble him. Two years ago had the grip, and about this time the ringing began. Present condition: weary, "nervous," depressed and irritable with much frontal headache and an almost continual ringing, worse in the left ear. The sound is like that of a distant cricket or like a sharp whistle; it worries him most when he is tired or when he lies down or after sexual intercourse. Sleep is often disturbed because he can not get rid of the sound in his ears. As a rule it is worse at night. Has likewise much post-nasal discharge. Hearing in left ear considerably impaired; has some vertigo. The first treatment to the ears and throat was by the static induced current, then the sinusoidal, both followed by amelioration in the degree of the sound and by intervals when it ceased for a few hours. But the progress was not satisfactory to me and I determined to treat the catarrhal condition first and cure it, before following up further applications to the aural region alone.

March 29. Electric diffusion, copper bulb, throughout the post-nasal and pharyngeal region, 12 milliampères five minutes to each side.

March 31. Discharges from nose anteriorly and posteriorly almost *nil*; ringing about the same.

April 3. Ringing unimproved; headache better; slight nasal discharge. Repeated treatment.

April 4. Raises slightly thick discharge from throat; watery discharge from nose; ringing same as ever.

April 5. No discharge. Treatment repeated. Reports never felt so well for years, of the catarrhal symptoms. Ringing in ears ceased during the treatment.

April 7. Headache; ringing in ears worse; no nasal discharge. Treatment five minutes, 10 milliampères.

April 8. For a half hour after rising this morning was free from the ringing.

April 10. Ringing ceases for long periods; no nasal discharge.

April 13. Ringing continuous. Treatment same.

April 14. Ringing very slight; no headache; very little nasal discharge. Treatment, five minutes, 5 milliampères.

April 15. Much ringing in left ear.

April 19. Reports a discharge from the left nostril which

colored the pillow in the night; a good deal of catarrhal trouble; bright yellow discharge and intense headache, also that his hearing was not so good. Discontinued treatment at the patient's request.

May 3. Against the patient's desire I persevered with electric diffusion, applying the electrode freely to his hypertrophied tonsils and post-nasal region on the sixth, tenth and thirteenth. The ringing still persisted in a marked degree.

May 19. Ringing the same; vertigo. Treatment same.

May 25. Ringing and catarrhal troubles have ceased since last treatment. The throat presented an almost normal appearance; the narrowing and congestion of the fauces had disappeared; the tonsils were normal in size. One more treatment was given and the patient was allowed to cease, as nothing further remained to be accomplished. The treatment by electric diffusion from copper had occupied about two months and had been repeated about twelve times.

Jan. 30, 1894. Patient reports that he has had no further ringing in ears and remains well of it, in spite of an attack of the "grip" during the winter.

#### TRACHOMA.

With the pathology and histology of this disease we have here nothing to do. It is merely a question of causing the absorption of the sago-like granulations or elevations in the conjunctiva, with the relief of the associate symptoms of pain, lachrymation and in the acute varieties the mucus discharge. The classical treatment is by operative or medicinal measures. The former removes the granulations by squeezing out their contents; the latter attempts to cause absorption by setting up by various drugs a certain grade of inflammatory reaction. It is here proposed to treat this obdurate affection by another method, viz., the combined action of electricity and a nascent metallic salt caused to permeate the affected tissue by means of the diffusive property of the electric current. This method is very successful.

The use of electric diffusion in this disease first occurred to me in the case of an Italian woman under treatment for goitre at my clinic. The case briefly follows:

*Case 1.*—Jan. 4, 1892, R. P., age 50; trachoma, both lids of both eyes. Extreme photophobia; intense corneal vascularity; excessive lachrymation; trachomatous bodies ("sago grains"); impaired vision. Treatment, electric diffusion from a copper electrode. An impromptu electrode was formed by bending a piece of copper wire into a suitable U-shaped loop. The loop was then passed *slowly* over the affected surfaces of the lids, while at the same time a current of 2 milliampères was flowing. The reader is referred to later cases for more typical results, for the reason that the treatment was inadvertently substituted at times by the use of the negative pole. But the cornea cleared, the trachomatous bodies became greatly reduced in number, the photophobia was much less, no lachrymation; the vision improved; the patient could see better and was able to read. This case simply initiated a method which was afterward carried out with more care and greater detail in my clinic, by myself and my assistants.

Care in manipulation is requisite. The eyelid should be everted as is usual in applications of the sulphate of copper or alum pencils, or the special protected electrodes devised by myself (Fig. 4) may be employed, without everting the lids. The electrode should be kept very slowly in movement or it will adhere to the conjunctiva and cause slight laceration upon removal, or at least compel the operator to reverse the polarity. Any metal, soluble at either pole may be employed, but copper and zinc are undoubtedly the best. The electrode without current will cause pain and with current somewhat more pain. To annul the pain, cocaine may be used in the usual manner.

*Case 2.*—Acute trachoma, first stage. March 22, 1893, patient age 11, had purulent conjunctivitis; upper and lower lids of both eyes trachomatous. Treatment: Electric diffusion from copper electrode, 2 milliampères, one minute to each lid. After the first treatment the photophobia almost entirely ceased and the granules diminished in size. The patient received six applications and was cured. April 29, 1894, about a year later, reports that he had remained well.

*Case 3.*—July 21, 1893. P., age 21; trachoma second stage. Referred to the clinic by Dr. Francis Valk, of the Ophthalmological Department of the Post-Graduate Medical School. During one year had suffered severely from photophobia, lachrymation and pain. Extensive ulceration of cornea and lids highly trachomatous. Treatment: Electric diffusion from copper electrode, 3 milliampères. July 24, patient much better; no pain; swelling of lid and ptosis of right

eye much diminished. Less photophobia, soreness and lachrymation, trachomatous bodies very much softer and less gritty to contact of electrode. Electric diffusion from copper, 10 milliamperes from two to three minutes. July 26, edema of the lids has entirely disappeared; slight ptosis remains; no lachrymation; trachomatous bodies no longer isolated; cornea almost entirely clear. Same treatment. July 31, after the fourth treatment the trachomatous bodies had become entirely absorbed. Cornea perfectly clear. Dr. Valk stated that the result "was 50 per cent. better than he could have secured with the classical methods of treatment." Six more similar treatments completed the patient's cure, with the simple exception that some slight conjunctival redness remained as well as a moderate sensitiveness to bright sunlight. May 8, 1894, as the patient has never returned he presumably has remained cured.

*Case 4.*—July 21, 1893, A. D., age 8; trachoma, second stage. Purulent conjunctivitis with congestion and edema of the surrounding tissues; both upper and lower lids profusely covered with trachomatous bodies. Five treatments, electric diffusion from copper electrode, 3 to 7 milliamperes; cocaine. The first treatment was followed by diminution of the mucus discharge; of the pain, lachrymation and photophobia; the trachomatous bodies softened and were gradually absorbed. Cured.

*Case 5.*—August 30, 1893, W. T., age 16; granular lids for seven months; pain; stiffness of lids; photophobia; morning adherence of lids; electric diffusion from copper, 3 milliamperes. After twelve treatments, case cured by October 30. Applications were imperfectly made, owing to the refractory nature of the patient.

*Case 6.*—Jan. 15, 1894, K. S., age 17; native of Egypt; trachoma, third stage; always had weak eyes; began to be troublesome five years ago. Has photophobia, lachrymation, constant muco-purulent discharge and pain. Can only see as "through smoke." Palpebral conjunctiva scarred and white. Both lower lids, palpebral conjunctiva, adherent and dragging in the eyeball. Cicatricial conjunctivitis. Case "incurable." Treatment: Electric diffusion from zinc electrode, 5 milliamperes to conjunctivæ of both eyes. March 9, 1894, reports both eyes better; now sees clearly; lachrymation has ceased; lids are no longer glued together in the morning by the mucus discharge. Repeated diffusion from zinc, 3 milliamperes to lids of both eyes. March 23, 1894, adhesions between the conjunctiva and the eyeball at the left lower lid were treated with negative electrolysis, 1 milliampere. April 18, 1894, palpebral conjunctivæ have assumed a more normal appearance. Circulation improved; less induration; patient regards herself as very well.

*Case 7.*—March 23, 1894, M. B., age 11; acute trachoma, first stage. Lids edematous; conjunctivæ injected; lachrymation, upper and lower lids of both eyes trachomatous. Treatment: Electric diffusion from copper, 1 milliampere. March 26, noedema; conjunctivæ lessened; sago grains have disappeared; treatment same. March 28, 1894, much better; slight redness of conjunctivæ; no mucus discharge, pain or photophobia; eyes clear and bright, 3 milliamperes to both eyes. April 13, 1894, cured.

#### HYPERTROPHIC RHINITIS AND PHARYNGITIS.

The class of cases here referred to were of a chronic type and exhibited anterior and posterior nasal discharge, generally thick and purulent; the disturbed sensation of swallowing, due to retained secretions in the post-nasal space, narrowing of the rhino-pharynx and the characteristic symptoms of hypertrophy of the nasal and pharyngeal mucous membrane. Their treatment was carried out by electrodes of copper and zinc devised by the writer, see Figs. 3, 4 and 6, and by a method devised and taught by him to clinical assistants, among others to Dr. M. A. Cleaves, who has written a paper whose originality is derived substantially from the writer's teaching in this as in other branches of metallic electrolysis. Struck by the results obtainable in this disease by this method, I also called the attention of Dr. Clarence C. Rice of the Department of Laryngology, Post-Graduate Medical School, to these results and he has, he writes, made trial of the soluble metallic electrodes in a number of cases which he has reported at a meeting of the American Laryngological Association in Washington.

*Case 1.*—Nov. 27, 1891, B. M., age 15. Ozena. One year ago patient contracted an acute catarrhal cold; it continued a month; since then has had a chronic catarrhal condition of the nasal passages. Odor began four months ago. There is a greenish muco-purulent discharge from the nose, post-nasal droppings and a slight irritative cough. Treatment: Electric diffusion from copper electrode. As in the first

trial of this method in trachoma, so in this case the negative pole was also used. But experience soon taught me to confine the treatment to electric diffusion from the positive metallic electrode. By December 9, after four treatments the discharge was less, the odor less noticeable and the respiration freer.

January 8, examined by Dr. C. C. Rice who reports deviation of septum toward right; left nostril twice the width of the right; middle turbinated bones covered with dry scaly secretions; pharynx dry with hypertrophied ridges on the sides. Further treatment by diffusion from copper was carried on, 1 milliampere for ten minutes. January 15 and 18, 5 milliamperes each nostril, also same January 20, 22 and 27. Discharge diminished and less greenish. February 1, 3 and 5 same treatment. Patient though not cured is much better; less discharge, odor and headache. Improved.

With the present improvement in methods and electrodes I should expect to cure this patient should the opportunity present itself.

*Case 2.*—August 8, 1893, D. L. G., age 41, ozena; post-nasal catarrh, atrophic. Has always "taken cold" easily. Had catarrh at 13 years of age; at 18 it had increased a great deal and he began to use salt water and a great many other nasal douches and "went to a great many doctors." His sense of smell became much impaired nine years ago and has been growing worse ever since, until at present he cannot detect odors. The patient states, though I have had no opportunity of verifying his statement, that one year ago he had the antrum opened by Dr. Toeplitz, assistant to Dr. Knapp, and pus evacuated. This opening is still patent and must be plugged twice daily. Symptoms: Copious and most offensive anterior and post-nasal discharge; a great many crusts form; the nose bleeds easily; odor from patient's nose and mouth most offensive. Treatment: Electric diffusion from copper bulbs, Nos. 27 and 29 (Fig. 3) to naso-pharynx, 15 to 25 milliamperes, occupying about five minutes. August 11, same treatment. Pharynx very much less congested; more discharge; patient says he feels very much better. August 15 and 23, crusts free themselves more easily; increased discharge from nose and slight bleeding after douching; treatment same. August 30, patient reports that his condition is very greatly improved; the incrustations remarkably diminished; very much less discharge, and that morning for the first time in eight years the sense of smell had returned to him and he had smelled paint and once more enjoyed eating; there was no offensive odor. The patient expressed himself as "50 per cent. better," and stated that no other treatment had ever accomplished as much for him.

*Case 3.*—Oct. 21, 1892, A. R., age 9, profuse muco-purulent discharge from the nose; nasal and pharyngeal obstruction of one year's duration. Treatment: Electric diffusion from copper electrode, about five minutes in duration and with a current strength varying from 5 to 10 milliamperes. Symptoms began to improve at once and after fourteen treatments, each several days apart, the patient was cured.

*Case 4.*—April 5, 1893, F. A., age 20; hypertrophic rhinitis. Had diphtheria in November, 1891. Ever since has had severe catarrhal trouble in frontal sinuses and nasal passages, anterior and posterior. Profuse, thick, yellowish discharge and much dropping of the discharge posteriorly. Feeling of intense fullness across forehead; upper lip and anterior portions of nose reddened and excoriated. Treatment: Electric diffusion from copper electrodes in anterior and posterior nasal passages on the left side. April 12, discharge not nearly so profuse nor as yellow on the side treated; less redness about the nose and lip. Right side treated in same manner as left; 10 milliamperes for five minutes. Like many patients of this class he did not return and the case merely suffices to point out the immediately favorable effect of the first treatment.

*Case 5.*—Mrs. G. W. E., age 34, nasal catarrh, hypertrophic. Has had catarrh for three years with constant "dropping in back of throat," heaviness and dullness in head around eyes; used handkerchief constantly; good deal of nausea.

April 28. Electrolytic diffusion to left nostril. Positive pole, 3 milliamperes for fifteen minutes.

May 3. Feeling of heaviness in head in morning gone; no nausea; application made to left nostril 5 milliamperes, ten minutes; nose feels very much clearer; discomfort from application gone in half an hour.

May 5. Same treatment to both nostrils; is feeling a

NOTE.—Unfortunately, owing to unavoidable circumstances, this patient ceased treatment and has not since been heard from. It is to be regretted that the same treatment, as might easily be done, should not have been tried for the antrum.



good deal better; dropping in back of throat gone; scabbing in interior nostril does not occur, also diminution in amount of discharge.

May 9. Until yesterday felt well; has taken cold and amount of discharge has greatly increased; large scab in left nostril; this was treated locally.

May 15. Very much less discharge; 6 milliampères to each nostril.

June 24. About twelve treatments more of same strength; application also made to pharynx and naso-pharynx, about 10 milliampères. Is very much better and is troubled but little. Went away on vacation at this time and the last of September returned feeling well and nasal symptoms entirely relieved. Cured.

*Case 6.*—Miss H. J., age 48; post-nasal catarrh. About fifteen years ago affection began in left side; had ringing in ears and heavy cold; since has had constant buzzing on that side; ticking of watch not heard; right ear normal. Is not particularly susceptible to colds; hearing is worse with a "cold;" no pain; has dropping of secretions into throat. Appearances, left side, pharynx atrophic; right side, pharynx hypertrophic; soft palate and entire isthmus dusky red. Treatment: Electrolytic diffusion 10 milliampères, applied positive pole about six minutes all over pharynx, also through left nares 10 milliampères five minutes. For a few minutes the amount used was 20 milliampères. Cured.

#### FOLLICULAR TONSILLITIS.

*Case 1.*—Oct. 18, 1893, B. G. A., age 15, throat began to be sore two days previously; painful and swollen; sense of malaise and nausea; tonsils enlarged and grayish-white spots on both. Treatment: Electric diffusion from copper electrode to every spot.

October 20. No more trouble with throat. Tonsils normal in appearance except for slight increase in their normal redness.

*Case 2.*—Jan. 18, 1894, F. D., aged 18; shivering and hot flushes, malaise; temperature 100; grayish-white spots on tonsil. Treatment: Electric diffusion from copper, 10 milliampères to every follicle as well as over entire tonsil. January 17. Patient reports that the throat was entirely relieved the next morning and to-day feels entirely well. Tonsils about normal in appearance.

#### URETHRITIS.

*Case 1.*—May 4, 1892, A. M., age 30; contracted disease in December, 1891. For ten months thought himself well. Discharge recommenced May 1, 1892; slight, free and painless; no treatment.

May 1. Treatment: Intra-urethral (from neck of bladder to entire mucous surface), 2 to 3 milliampères electric.

May 11. Electric diffusion from copper electrode, 2 to 3 milliampères. A brass bulb of proper size and connected to an insulated stem was passed as far as the neck of the bladder, the current turned on and the electrode then slowly withdrawn, thus bringing under the influence of the cupric and zinc diffusion the entire urethral surface. The dispersing electrode was placed upon the abdomen.

May 13. Patient reports that the discharge has entirely ceased. Later on he reported that it never returned and he remained cured.

*Case 2.*—A. M., March 19, 1893. One year later the patient referred to in Case 1, exposed himself to a new infection and contracted a severe attack of urethritis. Mindful of his previous cure he returned for the same treatment. The discharge was profuse, whitish and of the usual consistency; there was pain upon micturition. Treatment: Electric diffusion from copper, 4 milliampères, the electrode slowly withdrawn. At one moment when the electrode temporarily adhered or "stuck," the current was reversed to negative to loosen it.

March 27. Reports that he is much better.

March 29. Reports to-day complete cessation of the discharge after the treatment of the 19th, but that he has now a slight relapse from "drinking too much." Treatment renewed.

March 31. Reports that he is cured.

It may be noted here that extreme care to prevent adhesion of the electrode to the mucous membrane must be exercised in these cases. A delicate milliampèremeter is imperatively necessary, as well as a good rheostat. From 2 to 3 milliampères of current is sufficient and the electrode must be kept in motion. At least this is the method of treating the urethra which has forced itself on my atten-

tion as essential. It is beyond question the great feature of this method, in contra-distinction to that by injections, that the mucous membrane is electrically permeated with any given metallic salt, say the chlorid of zinc or copper, rather than simply superficially washed by a solution of the same salt. There is an actual chemic union of the metallic salt and the deeper albuminous constituents of the tissue.

#### TUMORS, ETC.

*Case 1.*—May 18, 1892, L. S., age 60; vascular tumor on upper lip, nine years' standing, increasing in size. Three-fourths of an inch in diameter, bluish cast of color and can be partially emptied by pressure. Treatment: Electro-cocain, local anesthesia; first punctured by a platinum needle, positive pole, 15 milliampères for ten minutes. Upon withdrawing the needle, considerable hemorrhage ensued. It therefore occurred to me to insert an iron needle, positive pole, and secure the electric diffusion of the oxychlorid of iron—a styptic salt. This was done with 15 milliampères for five minutes. There was no hemorrhage upon the withdrawal of the needle and the tumor shrunk visibly in size.

May 20. Tumor more compact; electric diffusion from an electrode 25 milliampères, twenty minutes. To withdraw the electrode without tearing tissue, the current was reversed at 15 milliampères for five minutes; no hemorrhage; needle almost destroyed by the action of the current. Tumor contracted.

May 23. Tumor reduced one-third in size. This patient did not return.

*Case 2.*—Feb. 13, 1894, Mrs. R., age 30; lipoma, one and one-half inches long by one inch wide at base of neck. Patient was unwilling to take ether to have the growth removed and did not want to have a scar. Experimentally, since I knew of no previous fatty tumor removed by electricity, I consented to try and extirpate it. Operation: Electro-cocain, local anesthesia, 7 milliampères, 10 per cent. solution cocain for ten minutes. A puncture was made with a microscopic trocar and the small piece of tissue sent to Dr. H. T. Brooke of the Post-Graduate School, Pathologic Laboratory, for examination. He subsequently pronounced it to be a lipoma. A copper electrode, three-quarters of an inch in length and one-sixteenth in diameter was inserted into the puncture made by the trocar, the skin being protected by the insulation of the stem of the electrode. The electrode thus sunk into the center of the mass of the tumor was allowed to remain for twenty-three minutes, with a current strength ranging from 10 to 25 milliampères. The resistance to the current flow was great, owing to the fatty nature of the growth. At 25 milliampères the patient had violent palpitation of the heart and was upon the verge of syncope, owing to the presence of the electrode near the great nerve trunks. The wound being antiseptic no special dressing was applied.

February 28. Patient reports that the tumor has entirely disappeared.

May 12. Patient returned to New York from Chicago and presents herself for examination. No trace of the growth remains; a slight red spot rapidly disappearing marks the site of the puncture. Cured.

*Case 3.*—May 16, 1893. M. H. H., age 25; wen or dermoid cyst. Tumor began six years ago, about the size of a pea on the neck below and behind the ear. Two years ago it began to increase in size and to-day is about one inch and one-quarter in diameter. The patient decisively refuses to take an anesthesia, wishes to avoid the scar from an incision and asks to have the tumor removed by the aid of electricity. Tumor hard and movable. Treatment: Electro-cocain, local anesthesia to skin over tumor; puncture made, contents of sac mostly expressed and cavity injected with a saturated solution of iodid of potash—a non-soluble metallic electrode remaining within the sac with the solution; a current of 15 milliampères was allowed to flow for ten minutes, with the purpose of setting free the iodine and obtaining its effect in a nascent state upon the lining of the sac.

May 19. No soreness. Tumor soft and pliable but hardening.

May 22. Tumor about two-thirds of its former size.

May 23. Tumor again filled and the operation was a most obvious failure. I resolved to try another method, viz., electric diffusion from a soluble metal. This was done with 20 to 30 milliampères of current for about ten minutes.

May 31. Slight serous discharge of an orange yellow color. July 1. Patient not seen again until this date, when he returned to state that the discharge had quickly ceased and that the tumor had entirely disappeared, leaving no evidence of the operation. Seen May 1, nearly one year later, there has been no recurrence. Cured.

## SYCOSIS PARASITICA.

E. H., age 50. Disease began seven years ago. Patient stated that he had tried to pull out an ingrowing hair and it broke off. A papule formed here, and following this a diffuse redness began to spread itself in all directions from the site (the left side of the face just in front of the ear); at the same time papules formed, coalesced and spread outward. No pus was formed at first but after a short time the tips of pimples became white and pus was discharged. This was followed by an exudation of serum from the excoriated surface and shortly before it was operated upon discharged in twenty-four hours one ounce of serum. He has been everywhere and tried every treatment to no advantage until last October, the 21st, when he was operated upon at the New York Post-Graduate Hospital by Dr. R. Y. Morris who removed the skin and subjacent tissue over an area in front of the ear about five and one-half inches long and two inches wide. Skin grafts were then applied which did well till one day about a week later he was out in the cold and a portion of the ears froze and had to be removed, which left when healed a scar two inches long and one inch wide in the center of the wound. All went well and the part looked healthy till February last, when signs of the old trouble began to show themselves in the skin just outside of line of incision, and when he presented himself to me the characteristic papules had spread themselves over a surface of about three inches long by two wide; in places the tissue was covered with small blebs and had a boggy appearance, into which a needle could be thrust for a distance of one-quarter of an inch without producing pain or discomfort.

April 20, he began treatment, which consisted of electric diffusion from copper electrodes  $1\frac{1}{2}$  to 2 milliampères ten to twenty applications, lasting in all ten to fifteen minutes, until the green oxychlorid of copper gave a distinct coloration to skin and tissue, using the positive pole, with the negative in back of neck. This was repeated eight times, the last one about May 10. The aluminium needle was used twice and the negative pole with equally successful results.

May 14. He came with the skin over lesion showing a normal and healthy condition. Treatment ceased with the injunction to return if there is the slightest evidence of recurrence.

NOTE—The alternatives in this case were, I am informed by Dr. Morris, further incision or curetting, both of which were objectionable, because the cicatrix was already extremely tense and no further tissue could well be sacrificed. The effect of the electric diffusion method was remarkable. It left behind it almost no observable cicatricial tension, in this respect much unlike ordinary electrolysis, and unlike the effects from the knife or the curette.

I have employed electric diffusion from metals in a variety of cases not here enumerated. Its action upon hemorrhoids has been to cure them in the few cases in which I have tried it. I have used it in endometritis, cystic degeneration of the cervix uteri, in ulcerations of the rectum, in keloid growths, etc. I am at present treating lupus and epithelioma with thus far favorable results, and have even begun upon a case of sarcoma, but it is too early to make any report upon this later set of cases. Dr. Gautier has reported excellent results in a great variety of gynecologic procedures and conditions.

## CONCLUSIONS.

1. The salts of many metals may be electrically dissolved from metallic electrodes, and at the same time be caused to permeate human tissue to a considerable depth. In the case of copper, upon dead tissue, with a current strength equal to that employed in living tissue, this depth is visible as an apple green color, in a radius about the electrode of from one-fourth to one-half of an inch; it probably extends invisibly much further, shading off to a minimum.

2. The electrically formed and electrically diffused metallic salts are not destructive to tissue in the sense that ordinary electrolysis is; the effect is rather by the presence of a partially insoluble salt and by the effect of a newly formed organo-metallic salt, de-nutritive or absorbing upon diseased tissues.

3. It would seem to the writer that these electrically formed salts, in forming new albumin composed of the metal used as an electrode possess a selective affinity for diseased in preference to healthy tissue, or at least produce a more profound reaction upon the morbid tissue, causing a favorable alteration in the nutrition of the part.

4. Electric diffusion is greatly superior to topical applications, for the reason that the medicament is caused to penetrate the tissue acted upon.

5. This method opens up a new and interesting branch of electro-therapy.

(To be continued.)

## SELECTIONS.

**Antispasmin, a New Remedy for Pertussis.**—Frühwald, in the *Archiv für Kinderheilkunde*, describes antispasmin (Merck) as a substance in which a molecule of narcein with sodium is united with three of sodium salicylate. It is freely soluble in water. Air and light decompose it, hence it must be kept in blue glass, well stoppered. It is expensive. The following dosage is recommended in whooping cough:

Children under 6 months 3-5 gtt. of a 5 per cent. solution three or four times a day; children of six months 5-8 gtt. of a 5 per cent. solution three or four times a day; children of 1 year 8-10 gtt. of a 5 per cent. solution three or four times a day; children of 2 years 10-12 gtt. of a 5 per cent. solution three or four times a day; children of 3 years 15-20 gtt. of a 5 per cent. solution three or four times a day; children over 3 years 10-15 gtt. of a 10 per cent. solution three or four times a day.—*Centralblatt für innere Medicin*.

**The Fate of Micro-organisms in Various Articles of Clothing.**—

(A. D. Nikolski, *Wojennomedizinsky Journal*, September, 1894.) The writer tries to ascertain to what extent the physical properties of materials can be regarded as favorable to the extension of the life of micro-organisms. Experiments show that in coarse, rough and porous stuffs, micro-organisms retain their vitality longer than in more compact and smoother. The explanation is that the thick and porous stuffs can absorb more moisture and retain moisture longer than thin, smooth and compact textures. Further, materials which, after infection, are exposed to light, furnish a smaller number of colonies than those which are secluded from light, and vitality ceases more quickly. These experiments were made with staphylococcus aureus, the bacterium of typhus abdominalis and the cholera bacillus.—*Centralblatt für Chirurgie*.

**Review of Twenty Cholecystotomies.**—C. Erasmus classified

twenty cholecystotomies performed by him, as: 1, cases in which gall stones were found; 2, in which a stone was found in the ductus choledochus; 3, in which no gall stones were found. In seventeen cases the patient had suffered with a typical colic, in the others there existed a tumor, evidently of the gall bladder. A tumor was present in eleven cases in all. In one case a movable kidney caused doubt in connection with an enlarged gall bladder, but it was shown that the symptoms for which the operation was performed were produced by a stone in the ductus choledochus. In eleven cases, icterus preceded. In eight cases, enlargement of the liver was observed. In performing the operation an incision along the outer margin of the rectus abdominalis is preferred to the cross-incision along the edge of the ribs (on the right), because with the former the gall bladder can be more easily sewed to the peritoneum. He then dissects up part of the peritoneum, and draws it, funnel shaped, down to the gall bladder. Once the incision was made in the median line because complicating conditions seemed to exist. This was in the case of the movable kidney already mentioned. The operation was performed as often at one sitting as at two; the contents of the gall bladder, whether purulent or serous, seem to have caused the decision. In one case an ideal cholecystotomy was performed, yet two months later the gall bladder had to be opened again and drainage made, on account of unendurable pain. In all other cases, drainage was carried out from the outset. The secretion of gall, omitting one case where it persisted several months, continued ten days to nine weeks. In one case it was necessary to use a suture for fistula; this was successful. One patient left the hospital before the closure of the fistula and was not seen again. All the patients were again seen shortly before the publication of the work, and could bear witness to their complete recovery. In no case had a hernia resulted, and in none did death occur from the operation.

The earliest case occurred May 20, 1890, and one more operation the same year; the rest in 1891, 1892 and 1893.—*Centralblatt für Chirurgie*.

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00

SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,

NO. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.

W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, MAY 4, 1895.

THE OFFICIAL PROGRAM.

The program of the forty-sixth annual meeting is now completed and was issued May 2 to the Committee of Arrangements, by whom most of the copy was furnished.

The prospect for excellent Section work was never better, and the Association has never had a meeting which gave plainer evidences of the high scientific standard it has lately attained.

Socially the attractions are many, and the hard work done by the Committee of Arrangements shows for itself in the excellence of the arrangements for the meeting. We naturally would expect that a committee officered by CHISOLM, OSLER and ROHÉ would do credit to the Monumental City and the ASSOCIATION, and a glance at the program shows that expectation to have been well founded. Gastronomically, those inclined to the pleasures of the table will reflect that the "canvas back" has its nest very near, if it is out of season; that the succulent Chesapeake oyster has never yet been accused of conveying germs of typhoid, while the terrapin, that treasure of the gourmet, may always be found at its best.

Baltimore itself, with its historic associations; the chivalry of its men; the beauty of its women; the great extent and variety of its educational institutions, and its art gallery, make it a city to which the annual pilgrimage will be made with much pleasure and profit.

The program is this year printed on the ASSOCIATION presses and the work was done by ASSOCIATION employes. As a specimen of the typographical art it is very handsome, and in every detail creditable to the JOURNAL office. Justice to the employes requires mention of the fact that the copy was not received until the 24th. The printing was finished May 1.

THE RUSH MONUMENT.

At the head of our columns this week appears the portrait of the foremost American physician, DOCTOR BENJAMIN RUSH. We can do little more than reiterate the sentiments of the powerful appeal made by the Committee on the Rush Monument, to the profession; to honor the memory of an American physician, at once a scholar, a patriot, a physician and a philanthropist. It needs no eulogy to set forth his virtues or the splendor of his magnificent deeds.



DR. BENJAMIN RUSH.

From a phototype from a painting by SULLY, in possession of the Pennsylvania Hospital at Philadelphia. Painted for the hospital shortly after his death in 1813.

The history of American medicine has done that. Let those now living put their hands in their pockets in the liberal spirit that should always actuate a member of this great ASSOCIATION, and end this talk at *this* meeting, by subscribing enough money to complete a monument that should have been completed long before the ASSOCIATION was founded.

Blank Applications for membership in the ASSOCIATION at the JOURNAL office.

# THE CONVULSIVE AND APOPLECTIFORM ATTACKS OF PARESIS.

The causes of the epileptiform and apoplectiform attacks of general paralysis or paretic dementia have not been adequately explained, and very few of the text-books enter into this phase of the pathology of the disease to any extent. The theory of SPITZKA that we have in the apoplectiform attacks an intense local congestion, amounting practically to a capillary hemorrhage, is a plausible one, but it only explains the mechanism, not the exciting cause. It is easy also to assume that in the more advanced cases the general inflammatory condition of the cortex of the convexity produces a state of irritability that can readily account for convulsive discharging lesions, but this, for its part, does not make clear the absolute though temporary local or general paralysis so often observed in this disease. Moreover these attacks, either convulsive or paralytic, are not so infrequently the very first manifestations of the disorder, which from the time of their appearance is plainly manifest, so that it would seem in some of these cases to have actually dated from the attack. Any prior symptoms, if they existed, were too insignificant to attract attention, and cases have occurred where friends or the patient could not recall any pre-existing aberrations from the normal condition, that could rationally be connected with the seizures or the succeeding paresis.

In a recent communication a prominent French alienist, M. LEGRAIN, endeavors to supply a probable hypothesis to account for the phenomena in question, by assuming a uro-toxemia of the blood, and claims that those paretics who are free from these attacks are those only who retain to the last the full functional activity of the kidneys. On these grounds he maintains that paretic dementia is not exclusively a disease of the brain and nervous system, but that its lesions are also to be sought in the viscera, and in the arterio-sclerosis which forms their common bond. He draws, moreover, a practical conclusion from these views, that free abstraction of blood by leeching is a useful therapeutic measure, relieving the system of the toxic products that are overwhelming the brain; and claims to have had practical demonstration of this fact.

While there is a certain degree of probability in M. LEGRAIN'S views, it can not be said that they are proved to be applicable in all cases of the convulsive or paralytic attacks of paretic dementia. There is, with the increasingly favored view of the syphilitic or at least the parasymphilitic nature of paresis, a strong suggestion of a specific toxin acting in these cases. When the attacks occur, as they do in some instances, after comparatively recent syphilis and the disorder falls under the head of what has been called syphilitic pseudo-paresis, there is no difficulty in the assumption of the action of such a toxin.

Syphilographers have long since recognized the possibility of the sudden overwhelming, in some cases, of the nervous system by the specific poison, and this is one of the ways it might very naturally demonstrate its presence. When, however, as in most cases of paretic dementia, the specific infection dates back some years and has since been quiescent, to say the least, with our present knowledge, the probability of a specific toxin may seem more remote, but the idea can not be absolutely discarded, until we know more positively the actual relations between syphilis and paresis. The directly acting cause of the attacks may easily be a vasomotor disturbance, but the origin of this is the question, and the action of some poison on the governing centers seems as probable a theory as any other,

The toxin theory, whether as proposed by M. LEGRAIN, or in other forms, has the advantage of being in accord with one of the leading lines of thought in pathology at the present time and seems, on the whole, to be as well supported by facts as any other. It has moreover, so far, the field to itself, as no other adequate one has been seriously advanced and supported.

## VARIOLA AND VACCINIA.

At the close of the Jennerian century the question of the relation between variola and vaccinia is still unsettled, and DR. AUSSET and M. BARRET have just furnished another interesting chapter to the controversy. In view of PASTEUR'S discoveries the majority of savants believe that immunity against variola, as it is against anthrax, is obtained by the modification of the virulent elements attenuated by cultures or by their passage through animal organisms. But since the development of the anthrax bacillus may be stopped by the presence of another microbe—the bacillus pyocyaneus—is there not some analogous action in vaccination against variola?

The experiments of the authors have been guided by these ideas. As far back as 1839, REITER had inoculated more than seventy cows with variola unsuccessfully; on the other hand, vaccinia thrived on these animals. In 1865 PROFESSOR CHAUVÉAU reported some very interesting facts to the Academy of Medicine which are known to all. CHAUVÉAU concluded that the two viruses are absolutely independent. In 1883 BERTHEL, of Lyons, repeated CHAUVÉAU'S experiments by the intra-venous method. At the same time WARLOMONT, of Brussels, made similar experiments and reached the same conclusions as BERTHEL. Neither by intra-venous nor by intra-cellular injections were they able to produce an eruption having the character of the variolic pustule or the vaccinic pustule. The works of ETERNOD, HACCUS and BOLLINGER have not modified CHAUVÉAU'S conclusions. Others, however, have reserved



their judgment on this question—among them NIE-MEYER, KUSSMAUL and STRUMPELL, DUPUY and JUHEL-RENOY. In their second chapter, MM. AUSSET and BARRET cite experiments tending to show the identity of vaccinia and of variola. In 1830 CEELEY and afterward THIELE obtained the transformation of variola into vaccinia. In 1882 VOIGT obtained in three cases the same results as the Lyonesse Commission, but he interpreted them differently and saw in the experimental eruption an abortive form of variola-vaccinia. VISCHER in 1886 argued that vaccinia is nothing but a modification of the variola virus. HIME, of Bradford, also believed this to be the case.

The experiments of the authors consisted of four series: 1, variolation and vaccination on separate heifers; 2, variolation and vaccination simultaneously on the same animals; 3, vaccination of the animals inoculated with variola and inoculation of the vaccinated animals with variola; 4, M. AUSSET, successfully vaccinated in 1890, was inoculated on both arms with lymph from variola—no result; and again, eighteen days after vaccination, with lymph from a heifer—no result. The experiments confirmed CHAUVEAU's ideas; one alone seems discordant: A woman of 33, in the hospital at Limoges for cardiac disease, was vaccinated with the other patients in April. A week after, she presented six characteristic swellings with the usual phenomena of vaccinia. On April 16 she felt a chill, followed on the second day after by vomiting, headache and fever. Finally, on the 21st, an eruption of variola appeared which ran its usual course. This was not general vaccinia—error, it was claimed, was not possible.

#### DEFENSE OF OPIUM EATING.

Having regard to the attitude of Great Britain in other matters affecting her commercial interests—quarantine, for example—the medical world, outside of the "right little, tight little island," will be inclined to look askance upon the conclusions of the Royal Commission, on the use of opium, just made public. We are told that the inquiry of the Commission was conducted on a wide scale and the decision was practically unanimous; that more than 720 witnesses were examined, including 152 called at the desire of the Anti-Opium Society; that every care was taken to obtain representative testimony, and that the Commission record their conviction that the evidence forms trustworthy ground for the conclusions reached.

And these conclusions are: "That the temperate use of opium in India should be viewed in the same light as the temperate use of alcohol in England. Opium is harmful, harmless, or even beneficial, according to the measure and discretion with which it is used."

Taken by itself, and with its qualifying phrases

"temperate use," "measure and discretion," this declaration might be regarded as harmless; it would mean much or little, more or less, to different individual judgments. Unfortunately, it does not stand alone; the drift of all the extracts of evidence published is in favor of the use of opium as a stimulant. "In the opinion of the great majority of native medical practitioners and representatives of large influential classes, this employment of the drug is attended by beneficial results. Opium eaters of fifteen to twenty years' standing appeared before the Commission. They believed the habit had done them good. Their appearance and vigor satisfied the Commissioners, at all events, that it had done them no perceptible harm. . . . The opium habit prevails among some of the most manly, hardworking, thrifty races of India. . . . Opium is consumed in the native army, and, the witnesses say, does no perceptible harm, and is often beneficial. . . . Opium does not appear to beget any specific disease. Opium eaters bear surgical operations as well as non-consumers, and the manager of a large insurance company said that after twenty years' experience, his company charged no extra premium on the lives of moderate opium eaters."

Exact figures as to the present value of the opium export from Bombay are not at hand; but it formerly amounted to some \$60,000,000 annually, of which about \$37,500,000 represented net profit to the government. Of late years there has been a relative if not absolute decline in the amount exported. But this of course has had nothing to do with this defense of opium for "moderate habitual use," by a Royal Commission.

#### "A STANDARD POPULATION."

The Registrar-General of England, according to *Public Health* for March, has recently emphasized the necessity, or desirability rather, of a standardizing of the population of the several European countries. By this is meant that, for international uses, there shall be population with fixed age and sex distribution so that the birth rates and those of deaths and marriages may be calculated by such a standard or "norm." It is pointed out by him that as the sex and age distribution of the population varies markedly in different nations, and as the rates largely depend upon such distributions, the rates in one country can not safely be compared with the rates in another, without correction for these differences in the constitution of the several compared populations.

A high birth rate, for a time at least, increases the death rate, but in ten or fifteen years, if there is no considerable emigration of young persons, the death rate will diminish, inasmuch as there will then be a large proportion of persons between the ages of 5 and 25 years during which age periods the incidence of mortality is at its lowest. Again, a population that has

a large proportion of elderly persons will, other conditions being equal, have a higher death rate than a population having fewer aged people.

"PRIVATE COLLEGES."—The dislike to give credit to a rival publication, which is an idiosyncrasy of some editors, occasionally causes a comical evasion. Thus, an English contemporary, using the JOURNAL's elaborate statistics of Medical Colleges and Medical College Attendance in the United States<sup>1</sup>, has the following item: "In 1892 there were 15,339 medical students in 98 public colleges in the United States, and nearly 18,000 in the 117 public and private colleges. In 1894 the number had risen to 17,701 in the public colleges and 21,186 in the public and private." The JOURNAL does not understand the distinction here made between "public" and "private" colleges. What the JOURNAL said—page 992, Dec. 29, 1894, was that, "Through the courtesy of the Deans and Registrars of 98 out of the 117 existing regular medical colleges in the United States and Canada," etc. The classification of these schools into "98 public colleges" and "19 private colleges" gives an air of originality to the item, to which the editor is entirely welcome.

## CORRESPONDENCE.

### Handwriting of the Insane.

PHILADELPHIA, Pa., April 18, 1895.

*To the Medical Profession:*—With a view to especially important scientific results, I am studying the handwriting of the insane; and request your aid by way of the loan of documents, letters or written memoranda, or information having bearing upon the subject.

My especial desire is to obtain a given form of letter from ten persons, suffering from different degrees of insanity, such as melancholia, hallucination, paresis, etc., any and all writing that will be of interest in the investigation.

In return for your kindness and help, I will forward to you, free of charge, a full and complete report, together with drawings, diagrams, etc., embracing a full description of my work, which will be of use, help and value to not only the medical fraternity, but to humanity in general.

Please note on each specimen of writing, the duration of the malady or disorder, together with any miscellaneous information which you feel will be of aid to the purpose in view.

All information sent will be held sacredly confidential.

Very respectfully yours,

RUFUS C. HARTRANFT.

### Fifty Years in one Place.

CLYDE, N. Y., April 30, 1895.

*To the Editor:*—As you seem to desire, for some purpose, the photographs of the members of the ASSOCIATION I send mine with the announcement that the past winter completes my fifty-first year in practice—fifty years of married life, and fifty years residence in the same house.

If any member of the ASSOCIATION can boast of as many semi-centennial anniversaries of a like character, I would like to see his name in print.

I also became a member of the ASSOCIATION at its meeting in New York City in 1864, the year of the election of its veteran founder, Dr. Davis, as President.

Yours truly,

D. COLVIN, M.D.

## SOCIETY NEWS.

**Ophthalmic Instruments.**—A table will be provided in the meeting room of the Section on Ophthalmology, for the purpose of exhibiting new instruments or preparations that have been invented or brought forward by members of the Section.  
H. V. WURDEMANN, Secretary.

**License to Practice in Pennsylvania.**—The State Board of Medical Examiners, representing the Medical Society of the State of Pennsylvania, will meet in Philadelphia, corner of Broad and Pine Streets, and in Pittsburg, Council Chambers, on Tuesday, June 18, 1895, at 2 P.M., to examine applicants for license to practice medicine in Pennsylvania. Blank applications and all necessary information can be obtained from the Secretary of Internal Affairs, Harrisburg, Pa.

H. G. McCORMICK, M.D., President of Board.

**Windham County (Conn.) Medical Society.**—Sixteen towns, representing the leading practitioners in each township, met in Windham, Tuesday, April 23, for the one hundred and second annual meeting of the Windham County Medical Society. The following officers were elected: President, F. A. Morrill, Putnam; Vice-President, F. E. Guild, Windham; Secretary, W. H. Judson, Wauregan; County Reporter, N. Hibbard, Danielsonville; Censors, Lowell Holbrook, Thompson, T. M. Hills, Willimantic; E. H. Davis, Plainfield, Fellows to Connecticut Medical Society meeting at Hartford, May 25: Chairman, C. J. Fox, Willimantic; J. Kent Putnam; S. B. Overlock, Pomfret; C. E. Hill, Killingly; L. Holbrook, Thompson; alternates, T. R. Parker, Willimantic; Omer LaRue, Putnam; J. H. Tanner, Brooklyn; W. A. Darling, Killingly; W. H. McIntosh, Thompson. Delegates to AMERICAN MEDICAL ASSOCIATION in 1896: T. M. Hills, Willimantic; E. A. Hill, Killingly; essayist, A. D. David, Willimantic; alternate, R. C. White, Willimantic. Delegates to various county medical associations in 1896: C. J. Fox, Hartford; J. B. Kent, New Haven; F. A. Morrill, New London; F. E. Guild, Litchfield; E. H. Davis, Tolland; W. H. Judson, Middlesex; T. R. Parker, Fairfield. The annual essay was read by Dr. W. H. Judson, on "Dosimetric Medication." It was a very interesting paper and called out general discussion. An obituary on the death of the late Dr. W. J. Lewis, of Moosup, was read by Dr. Davis, of Plainfield, and appropriate resolutions were passed. The following new members were elected: Dr. G. A. LeClarr, Danielsonville; Dr. W. J. McIntosh, Thompson; Dr. S. B. Oldershaw, Pomfret. Dr. J. A. Coogan, of Hartford, was present as delegate of the Hartford County Medical Society. It was voted to hold special meetings at Pomfret in June and at Danielsonville in September, and the next annual meeting at Putnam. The annual dinner, at the Hooker House, was an interesting feature of the meeting.

**An Appeal to the Medical Men of Illinois.**—The Executive Committee at a recent meeting decided to issue an appeal to the physicians of the State of Illinois, through their different medical societies and through individual members of the profession, urging upon them the necessity for prompt organization of the profession in the State. It is a fact that the State Medical Society of Illinois has fewer members than the State societies in other States, with perhaps two or three exceptions. This is due, no doubt, to the apathy of the profession in the matter of organization. The medical profession of this State can advance their interests in no surer way than by speedily forming themselves into compact societies, county, State and National, under the authority of the organizations already established; and the committee respectfully urge that every member of the regular profession in this State see to it that he is speedily enrolled as a member of the State Society. There are over seven thousand physicians in the State, and less than seven hundred members of our society. What wonder is it that a request of the

<sup>1</sup> JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Dec. 29, 1894; Jan. 12, 1895.

profession, as voiced through the State Society, receives so little attention at the hands of our Legislature? But let the Legislature once be apprised that the profession of our State are united, and that they request the passage of a certain measure in the interests of public health, of humanity, or of the profession, and it will be very speedily responsive to such request. Not only are these material interests best subserved by organization, but as well the science in which we are all working, which requires that those engaged in the same department of science shall frequently compare notes and transmit the result of their observations to their fellows through the regular channels of communication. Will you not, dear Doctor, aid in this great work of organization and become one in the active ranks of those who are enlisted in the cause of scientific advancement? The cost is but a trifle—the reward is great. *Send your name and formal application for membership to the Secretary of this Society, or to the Treasurer, as soon as possible.* It is not absolutely necessary that you shall attend the meeting. Your name, your influence, and your support, and such contributions as you may from time to time choose to publish in the Society Transactions, are necessary in order to give the medical profession of Illinois the same prominence, character and respect as is accorded to our profession in most of the other States in the Union. State pride as citizens, no less than professional pride as physicians, should induce all members of the regular profession to at once enroll themselves as members of the organized State Medical Society, and if need be to make some sacrifices to that end.

JOHN B. HAMILTON, Permanent Secretary.

**Association of Military Surgeons.**—The fifth annual meeting of this body will be held at Buffalo, N.Y., May 21 to 23, 1895. The general headquarters will be at the Iroquois Hotel, where provision will be made for registration. The Committee of Arrangements has provided for the entertainment of the members and their friends. On the evening of Tuesday, May 21st there will be a conversazione at headquarters; on Wednesday a reception; on Thursday a carriage drive to various points of interest in the city, a promenade concert and a review of the 65th Regiment N. G. N. Y. On Friday, leaving Buffalo at 9:30 A.M., there will be an excursion to Niagara Falls and probably on to Fort Niagara, to afford the members an opportunity of seeing the various points of interest at the great cataract, including the electric power plant, the battle grounds of Lundy's Lane, Queenstown Heights and other interesting places. Members are expected to be in undress uniform during the day and in fall dress, including side arms at evening entertainments. In connection with the meeting there will be an attractive exhibition of surgical instruments, dressings and appliances in which most of the leading houses of the United States will be represented. Addresses of welcome will be made by Hon. Edgar B. Jewett, Mayor of the city, Hon. Levi P. Morton, Governor and Commander-in-Chief of the National Guard of the State of New York, and by Dr. Roswell Park, President of the State Medical Society. Major Albert H. Briggs, N.Y. N.G., is Chairman of the Committee of Arrangements. The following papers have been promised for the meeting: The President's address, by George M. Sternberg, Surgeon-General, U. S. Army. Report on the Status of the National Guard, by Colonel Nelson H. Henry, Assistant Surgeon-General, N. Y. N.G. Experiments illustrating the degree of powder burn, as modified by the distance of the object, size and conformation of the bore, amount and standard of the powder and other practicable demonstrable causes, by Louis A. La Garde, Captain and Assistant Surgeon, U. S. Army. The location and removal of missiles from the cranial cavity, by George R. Fowler, Major and Surgeon, N. Y. N.G. On litters, by John Van R. Hoff, Major and Surgeon, U. S. Army and E. T. T. Marsh, Major and Surgeon, 71st Regiment, N. Y. N.G. Ambulance construction, by Dallas Bache, Colonel and Assistant Surgeon-General, U. S. Army and C. R. Greenleaf, Lieut.-Colonel and Deputy Surgeon-General, U. S. Army. Conservative surgery on the battle-field, by Colonel Nicholas Senn, Ill. N.G. The relation of concentrated food to active service demands, by Charles Smart, Major and Surgeon, U. S. Army. The location of sites for, and the construction of military posts in relation to proper sanitation, by Dallas Bache, Colonel and Assistant Surgeon-General,

U. S. Army. The relation of naval architecture to proper sanitation, by J. R. Tryon, Surgeon-General U. S. Navy. On the value of bromin in military surgery, by M. O. Terry, Surgeon-General, New York. The handling and care of wounded on shipboard, by A. C. H. Russell, E. R. Stitt and A. M. D. McCormick, Passed Assistant Surgeons, U. S. Navy. The post exchange from a medical standpoint, by Philip F. Harvey, Major and Surgeon, U. S. Army. Infected bullets, by Louis A. La Garde, Captain and Assistant Surgeon, U. S. Army. Fifty-two amputations of the thigh, by John D. McGill, Surgeon-General, New Jersey. Instruction of the Hospital Corps, by H. S. Turrill, Major and Surgeon, U. S. Army. The surgeons-general of the militia, by George Cook, ex-Surgeon-General, New Hampshire. Field hospital service, by Dallas Bache, Colonel and Assistant Surgeon-General, U. S. Army. Some experimental work with the new ball, J. D. Griffith, ex-Surgeon-General, Missouri. Gunshot wounds of the kidneys, by A. L. Wright, Lieut.-Colonel and Surgeon, Iowa N.G. On the travois litter, by Vladimir F. De Niedman, Major and Surgeon, Kan. N.G. Service of the National Guard of the State of New York during the Buffalo strikes of 1893, by Lewis Balch, Major and Surgeon N. Y. N.G. The National Guard of the State of New York during the recent Brooklyn strikes, by William E. Spencer, Major and Surgeon, N. Y. N.G. Service of the Illinois National Guard during the Chicago strike, by Charles Adams, Major and Surgeon, Ill. N.G. Method of caring for wounded on the field and in hospitals of Chinese and Japanese armies, by C. U. Gravatt, Surgeon U. S. Navy. Scorbatic manifestations in young subjects, by John C. Wise, Surgeon, U. S. Navy. Asepsis in military service, by Eduard Boeckmann, Assistant Surgeon-General Minn. N.G. A medical officer in the volunteer army, by F. W. Byers, Surgeon-General, Wisconsin. The Merriam pack, by Lewis Balch, Surgeon, N. Y. N.G. The prevention and suppression of dangerous contagious diseases in garrison and in the field, by H. Lincoln Chase, Assistant Surgeon, Mass. V. M. Heat and sunstroke at camps of instruction, by Orlando J. Brown, Mass. V. M. The mental evolution of the citizen soldier, by Charles W. Galloupe, Assistant Surgeon Battery A, Mass. V. M. A diagnosis tag for field use, by Wm. H. Forwood, Lieut.-Colonel and Deputy Surgeon-General U. S. Army. Some interesting papers also are expected from committees appointed at the meeting in Washington, D. C., last year.

**International Congress of Dermatology.**—The Third International Congress of Dermatology will be held in London, August 4 to 8, inclusive, 1896.

Officers: President, Jonathan Hutchinson. Vice-Presidents, (a) British: the President of the Royal College of Physicians; the President of the Royal College of Surgeons; the President of the Royal College of Physicians of Ireland; the Director-General of the Medical Department of the Navy; the Director-General of the Medical Department of the Army. Sir William H. Broadbent, Bart.; Sir Joseph Lister, Bart.; Sir James Paget, Bart.; Sir Richard Quain, Bart.; Sir Dyce Duckworth; Sir Douglas MacLagan; Sir Edward Sieveking; Mr. Alfred Cooper; Drs. G. F. Duffey, McCall Anderson, Hughlings Jackson, Allan Jamieson, Robert Liveing, Payne, Pye-Smith, Herman Weber, Wilks.

(b) Foreign: France, Dr. Besnier, Professor Fournier, Dr. Hallopeau, of Paris; Professor Leloir, of Lille.

Germany: Professor Köbner and Professor Lassar, of Berlin; Dr. Unna, of Hamburg; Professor Neisser, of Breslau; Dr. Viehl, of Cannstadt.

Austria: Professor Kaposi, Professor Neumann, Professor Lang, Professor Hans von Hebra, of Vienna; Professor Schwimmer, of Buda-Pesth; Professor Pick and Professor Janovsky, of Prague; Professor Jarisch, of Gratz.

Russia: Professor Petersen and Professor Tarnowski, of St. Petersburg; Professor Pospelow, of Moscow.

Italy: Professor de Amicis, of Naples; Professor Pellizari, of Florence; Professor Campana, of Rome.

Norway: Professor Boeck, of Christiania.

Denmark: Professor Haslund, of Copenhagen.

Professor Castello and Professor Olavide, of Madrid.

Balkan States: Professor Kalindero, of Bucharest.

Turkey: Zambaco Pacha.

Greece: Professor Joannu, of Athens.

United States: Dr. L. A. Duhring, of Philadelphia, Pa.; Dr. White, of Boston; Dr. J. Nevins Hyde, of Chicago; Dr. L. D. Bulkley, Dr. E. L. Keyes and Dr. Fox, of New York.

Canada: Dr. F. Shepherd, of Montreal; Dr. Graham, of Toronto.

Treasurer, Mr. Malcolm Morris. Executive Council: Chairman, Mr. Hutchison; Vice-Chairman, Dr. Colcott Fox.

Members: Drs. McCall Anderson, Brooke, Fitzgibbon, A. J. Harrison, Allan Jamieson, Payne, Perry, Sangster, Pye-Smith, Simon, Walter G. Smith, Stowers, Thin. Messrs. William Anderson, Alfred Cooper, Ernest Lane, Sheild, Shillito, Waren Tay. Ex-officio members: chairmen of committees, the Treasurer, the Secretary-General.

Committees: (a) Reception, Chairman, Dr. Radcliffe Crocker. Members, Drs. Brooke, Colcott Fox, Keser, Bowles. Mr. Lane, Mr. Sheild.

(b) Museum and Demonstration, Chairman, Dr. Stephen Mackenzie. Members, Dr. Abraham, Messrs. William Anderson, Hutchinson, Jr.; Drs. Perry, Stowers; Mr. Tay.

(c) Bacteriological, Chairman, Dr. Sims Woodhead. Members, Drs. Delépine, Galloway, Manson, Ruffer, Thin; Mr. Andrew Pringle.

Ex-officio members of all committees: the President, the Treasurer, the Secretary-General.

Secretary to Section for Syphilis, Mr. Ernest Lane.

Foreign Secretaries:

France, Dr. Feulard, of Paris.

Germany, Dr. Rosenthal, of Berlin; Dr. Taenzer, of Bremen.

Austria, Dr. Riehl, of Vienna.

Belgium, Dr. Dubois Havenith, of Brussels.

Denmark, Dr. Nielssen, of Copenhagen.

Hungary, Dr. Török, of Buda-Pesth.

Portugal, Dr. Zeferino, Falcão of Lisbon.

Holland, Dr. Van Haren Nomann, of Amsterdam.

Sweden, Dr. Welandar, of Stockholm.

Switzerland, Dr. Müller, of Zurich.

Italy, Professor Tommasoli, of Modena.

Spain, Dr. Padro, of Madrid.

Roumania, Dr. Petrini de Galatz, of Bucharest.

Argentina, Dr. Baldomero Sommer, of Buenos Ayres.

Australia, Dr. Finch Noyes, of Melbourne.

Egypt, Dr. Sandwich, of Cairo.

United States, Dr. George T. Jackson, of New York.

Brazil, Dr. Silva Araujo, of Rio de Janeiro.

Chili, Dr. Valdés Morel, of Santiago.

China, Dr. Neil Macleod, of Shanghai.

West Indies, —

Secretary-General, Dr. J. J. Pringle, 23 Lower Seymour Street, London, W.

#### REGULATIONS.

1. All duly qualified medical men, British or foreign, or others interested in science, invited by the Council, who shall have paid the fee of £1 sterling,<sup>1</sup> and who shall have enrolled themselves, shall be members of the Congress and entitled to the Volume of Transactions.

2. The official languages of the Congress shall be English, French and German, but with the permission of the President, members may express themselves in the language with which they are most familiar.

3. The proceedings of the Congress shall be embodied in a Volume of Transactions, edited by the Executive Council.

4. Communications relative to membership, papers, or other matters connected with the Congress, should be addressed to the Secretary-General, Dr. J. J. Pringle, 23 Lower Seymour Street, London, W., or to one of the Foreign Secretaries.

5. The fee for membership shall be payable in London, at or before the opening of the Congress.

It will greatly facilitate the work of the Executive if the fee is forwarded as soon as possible after May 1, 1896.

6. Members who are unable to attend the Congress shall receive the Volume of Transactions.

7. The subjects treated shall be of two orders: 1, those selected beforehand by the Executive Council and introduced by gentlemen chosen for that purpose by the Council; 2, those selected by individual members themselves.

8. Subjects selected for debate by the Council shall take precedence over those selected by the members.

9. The sittings of the Congress shall take place from 11 to 1 in the forenoon, and from 3 to 5 in the afternoon, of each day.

10. There shall be clinical demonstrations of patients every morning from 9 to 10:30, and every afternoon from 2 to 3.

11. Members contributing papers must submit an abstract of them to the Secretary-General on or before May 1, 1896, which will be printed either in full or in part, and embodied in the general program of the Congress which will be distributed at its opening.

12. At every debate, precedence will be given to gentle-

men who have communicated beforehand their intention to take part in it.

13. No papers lasting more than twenty minutes will be permitted. Speeches will be strictly limited to ten minutes each. MSS. of the papers read must be left with the Secretary-General before the end of the sitting. The Executive Council shall decide as to the entire or partial publication of such papers in the Transactions of the Congress.

J. J. PRINGLE, Secretary-General.

**Chicago Ophthalmological and Otological Society.**—Regular meeting held at Saratoga Hotel, March 12, 1895, Dr. Hotz in chair. There were sixteen members and visitors in attendance.

The minutes of the last meeting were read and approved.

Dr. GAMBLE showed a case of voluntary nystagmus. Patient was a man, 24 years old, always well. No eye trouble in family. Could voluntarily cause a marked lateral nystagmus by looking at an object about ten feet away. The movements are more rapid than in most cases of involuntary nystagmus. The movements last only about a minute and then another effort is necessary to call them forth. V. in each eye = 20-20; no asthenopia; never had headaches; fundi normal. The nystagmus is never involuntary.

Dr. COLEMAN showed a negro porter about 28 years old, first seen some months ago, with marked secondary syphilis and with papillomata on corneal limbus. All symptoms disappeared under mixed treatment, but patient left before cured. Now returns with another outbreak and papillomata on limbus and on upper lid. They are sharply defined, about 1 millimeter in diameter. Much photophobia and lachrymation.

Dr. DODD reported a case of corectopia and notching of both lenses. Mrs. S., age 35 years. Right pupil is displaced upward and inward; left is normal in position and reaction; both irides tremulous; both lenses displaced downward and backward and irregularly notched in upper part, this being due to lack of zonule at these points. Vision each eye = fingers at three feet; right with — 16. D = 20-200; left not improved with glasses because of choroidal atrophy. She has a brother with double corectopia.

Dr. HOTZ had seen a case where both lenses were dislocated upward and the lower border of each was notched.

Dr. PINCKARD had a case where both lenses were dislocated down and in, and the upper border of each had a smooth notch about 1 millimeter deep.

Dr. HOLMES had seen a case with Dr. Kipp, of Newark, where there was a notch both above and below.

Dr. CASEY WOOD read a paper on "Septic Embolism of the Retinal Arteries," and reported two cases. The first was puerperal, both eyes were lost by panophthalmitis but the patient did not die. In the second case only one eye was lost. As a rule where the general sepsis is marked, the trouble in the eye precedes death only a short time.

Dr. HOTZ thinks such cases must be rare because during service in a general hospital, he had seen a great deal of pyemia but never a case of septic embolism in the eye, except one case from puerperal cause.

Dr. COLEMAN had had two cases in both of which death had occurred shortly after panophthalmitis set in.

Dr. WESTCOTT had two cases in which death occurred and one where the eye trouble started while the patient was convalescing from pneumonia. The eye was enucleated and patient recovered.

Dr. COLBURN had a girl, 17 years old who in December, 1894 had tonsillitis with ulceration. During this time she became blind. First seen three weeks later. Marked neuroretinitis with hemorrhage which has slowly cleared and now V = 20-60. Dr. Colburn also showed a water color of an unusual form of albuminuric retinitis. He reported a case of girl injured two years ago; Now, O. S. V =  $\frac{1}{2}$ ; field about one-fourth size of normal; loss of sense of smell and taste; hearing about one-ninth; monocular diplopia. O. D. V = 20-20; field is normal. There is anesthesia of right arm and left leg.

Dr. COLEMAN thought there might be some organic lesion. Dr. GRADLE thought it was a typical case of hysterical amblyopia as described by Charcot. Prognosis is bad.

Dr. WOOD also thought it was hysteria and prognosis is bad.

Dr. HOTZ thought a normal fundus after two years was against an organic lesion.

Dr. WILLIAMS referred to a recent case in *New York Med-*

<sup>1</sup> The equivalent of £1 sterling is: French, 25 francs; German, 20 marks; Italian, 25 lire; American, 5 dollars.



*ical Record.* Boy, 11 years, had neuro-retinitis and at the time his color sense was much disturbed. After neuro-retinitis disappeared color sense became normal. Dr. Williams thought this suggested that the retina was the seat of change in abnormal color vision.

Dr. Hotz had a strong man, 28 years old, who on August 27, about 10 A.M. found right eye suddenly blind. About ten minutes later, could see light. Dr. Hotz examined him about 12 o'clock. Lower field gone and upper field contracted. Retina was hazy above macula, the haze having a sharp edge. Superior artery was large to first branch, from there on was empty. Next day marked edema of retina above and vessels very small. Third day, a hemorrhage in upper nasal part. Massage was employed every day. Patient disappeared but came under Dr. Wood's care some days later. Massage continued and an iridectomy done. Field increased in size and central vision = 20-20. Vessels continued thread-like.

Dr. PINCKARD had seen a case of embolism of the superior artery where the embolus did not entirely occlude the vessel and the blood moved slowly along in a broken column. On the third day the arterial circulation was completely restored. At no time was the blood column in the veins broken. There was marked edema of retina but no hemorrhages. The patient recovered entirely without treatment. On motion, Society adjourned.

C. P. PINCKARD, Secretary.

103 State Street.

## NECROLOGY.

JOHN P. WALL, M.D.—The Editor has received from a mutual friend, the following statement of the sudden death of the late Dr. John P. Wall, of Tampa, Fla., long a member of our Association, and a gentleman of high standing in his community and State. The record of his service during the Tampa yellow fever epidemic, in which he served faithfully as one of Surgeon-General Hamilton's assistants, having immediate charge of affairs in Hillsborough County, is a bright chapter in sanitary annals. As will be seen, his death occurred while reading a paper on hygiene before the Florida State Medical Association:

"Perhaps the electric spark has already conveyed to you the sad intelligence of Dr. Wall's sudden death. If it has, then I am late in my announcement but not late, I know, in giving you some of the details of the unhappy ending of one of Florida's brightest and most illustrious physicians. He truly died in harness and was at labor in his chosen and loved profession up to the very moment when the summons came. The Florida Medical Association was in annual session at Gainesville and it was the third day of the session. Dr. Wall had been announced in the Section of Hygiene to read a paper on "Public Health in the Light of Recent Observations and Experiments," and 9:30 A.M., the 18th instant had been made the special hour and order for its delivery. The Doctor was a little late getting to the hall, having been to see some patients with Dr. Lancaster of Gainesville, but he arrived before the appointed hour. He appeared in his usual health that morning and in fact said to some friends that he never felt better. He began reading, standing, but appeared much agitated and very nervous, as was manifested by a restless moving of his right hand, he holding his article—which was in printed proof-sheet in his left hand. He was pale and his voice trembled, which I in common with other members ascribed to a timidity (stage fright) which the Doctor always manifested when addressing an audience. He had read but a few sentences when he sipped water and then seemed to recover his self-possession, but the agitation returned soon again with increased pallor and he again drank water, remarking *sotto voce* to those near him that "high teas" and "tony" entertainments did not agree with him (alluding to the reception of the night before) but he did not complain otherwise, then, of feeling badly. It was soon apparent (in fact I noticed it as soon as he began his paper, and remarked the fact to Dr. Daniel sitting in front of me) that there was something wrong with the Doctor, and Dr. Caldwell called to him to take a seat. He seemed to understand and reached for a chair near by him, but sitting on the arm of the chair and slipping off, he fell on the floor. He gasped several times, had a convulsive twitching of the corner of his mouth, and hands, and was dead. As he fell the pallor was changed

to venous congestion of face and neck and a very few minutes after death was pronounced, his ears and back of neck were very decidedly blue. I judge he had been reading about eight or ten minutes when he died. There was no post-mortem, as but an hour or two remained to perfect arrangements to take the body home in time for the train.

"The shock was a great one to us all, and I think it is the first occasion (the first that I know of) where a medical man in a medical convention and reading a medical paper drops dead and, as I said at the beginning of my letter, he truly died in harness. He never spoke after he stopped reading and made an effort to be seated." Yours truly,

JOSEPH Y. PORTER, M.D.

JOHN BLACKMER, M.D., of Springfield, Mass., died April 15, aged 67 years. He was born in Plymouth, and was graduated in medicine at Harvard University in 1854. In the late war he served as surgeon with the Forty-seventh Massachusetts Volunteers, whence he was transferred to a position as assistant surgeon in the U. S. Navy. After the war he became superintendent of the New Hampshire Asylum for the Insane. He was prominent in prohibition politics, both in the State last named, and later in Massachusetts.

ELON J. LAWTON, M.D., of Rome, N. Y., died April 18, in his sixtieth year. He was a graduate from the Albany Medical College, in the class of 1858. For the past four or five years he had been a member of the common council of the city named, and formerly for the period of twelve years ending in 1882 he had been the coroner of Oneida County.

JOSEPH L. WADE, M.D., of Irvington, N. J., died April 20, aged 66 years. He was graduated in medicine at the New York University, when he was 21 years of age, and soon thereafter established himself in practice in his native town. He had been health officer of the village for ten years, and was one of the best known citizens, having been born in the township at the outskirts of the old village, and lived there constantly except during the four years he served as a surgeon in the Thirteenth New Jersey Volunteers at the front. He was a steady contributor to the Newark papers, and at one time published a paper called the *Irvingtonian*. He leaves a widow.

JOSEPH ROWLAND, M.D., the oldest practicing physician in Delaware County, died at his home on Front Street, Media Pa., April 29, with pneumonia. He was in the eighty-first year of his age and had been in active practice in this county for fifty-five years. He was a graduate of the University of Pennsylvania of the class of 1840. His entire life was given up to practice, and he leaves considerable property. He was a man wonderfully preserved for his years and was seen almost daily riding on horseback, his usual mode of travel. Dr. Rowland was twice married, his first wife, who died about twelve years ago, being Jane R. Eaves. Six children from this marriage are living, all married and heads of families. They are Dr. Frank Rowland, Dr. Beecher Rowland, Mrs. Mary Kater, Mrs. Charles Myles, all of whom reside in California, and William E. Rowland of Media, and Mrs. Sarah Garrett, of Westtown. Four years ago Dr. Rowland married his second wife, Anna Howard, of Media, who survives him. He had a wide acquaintance and many family connections in the county, and was held in high esteem, both as a citizen and a physician.

ISAAC WAYNE HUGHES, M.D., died at his home in Philadelphia, April 26. He was the second son of Benjamin B. Hughes, and was born in 1831, near Norristown, Pa., where he received his early education. He had among his school-mates and intimate friends of early youth the late Generals W. S. Hancock and John F. Hartranft. He entered the medical school of the University of Pennsylvania in 1849, and was graduated in 1852. He began the practice of his profession at Sunbury, Pa., where he married Alice, daughter of the late Judge Charles Donnel, and, after a short residence there, in the year 1851, he settled in West Philadelphia, then a scattered village, locating at Fortieth and Chestnut Streets, where he continued to reside, actively engaged in

the practice of his profession, until prostrated by his fatal illness, which confined him to his bed since about March 1. Dr. Hughes was not only a successful practitioner of medicine endeared to his large clientage, not only for his skill and experience, and also by a pleasing personality of manner, but he was likewise an enterprising business man, and assisted in the improvement of that part of the city by the erection of a number of dwelling houses. He also organized the West Philadelphia Bank in 1869, of which he was the first and only President, and was also the President of a recently organized incinerating company. He had been for many years a member of the Philadelphia County Medical Society, and had been for a period of forty years a vestryman of St. Mary's Protestant Episcopal Church.

He numbered among his personal friends such distinguished men as the late Anthony J. Drexel, Chief Justice Ellis Lewis, Admiral Porter and Hon. Richard Vaux. He leaves a widow, a son, Dr. Donnel Hughes, and three minor children.

J. M. PRICE, M.D., of Brazil, Ind., April 19.—Edward Shippen, M.D., of Baltimore, Md., April 22.—Russell Caulkins, M.D., of Cleveland, Ohio, April 21.—Francis A. Slater, M.D., of Chicago, April 24, aged 78.—J. C. Humphreys, M.D., of Greensburg, Ind., aged 79 years.—William A. Lewis, M.D., of Moosup, Conn., April 20, aged 66 years.—J. G. Schnebly, M.D., of Topeka, Kan., April 24, aged 65.—Moses R. Greeley, M.D., of South Weymouth, Mass., April 23, aged 68.—R. M. Lackey, M.D., of Oak Park, Ill., April 29, aged 59.—Frederick Andros, M.D., of Minneapolis, April 28, aged 92 years.—Ezra Stetson, M.D., of Princeton, Ill., April 28, aged 78.—F. Thomas, M.D., of Racine, Wis., April 23, aged 29.

## PUBLIC HEALTH.

**Typhoid in the Milk Can.**—Secretary Lindsley of the Connecticut State Board of Health has run down the origin of a series of 164 cases of typhoid fever, all occurring among the patrons of one milkman in the town of Stamford, Conn. Inspection of a number of dairies from which this milkman obtained his supply revealed nothing suspicious, but the water of the well on his own premises—used for cleansing his cans and possibly for increasing the volume of his supply—was found to contain 69,660 bacteria to the cubic centimeter. Examination of a number of other wells in the vicinity also showed gross contamination and these have all been ordered to be filled up, and the milkman was at once forbidden to furnish any more milk.

**Vaccination by Scratching.**—Dr. H. Masson, a French military surgeon, up to last November had always used scarification as a means of inoculation with vaccine virus. He then abandoned it for a scratching method. The lancet, charged with the vaccine matter, is held almost perpendicularly to the arm between the thumb and the index, so as to use the point only. Then at the site chosen he scrapes the skin many times and very superficially, giving the instrument a slight to-and-fro movement from left to right and from above down. By this means only the epidermic cells are taken away. The vaccinal matter is spread out over this area and the garments are not replaced for eight to ten minutes. The results have been very satisfactory. Like M. Raffinesque, the author speaks of the enormous volume of the pustules and the severity of the inflammatory phenomena. With a view to reducing these, Masson limits the surface to be inoculated to about 2 millimeters square, thus obtaining pustules averaging 6 to 7 millimeters.<sup>1</sup>

**School Hygiene.**—On account of the small size of the plot of ground on which a public school in New York City is to be built, the architect has been told to build an out-doors playground on the roof. Following are some of the novel features

in the Henry Street school, which will occupy a space of 190 by 100 feet: the playground will be on the roof. It will contain 10,000 square feet of space, equal to four city lots. On the south, east and west sides, the playground will be protected by the roof, which will extend fifteen feet above the level of the playground. To the south, the view will be unobstructed, and protected only by a wire netting. It will be covered with a wire netting to prevent children from throwing missiles into the street. The playground on the roof will only increase the cost of the structure about \$4,000. As the total cost is to be about \$200,000, the additional outlay is a mere trifle, when the benefit to the pupils is taken into consideration. The first floor will contain an indoor playground. The floor will be of asphalt. The second, third and fourth stories are to be devoted to class-rooms, with sixteen on each floor. On the fifth floor will be the manual training school. Here there will be a gymnasium and cooking rooms, with kitchen and ranges, for girl pupils, who will be inducted into the mysteries of culinary art. The most unique feature will be the location, in the basement, of thirty shower baths for the free use of pupils. The bath suggestion has not been fully decided upon, but the plan has been submitted to the Board of Education, with indications that it will be adopted. It is possible that shower baths may not be built and that a big plunge bath may be substituted.

**Illinois State Board of Health.**—This body held its regular quarterly meeting in Chicago, April 30 and May 1 and 2. A number of questions concerning the recognition of medical colleges were discussed, but final action is not yet announced. The Secretary's report on contagious diseases shows that there were 105 smallpox centers outside of Illinois during the quarter and 26 points in the State with 90 cases and 15 deaths. The close of the epidemic in Chicago is dwelt upon, as already noted in the JOURNAL of April 13. A resolution was unanimously adopted by the Board, indorsing the administration of Dr. Arthur R. Reynolds, Commissioner of Health of Chicago, in which it is recited that he found "a practically unvaccinated community, requiring within the two years a total of 1,119,320 public vaccinations, more than one-half of which were performed within a single month; the hospital facilities were disgracefully and dangerously inadequate; there was no ambulance service, nor corps of trained assistants, nor appropriations to secure any of the essentials necessary to deal with an outbreak of a highly contagious and malignant disease." These difficulties were overcome and the outbreak was suppressed with a mortality of about 60 per cent. of the epidemic of 1871-74, of less than 45 per cent. of that of 1862-64, and of 26 per cent. of the great epidemic of 1880-83. The Board characterizes this wholesale immunization and its results as "an unparalleled achievement of sanitary administration"—"a triumph of preventive medicine which fitly closes the first century of Jenner's discovery."

**Eucalyptus-Oil Disinfection in Scarlet Fever.**—In a paper read before the Epidemiological Society March 15, ult., Dr. Joseph Priestley, the well-known medical Officer of Health of the much-quoted town of Leicester, Eng., details the results of his investigation of the use of eucalyptus oil as a disinfectant in scarlet fever—a method of treatment originally proposed and enthusiastically advocated by J. Brendon Curren of Teddington, and indorsed *pro tanto*, by publication in the Transactions of the Society. The treatment, as detailed, consists in the use of eucalyptus oil in a compound known as "oleusaban," which appears to be a proprietary article said to be composed of the essential oil of eucalyptus globulus with thymol and other camphors and aromatic disinfectants in solution. This is used by careful rubbings with the oil over the whole body three times a day for three days, followed by one rubbing after a warm bath daily for seven days. The disinfectant is sprayed also into the patient's throat, mouth and nose and diffused into the air of the room. No eucalyptus is administered internally beyond what passes down into the stomach during the spraying process. In brief, Dr. Priestley's results with 120 patients thus treated—as compared with 161 cases treated in the usual

<sup>1</sup> Arch. de Med. Militaires.

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, MAY 11, 1895.

No. 19.

## ADDRESSES.

### A FEW LIVING ISSUES AFFECTING THE HISTORY OF MEDICINE, AND WHAT CAME OF THEM.

The President's Address, delivered at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7, 8, 9 and 10, 1895.

BY DONALD MACLEAN, M.D., LL.D.

DETROIT, MICH.



The patriot poet of Scotland, Robert Burns, recalling the aspirations of his ardent young manhood, immortalized one of them in these simple but eloquent lines:

"A wish (I mind its power),  
A wish that to my latest hour  
Shall strongly heave my breast;  
That I for poor auld Scotland's  
sake  
Some usefu' plan or book could  
make,  
Or sing a song at least."

By simply substituting the larger term, Humanity, for the poetical and romantic one, Scotland, in this stanza, we have a sentiment appropriately expressive of the motive which brings us together to-day.

The annual meeting of the AMERICAN MEDICAL ASSOCIATION occurs at the brightest and sweetest season of the year and in most congenial surroundings. It never, as far as my recollection of its meetings extends, has failed to prove an occasion of delightful interchange of fraternal relations between its members, as well as a season of practical advantage to all sorts and conditions of men; influencing as it does, for the highest ends, innumerable interests and shedding rich blessings upon humanity, wherever sickness is to be healed, vice to be cured, life to be saved, or good to be accomplished. If the present occasion proves any exception to its predecessors, you will readily believe that my most earnest ambition is that this may consist in the fact that its endeavors shall be greater and its results more valuable than those of any previous meeting. So far as the surroundings and associations of our present place of meeting are concerned, we are indeed highly favored.

The members of an ASSOCIATION, interested in matters medical, philosophical, humanitarian, that could fail of being uplifted and inspired by the atmosphere and genius of this beautiful classical city of Baltimore, with its more than imperial halls of learning, its ideal and palatial hospitals, and beautiful charities, its world-famed scholars, philosophers and leaders of thought, must have reached a stage of indifference and lethargy painfully suggestive of that hopeless form of degeneracy known as "paretic dementia."

In the presence of this great and learned ASSOCIATION and in the midst of such impressive scenes of scientific and professional suggestiveness, it is with no little hesitancy and timidity that I invite you to accompany me in a brief and inevitably imperfect retrospect, having reference to what I have designated as "A few living issues affecting the history of medicine, and what came of them."

My purpose is to recall briefly, certain questions which in their day received the active and interested attention of the profession, and of scientific and thoughtful people. In doing this, I shall confine myself to the period of my own professional cognizance, namely, the forty years last past or thereabouts.

For some years immediately preceding and immediately following the beginning of my professional life, the attention of science and of medical thought was directed toward that renowned center of medical and general learning, my own alma mater, Edinburgh. A glance at the names which at that time constituted its medical faculty will explain this. They were Syme, Simpson, John Hughes Bennett, John Goodsir, Robert Christison, Lyon Playfair, Mr., now Sir William Turner, who is the only one still remaining of that brilliant galaxy of teachers and philosophers. Playfair still survives, but many years ago he abandoned academic pursuits and devoted his life and great abilities to statesmanship, being now a member of the House of Lords, a distinction rarely attained by a member of the medical profession.

Such a faculty could not fail to attract interested attention. While it is well known that at Edinburgh a vast amount of extremely valuable work was, in these days, accomplished in all departments of medical science, still there was, in that far-famed school, one man and one question toward which, from every quarter of the civilized world, eager anticipations were directed. This man was James Young Simpson, and the question was, "The use of chloroform as an anesthetic." Having caught the essential idea of relieving pain by the inhalation of ethereal vapors, from this country, Simpson, with the energy and courage of his great nature, devoted all his eloquence, ingenuity and literary acumen to the development and final establishment of the new doctrine. How he succeeded we now know full well.

Simpson and his followers advocated the tremendous innovation of administering chloroform, not only in surgery, but to suffering woman in her time of sorest need. The proposition aroused a tempest of opposition from all sides, not excepting the pulpit. All the unreasoning conservatism, not only of Great Britain but of the civilized world, was concentrated and arrayed against Simpson and his allies in this movement. He was maligned by his professional brethren, discredited by the general public and anathematized by certain parties in the church. All experience was against him, all theory was adverse to the

proposed innovation in practice. The Bible even, that messenger of peace and goodwill, was hurled at his devoted head and he was advised to read the sixteenth verse of the third chapter of Genesis and ponder it in his heart:

"Unto the woman he said, I will greatly multiply thy sorrow and thy conception; in sorrow thou shalt bring forth children and thy desire shall be to thy husband and he shall rule over thee."

To all his antagonists Simpson presented a brave and undaunted front. To all their arguments he opposed counter arguments which eventually settled the dispute advantageously to humanity and creditably to him. Asked by a high dignitary of the National Church of England on what authority he presumed to contravene the original curse pronounced against the woman, he aptly replies by calling attention to the closing verses of the second chapter of Genesis, which he claimed to be the true and authentic record of the first instance of the use of anesthetics, by which a precedent was established for all similar emergencies:

"And the Lord caused a deep sleep to fall upon Adam and he slept, and he took one of his ribs and closed up the flesh instead thereof."

The propriety and wisdom of using chloroform in labor is happily not now regarded as a *questio vexata*, although my own belief is that it is not yet used as frequently or as generally as it ought to be. I heartily agree with those who administer it in the trying stages of every case of labor. Simpson contended for its judicious use in cases of *puerperal*, *infantile* and other convulsions. So far as my own observation and experience go in this class of cases, it stands to-day the most valuable and reliable means of immediate relief. On calm and deliberate reflection is it possible, I ask you, to over-estimate the courage, the determination and the fine scientific faith of him who, in the face of such tremendous odds, fought to a triumphant issue, this great battle for science and humanity. If the annals of medical history furnish an equally brilliant example of well earned and priceless victory, I am at a loss to know where it is to be found.

Before leaving this subject it seems no more than fair to prefer a claim for a considerable degree of honor for one of Simpson's patients who proved also to be a powerful ally. I allude to a certain illustrious lady who, reposing sublime confidence in her medical adviser, and influenced we doubt not, by the consideration that the weight of her example must forcibly affect the great question at issue, did not falter in her brave determination (although every conventional influence opposed, and the great ecclesiastical organization of which she was and is the temporal head, held up a warning finger to restrain and deter her) of becoming a party to so startling and revolutionary a proposition. Gently but firmly pushing aside these and other influences, she gave the whole world a lesson, in the exercise of a reasonable and well grounded confidence in "*her doctor*," by submitting herself to the new and as yet almost untried obstetrical expedient, thereby instantaneously determining once for all the happy and victorious solution of this great and burning scientific issue, upon the everlasting and invincible grounds of truth and righteousness. What reason and argument and strong contention well-nigh failed to accomplish, the brave action of a confiding and gentle woman made easy and certain. For this act of roy-

alty may we not in all sincerity exclaim, "God save the Queen!"

In the year 1859, while I was a second-year student in the Edinburgh Medical School, the controversy connected with the introduction of anesthetics had barely been concluded when the scenes shifted, and immediately the movement of another great act in the drama of scientific progress began. For the scenes and acts of this mighty drama are continuous and unceasing. In it there is neither interruption nor interlude; on it the curtain is never rung down. In this year, Darwin's work, entitled "*The Origin of Species*," appeared in London, and as we look back and contemplate the effect of this book we are forced to admit that it constituted a turning point in the history of science. It appears now as if by its means the spectators were permitted to behold a new and hitherto unimagined and unimaginable view of the long sought for secrets of nature, making many things intelligible which, previous to that time, had been wrapped and hidden in that impenetrable and sepulchral vestment, "*mystery*." Like the wand of the magician it shed new light and inspired fresh hope along every highway and byway of scientific endeavor. Slowly but surely, men have come to see that Darwinism and the allied theory of evolution constitute the greatest and most radical living issue affecting the scientific thought of the last forty years. It is but a modest and feeble statement of the nature and extent of its claims, to affirm that the fundamental and far-reaching conceptions of Darwinism have forcibly and permanently affected every department of medical thought. By their influence, every department and every fact of the marvelous and beautiful drama of scientific evolution has acquired a new and greater significance.

It would be impossible, within the limits of this review, to particularize the luminous influences which have proceeded to every department of science, all of which had their origin in Darwin's great generalization. Foremost among these was one of profound biologic significance affecting all our previous conceptions of heredity. Heredity must always remain a prime factor in the etiology of disease. A correct conception of that in which it consists would appear to be indispensable for the comprehension of pathologic processes. Manifestly, if Darwin's law were true and if the acquirement of variations by means of natural selection was the cause of modification in the organism, not only must heredity be the cause of permanence in organic types, but it must also be upon transmission of beneficial variations that racial development is dependent.

These conclusions gave rise to a renewed application of the laws of heredity to medical science. Embryology became a matter of deepest significance. Teratology took rank as a science. Reversions in type began to be intelligible, strange growths were no longer viewed with wonder as *luses naturæ*, as sportive attempts of nature to accomplish something strange, but were studied carefully with an eye to their comparative classification. The Cohnheim theory of tumors arose, attributing to residual fetal cells a malign potency even greater than the doctrine of pangenesis would justify. The influence of Darwin on medicine can scarcely be exaggerated. Where is a better pathology of hernia to be found than in the "*Descent of Man*?" Notice how fertilizing an influence it brings to the study of obscure diseases. Dr.



Hector McKenzie, in his recent studies of Graves' disease, finds the cardinal symptoms of this disease, "tachycardia," "exophthalmos," "enlarged thyroid" and "muscular tremor" to be those of extreme terror. Darwin's explanation of the symptoms of terror is very suggestive. Men, during numberless ages, have endeavored to escape from their enemies or danger by headlong flight and violent struggling. Such exertion will have caused the heart to beat rapidly, the nostrils to dilate, the breathing to be hurried and all other symptoms of extreme physical effort, the final result being prostration, pallor and relaxation of muscles. "And now, whenever the emotion of fear is strongly felt, though it may not tend to any exertion, the same results tend to reappear through force of inheritance and association." If we imagine this condition of terror to become prolonged by failure of the nervous system to regain its balance, we then have a more or less complete picture of Graves' disease. Thus Graves' disease may be the expression, by the unconscious memory of the individual, of some shock in an ancestor. Nature has indeed a long memory. When she remembers her past so well, are we not arrogant in calling expressions of it "unconscious?"

While alluding to the influence of Darwin, especially through the doctrine of heredity, it would be wrong not to call attention to another sweeping generalization which must profoundly influence medical thought. The theory of heredity propounded by Professor Weissman, of Freiburg, may be said to have arisen out of Darwin's work largely through being a negation of some of Darwin's conjectures. Weissman's theory seeks to explain what no doctrine of heredity has hitherto accounted for,—how a single microscopic cell can reproduce parental characteristics, and frequently characteristics of grand-parents or remote ancestors. Darwin's doctrine of pangenesis was never felt to be entirely satisfactory. Weissman's theory of the "continuity of the germ plasm,"—the inference of the practical immortality of the germ plasm, the explanation of variation by means of natural not acquired selection, and the admission that a man resembles his parents, not because he acquires by transmission their characteristics, but because *he* as well as *they* arise out of the same germ plasm, these are conclusions which, if ultimately substantiated are bound to influence and modify our conception of disease and its processes most profoundly.

Those of us who can recall the birth and growth of this new philosophy, those of us who have been privileged to note the ever increasing influence of its teachings and methods on all our modes of thought, not only in the fields of abstract science, but in physiology, pathology and practice of medicine, not to mention other fields of effort, are fully persuaded that whether or not this may be set down as a live issue which has been finally and definitely estimated and disposed of, no more vital and far-reaching one has ever affected our views of natural processes or our methods of reasoning, whether as philosophers, scientists or practitioners of the healing art than this one so modestly and withal fearlessly set forth in the unpretentious volume entitled, "The Origin of Species," published in London in 1859.

Contemporaneously or nearly so, with the important issues referred to, we find another which, involving interests of the utmost importance was, from its nature not so capable of prompt demonstration, thus

furnishing cause of argument and disagreement for a number of years. I refer to the striking revolution in the theory and practice of medicine which resulted in the abandonment of blood letting and all concomitant so-called antiphlogistic expedients on which the profession has so confidently and comfortably anchored its faith from time immemorial. The change came gradually but certainly. It was useless to deny the fact of the therapeutic reformation, and it was a fundamental and beneficent one. The discussion and the disagreement was as to the why and wherefore of the change. One explanation ingeniously asserted was that the type of disease had changed and that as a result the treatment had to be modified and made milder and more merciful in order to conform to the new and more innocent character of the attack. Other explanations have been given, but it would be a waste of time to recall them. The fact remains that about the time that I and others equally inexperienced were inhaling our earliest draughts of scientific inspiration under the guidance of the great authorities already mentioned, these eminent men themselves were passing through a radical and complete change of belief and of practice. Whatever obscurity may pertain to the various steps and moving causes of this reformation we, from the vantage ground of our present position, are able to look back and with calm judicial fairness recognize the actual truth as to how it was brought about. It was no mere chance, no experimental haphazard change of fashion, no mere product of climatic or meteorologic influences; on the contrary, it was the rich and well earned reward of intelligent, earnest and persistent study and observation, carried on in the spirit created and bequeathed to the scientific world by John Hunter and others of his type. Among the notable names associated with this issue, not one, in my opinion, stands higher than that of John Hughes Bennett who, studying and intelligently interpreting the fundamental and essential phenomena of irritation and inflammation as seen by the microscope in the web of the frog's foot, the bat's wing, and other translucent tissues, had the genius and courage to turn his knowledge thus acquired to practical uses and discarding the ancient and accepted sheet anchors of antiphlogistic treatment, blood letting, calomel, antimony and so forth, determined to give the *vis medicatrix nature* a fair chance. Supplementing nature's efforts by mild and supporting methods he succeeded in reducing the mortality of pneumonia from 20 per cent. to less than 3 per cent. in the worst class of *complicated* cases, while in plain uncomplicated cases the mortality was reduced by Bennett from about 20 per cent. to *nil* or thereabouts. These statistics are presented on the authority of my friend Prof. John A. Ouchterlong, of Louisville, Ky., and can not be questioned. And what was even more important he persuaded the whole professional world to pause and reflect. By imitating his methods of observation and reasoning, the profession, in the true spirit of scientific modesty yielded more implicit honor to nature and to nature's powers and methods of healing. In the accomplishment of this impressive transformation scene in the drama of scientific medical progress, the leaders of thought on this side of the Atlantic, to their honor be it said, furnished prompt, intelligent and effective assistance. This is one of those living issues, one of those stirring and inspiring acts in the drama of scientific

progress, the happy accomplishment of which I and my cotemporaries have been privileged to observe and take some part in. In close and rapid succession we encounter other issues to be enumerated in this review.

In the humble office of a poor and unknown physician in Alabama, and almost simultaneously in a small and comparatively limited and insignificant ward of the royal infirmary of Edinburgh, initial arrangements were wisely made in all scientific modesty and earnestness for the ultimate presentation of a marvelously important and beautiful scene in the great drama of practical medical science. In other words, by J. Marion Sims on this side of the Atlantic, and Simpson on the other, with the support and assistance of their immediate allies and associates, the science and art now known as gynecology was conceived and rapidly matured. From very insignificant and unpromising beginnings this science has certainly, as we all know, increased and grown and, in short, passed through an almost miraculous process of evolution. Although some of its claims may be extravagant and some of its methods objectionable, and its condition as a whole capable of improvement and refinement, we are bound to claim for it a most exalted and honorable position among the living and successful issues which have contributed to render memorable that portion of the great history of medical progress with which we are now concerned. For the vast amount of blessing it has afforded to suffering woman let us give sincere and heartfelt thanks. For any failures or blemishes with which this modern child of noble origin may be tainted, let us cherish the hope that these will at no distant date disappear by a gradual process of elimination and evolution.

In this retrospective view of living issues in medical thought, it would be impossible to overlook the important and inspiring one comprehended under the name of "the cellular pathology." With this page in the history of our science, the great name of Virchow will always be inseparably associated, as its founder and greatest advocate. Based on this great teacher's amazing and fascinating discoveries and deductions, a kind and degree of sanguine expectation was induced in the minds of many people, eager and perhaps too willing to believe that here at last the keynote of all pathologic speculation had been struck, that the solution of all the mysteries of the origin and nature of tissue degenerations was within their grasp, that in the tersely expressed principle "*Omnis cellula e cellula*" was comprehended the master key by which all the hitherto tightly locked avenues of pathologic truth were to be made an open sesame. It may be possible to look back and perceive that this confident expectation, was to a great or less extent, misplaced and doomed to disappointment. It can not be denied that there are even yet, in spite of the cellular pathology and all that has come after it and through it, a good many very deep and dark mysteries still unsolved in the domain of pathology. And yet is there an individual here present, is there a member of our profession anywhere who is not willing to pay sincere and loyal homage to the cellular pathology for its own sake, as well as to its immortal founder and his school for all that it made possible in the advancement of pathology, as well as biology generally?

My old friend and classmate, Mr. Lawson Tait (to

whom, in common with my professional brethren everywhere, I am always ready to acknowledge a vast debt of gratitude for the eminent services which he has rendered to our profession and to humanity) has ventured to speak in terms of sarcasm and contempt of the cellular pathology. He tells us that when he entered the profession everybody was "mad after a new cell," and he adds, "a cellular pathology grew up which was to explain everything." The implication is obvious that everybody *did not* succeed in finding a new cell and that the cellular pathology *did not* explain everything, all of which is no doubt only too true. It is incomprehensible (to me at least) that Mr. Tait can believe or that he can expect other intelligent students and thinkers to believe that the cellular pathology of Virchow and his school does not stand out to-day as one of the most inspiring and beautiful features in the history of medical effort and thought in this age.

To say the very least, it constituted in its day a stepping stone of the most vital and critical necessity, without which the onward and upward march of pathologic and biologic progress must inevitably have been grievously delayed and embarrassed. Mr. Tait or any one else who presumes to sneer at or belittle this product of Virchow's genius writes himself down in my opinion on a plane with the illiterate and unesthetic bucolic immortalized by Wordsworth in the well known lines:

"A primrose by the river's brim  
A yellow primrose was to him  
And it was nothing more."

Pasteur, Tyndall, Lister; the mention of these three names, familiar wherever the rays of modern civilization have penetrated is, I am sure, all that is necessary for the purpose of introducing here the ever fresh and all important "living issue" known as the "germ theory of disease."

It would be little short of impertinence for me to inflict upon you any extended dissertation on this great issue, in regard to which such ample facilities have been furnished for enabling every individual to obtain the fullest knowledge from which to form an intelligent opinion as to the precise value of this theory to practical medicine and surgery. This, at all events, will be freely conceded, that from the time of Hippocrates down to the present moment, the history of medicine will be searched in vain for another instance of the application of scientific facts and observations to medical theory and practice secured by patient untiring effort that can for a moment be compared with this one. Starting with Pasteur's abstract, and so far as practical medicine and surgery are concerned, we might almost say, aimless experiments and observations, like a photographic negative, gradually but beautifully it has developed and grown, until the whole theory of the healing art has come to be thoroughly modified and colored by its influences.

It was undoubtedly the inspiration derived from the Darwinian doctrine of the struggle for existence, ultimately securing the survival of the fittest, that gave new significance to the studies which had begun with Pasteur, and whose relation to surgery had been so splendidly demonstrated by Lister in a series of brilliant and conclusive experiments in 1865. If life from its abstract standpoint were a conflict in which the fittest survived, how much more so was the concrete and organic life the scene of a perpetual warfare with those insidious foes, the microbes. It

is not possible here to trace the growth and development of the new science of bacteriology which we know has revolutionized the science of surgery, modified the art of surgery and subverted our deepest, most fundamental pathologic beliefs. So essential has this science become that to-day we regard no young practitioner as thoroughly equipped for surgical work who is not something of an expert bacteriologist. It is out of the study of bacteriology and microbic pathology that modern medicine is slowly but certainly evolving one of her supreme triumphs. Hitherto the immunity to attacks of smallpox conferred by vaccination has been an isolated and incomprehensible fact. Jenner's discovery has been a witness to the value of empiricism in medicine. In harmony with no theory, explained by no logical device, vaccination has by its own inherent virtue proved the value of *undiscovered theories*. To-day a meaning is given to the word "immunity" such as was never before known. A great hope animates the noblest of professions, that in all the so-called zymotic diseases, immunity may eventually be conferred and the most disastrous agencies of human destruction may be deprived of their malignity through the sublime genius of man.

It would be impossible to discuss at length the various theories of immunity, nor can I venture to attribute the degree of truth pertaining to each. To designate the particular rôle of the phagocyte in the competitive struggle graphically described by Metschnikoff—to decide whether the organism generates its own bactericides, or whether the so-called antitoxins and alexines are the product of certain suicidal tendencies on the part of the bacteria themselves—these are secrets which the laboratory is effectually disclosing. Some one has said, a man confronts his own worst enemy as he looks in his mirror, and it may be that the bacteria themselves are their own worst enemies. That while they are causing commotion within our bodies, they are really engaged in the work of self-destruction. However this may be, the recent experience of the profession in the antitoxin treatment of diphtheria, a treatment the introduction of which the Health Officer of New York already admits has lessened the death rate from that fell disease 40 per cent., indicates that after the lapse of many years vaccination for smallpox is not to stand as an isolated fact in medicine. Every fact has some relation to all other facts. "For a blade of grass to grow all nature must coöperate," says Diderot. If immunity can be given in one disease it certainly can in others. If there be one event that can accentuate this meeting in the memory of those who honor it with their presence it will, I firmly believe, be due to the fact that to-day we, as a profession, stand on the threshold of one of the most beneficent discoveries medicine has ever made. A discovery whose consequences will transcend those of any other in the increase of happiness it will ultimately bring to mankind.

In any attempt to review the living medical issues of the last forty years, it would doubtless be expected that reference should be made to the all-important one of medical education, a subject in which my own humble endeavors have been intimately involved. My first course of lectures in a medical college was given at Queen's University, Kingston, Ontario, in the session of 1864-65, and from that time to the present the question of medical education has been a

theme of vital thought and earnest ambition. In this country, in Great Britain, on the continent of Europe, everywhere, there seems to have arisen about that time a wonderful awakening to a new and better dispensation in the methods and principles of medical teachings.

The Edinburgh school led by Syme, Bennett and Gairdner, profiting by lessons derived from the great French teachers of that day, and from Mott and his contemporaries in this country, inaugurated a reform which soon spread in every direction. This reform consisted mainly in abandoning the ancient and time-honored method of aiming to impart efficient medical and surgical training by that dreary and painful device "the didactic lecture," supplemented by text-books whose orthodoxy and reliability were estimated chiefly by their antiquity and exhaustiveness. Gradually methods have become more practical, clinical, demonstrative. Place side by side a medical college announcement of 1865 and one of 1895 and the contrast will be astonishing and commendable for the profound and radical improvement sustained. The mighty impetus given to medical pursuits which resulted from the experiences incidental to our great Civil War culminated in the establishment of medical schools in unnecessary profusion in nearly every State. The immediate effect on the requirements for graduation of this feverish activity with its concomitant rivalry constitutes, we must admit, a rather unpleasant subject of reflection. Time and force of circumstances have gradually tended to adjust this error, and the standard of medical graduation in the majority of our schools to-day is something of which we may all be reasonably proud. I should, however, be untrue to my oft-reiterated convictions if I hesitated to mention here one cause of complaint still justly chargeable to a considerable number of our American medical colleges. It is summed up briefly but truthfully as follows: some of these institutions claim to supply to their alumni complete courses and means of instruction; the fact is that one-half of them are shamefully deficient in clinical resources and facilities, while the other half are no less devoid of the men and the means necessary to do anything approaching to justice in teaching fundamental branches, without which a reliable and intelligent knowledge of surgery and practice of medicine is an impossibility. It has long been a settled doctrine with many people that the highest duty, as well as the material interest of these unilateral medical colleges, demand that they mutually agree that the efficient half of each shall be made more and more efficient and that the feeble and farcical one be suppressed or transferred to that institution which may be best able to do justice to the subjects under dispute. Some such mutual combination is essential if in the continued maintenance of these two classes of medical schools they are to be purged of the sin and shame of false pretenses.

In the rapid evolution and growth noted in medical education, it has seemed to those most closely concerned that the time has arrived when a united and determined effort might be made to establish a well-defined plan which would secure uniform coöperation in remodeling the whole system of medical graduation, thus securing for the various designations of "doctor," "surgeon," "physician" and so forth an intelligible and definite signification. This, in my opinion is "a consummation devoutly to be wished."

I have thus far aimed to recall briefly a few living issues in medical thought which have had the most far-reaching influence upon the practice of medicine and surgery during my career as an humble student and worker in that great and honorable army, whose duty and glory consist in its efforts to save life and relieve pain. If my presentation of these "issues" seem to you incomplete and imperfect, I ask you to consider the vastness of the subject and the impossibility of doing it more than partial justice in the time at our disposal. On every hand, issues of the most tempting and impressive attractiveness press forward in one's thoughts and demand at least honorable mention, but the limit must of necessity be drawn with arbitrary decisiveness in accordance with the inevitable and relentless rapidity of movement of the shadow on the sun-dial. That the few topics which our limited time has permitted us to pass in review have been essentially fundamental in their relations to all the others will be freely admitted. That these are sufficiently important to give honor and distinction to the epoch in which they occurred no one will deny. And during this epoch is it not true that in every civilized country under Heaven, vast legions of men have been constantly maintained for very different aims and purposes than those which have engaged our attention? Think for a moment of the incalculable expenditure of energy of every kind which has been devoted to the maintenance and equipment of those vast standing armies whose business it is to

"March to the drum beat's roll.  
The loud-mouthed clarion's bray,  
And bear upon their crimson scroll,  
Our glory is to slay!"

Turning from the contemplation of these "marshalled hosts" and the death and destruction for which they are maintained, is it not a pleasant relief to direct our attention to such a peaceful and beneficent retrospect as that furnished by the labors and achievements of our profession? Is it not more pleasing to recall the quiet sublime efforts of our own contingent in the great "unending column" of life, that army which

"Moves in silence by the stream,  
With sad yet watchful eyes,  
Calm as the patient planets' gleam  
That walks the clouded skies.

"Along its front no sabers shine,  
No blood-red pennons wave;  
Its banner bears the single line:  
'Our duty is to save.'"

To sustain and improve this practical and genuine army of salvation, ought to be the living and moving ambition of every individual and every association. The United States Government maintains a standing army of at least 20,000 men thoroughly equipped and trained, for the purpose of destroying the lives of persons who are supposed to be inimical to its welfare. It leaves to us the responsible and laborious duty of maintaining and equipping, to the best of our ability, a vastly larger and more expensive army of medical soldiers whose functions are infinitely more numerous, intricate and vital than those of any military organization. The functions of this army are not only to contend with the enemies of human life and happiness and in so doing to suffer, oftentimes, hardships and privations, but unlike the great army of contention and bloodshed, it is also our duty and pleasure to love, cherish, uplift and save.

Ours is an army which so far has had to be self-sustaining and independent; an army which, in respect to all the attributes and qualities of the soldier and philanthropist has no reason to shrink from comparison with any association of men in the world's history. To many persons, myself among them, it has for some time appeared that the recorded and recognized results of our achievements give us the right to insist that the peaceful but brave, resolute and progressive army, known as the medical profession, should receive from the people and the government of this country a practical and official recognition which would afford a fair opportunity for the adequate application of the principles of medical science to the needs of the community.

A National Bureau of Health, superintended by a competent medical authority who shall be a member of the Cabinet, could not fail to secure for the nation, benefits beyond the language of dollars and cents to express. A united and dignified effort on the part of this ASSOCIATION and its allies ought to secure this enactment. The vast importance of such an act is obvious to the members of this ASSOCIATION, and our imperative duty, as it seems to me, is to impress the active and public-spirited statesmen, who guide and control the affairs of the nation, with the essential truth and value of our views. The very respectable problems of foreign policy which have, in recent times, engaged the attention and elicited the energies of our law-makers seem to sink into insignificance in comparison with the great and benign proposition here presented.

It is my deliberate opinion that the establishment of a Bureau of Health, as an integral part of the nation's executive, will prove an effective instrument in promoting the public welfare. It will be the means of unifying efforts in the suppression of dangerous diseases. It will afford opportunity for restraining the effete despotisms of the old world from adulterating our population with the vicious and degenerate. It will be a means whereby this enlightened and progressive republic may exemplify, to the world, the true mission of medical science. It will offer another agency for disseminating the truths of scientific discovery; another means of discriminating between that which is transitory and accidental in medical achievement and that which is permanent and immutable; and will furnish another promise that medicine in the future shall in no wise be unworthy of her past traditions.

The party, professional or political, which shall succeed in consummating this wise measure will assuredly earn for itself the gratitude and applause of an appreciative nation. The individual citizen who shall materially contribute to the success of this noble "useful plan" will be justified in congratulating himself on having realized the lofty aspiration of the patriot, as well as the sublime and pathetic "wish" of the poet: "*Homines deos accedunt hominibus dando salutem.*"

**Buttersack's Vaccine Micro-organism.**—Dräer (*Centralblatt für Bakteriologie und Parasitenkunde*) found the forms observed by Buttersack in lymph and claimed by him as the germs of vaccinia, in the contents of pustules after first as well as later inoculations, also in human serum, obtained by aspiration in pleurisy, in normal saliva and in albumin of hen's eggs. The last results prove that these forms can not be the specific cause of the inoculation pustule and that Buttersack's hypothesis is untrustworthy.—*Centralblatt für innere Medicin.*



## LECTURES.

## LECTURES ON INTRACRANIAL SURGERY.

## VIII—SURGICAL TREATMENT OF EPILEPSY.

BY EMORY LANPHEAR, M.D., PH.D.

ST. LOUIS, MO.

In every case of epilepsy where an initial spasm of a segment or a part of the body, or a localizing aura can be detected, trephining is imperatively indicated; for epilepsy is a disease incurable by other than surgical measures, as a rule, while many cases can be benefited by operation when the site of focal disease can be determined and reached. This proposition has met, and still meets, with opposition, the reasons urged against it being three in number, viz., 1, in some cases subjected to operation, the convulsions have returned within a few months after removal of the apparent cause; 2, in a number of cases reported the paroxysms continued after operation, undiminished in number and intensity; 3, sometimes epilepsy is cured by a simple exploratory operation, no lesion being discovered—hence the conclusion that whatever good results from surgical treatment arises from the operation *per se* and not from relief of brain irritation. A general distrust of operative procedure, too, has sprung up, based upon the unfortunate fact that there has been undue haste in operating upon patients that mature deliberation has shown to be affected with incurable forms of the disease; and also because enthusiastic surgeons, not too familiar with the history of epilepsy, have published premature reports showing “cures,” whereas the convulsive seizures returned almost before the articles were printed. Temporary cessation of spasms does not mean a cure of epilepsy, since it is a well-established rule—too little observed—to pronounce no case well until at least three years have elapsed after the appearance of the last attack.

But there have been too many well-authenticated and truly brilliant cures following surgical treatment of severe epilepsy due to depressed bone, tumor and abscess, to allow the unprejudiced physician to question the propriety of operating in any case of focal epilepsy. Nor is it necessary to have evidence of disorganization of the cortex; and I may add that under certain circumstances it is not even necessary to have marked localizing symptoms. For Péan reports the history of a patient who had suffered for years from inherited epilepsy, not traumatic; internal medication of every description failed; there was no localizing symptom except *pain*, which is not generally regarded as a sign of any significance in deciding the location of an intracranial disease; but in this case it was trusted and exploratory craniotomy performed at the seat of the localized headache and an angioma removed from the meninges implicating the superior longitudinal sinus; cure was complete and unquestioned.<sup>1</sup> Results like this in the work of operators of world-wide reputation certainly justify the hope that much may yet be done for many cases of epilepsy, even some not accompanied by the usual symptoms of the Jacksonian variety. In the present state of our knowledge, however, we are compelled to limit operative work to cases in which we can find some gross lesion to account for the trouble and those peculiar cases preceded by an aura.

<sup>1</sup> One of my cases of tumor, reported in a previous lecture, was an angioma of the meninges which caused such severe epilepsy as to produce imbecility.

Sometimes the disease appears to be due to a scar upon the scalp, or cranial fracture without depression yet attended by irritation of the peripheral filaments of the trigeminus; these are the cases which recover from simple removal of nerve implication by what is designed as a merely exploratory operation—liberation of nerves from adhesions relieving the irritation which gave rise to the nerve storms.

Epilepsy due to old depressed fractures is not as promising as Jacksonian epilepsy, judged by results thus far recorded, yet in view of Laurient's statistics of 102 cases operated on with 54 per cent. cured, trephining is surely to be advised in every suspicious case. At this point I can not refrain from calling attention to the words of Agnew upon the subject of depressed fractures in their relation to epilepsy; he says—and too much emphasis can not be laid upon it—that it is not too much to assume that poor surgery is responsible for the great majority of traumatic epilepsies, because of bad treatment at the time of injury, the old doctrine that depressed fractures of the skull without symptoms of compression require no operative treatment, being responsible for the many unfortunate sequels. I quote his own language: “However small may be the depression which follows a fracture of the cranium, save in one or two locations, it will encroach enough upon the dural nerves to cause more or less irritation—which, though insignificant at first, and perhaps not at all recognizable to the consciousness of the patient, yet if unrelieved will be transmitted finally to the cortex and brain ganglia until at last the paroxysmal explosion will occur. . . . Whenever, therefore, in my judgment, the medical profession can accept the doctrine that *all depressed fractures of the cranium, however slight may be the depression, and entirely irrespective of pressure symptoms, are proper subjects for trephining*, then will traumatic epilepsy largely disappear.” To-day, people will readily consent, even in the country, to operation at the time of accident if informed that a fracture of the skull is present, and as they become more familiar with the triumphs of aseptic surgery the mild objections now sometimes raised will disappear, and then indeed will the development of epilepsy due to depressed fracture be dependent upon the timidity or ignorance of the attending physician.

An injury to the frontal region, as well as to the motor zone, it must be remembered, is a very serious condition, and just as positively indicates operation; for 50 per cent. of non-trephined serious injuries to the frontal bone are said, by Garmany, to be followed by epilepsy, mostly succeeded by insanity. It may be truthfully added that 40 per cent. could be saved by prompt operative measures.

## INDICATIONS FOR OPERATING.

Upon general principles it may be asserted that the sooner operation is made after the development of the epilepsy, the better the prospects of success; yet the lapse of a long time—even years—is not a strong contra-indication, as numerous cases have been reported where removal of the irritation cured the convulsions even many years after the irritation began.

The special indications for trephining in epilepsy are one or more of the following:

1. An intense headache, always located in the same limited area, either preceding or succeeding the epileptic seizure.

2. Well-defined Jacksonian epilepsy; where the attack invariably begins in the same group of muscles and then involves the whole body.

3. The existence of a pronounced and constant aura that may act as a localizing guide; as a numbness in one extremity, etc.

4. Traumatic injury to the cerebral cortex; as depressed fracture, etc.

5. Semi-paresis or paralysis of any group of muscles not definitely shown to be of peripheral origin.

6. Direct evidence of removable lesion in or near the motor area; tumor, abscess, etc.

7. Hemi-epilepsy, even of unknown cause.

8. Even in cerebral atrophies of childhood, according to Starr, the frequency of the attacks may often be greatly diminished, though not cured—being due to organic changes.

#### PRELIMINARY TREATMENT.

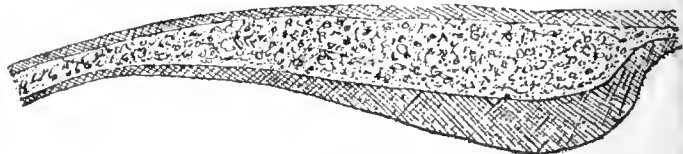
Before resorting to operation (except in cases so plainly indicating surgical measures as to be beyond question) the patient should be subjected to the proper medicinal treatment; at the same time be put under careful observation of attendants thoroughly instructed as to the points to be noted; and repeated personal examinations be made to determine the exact seat of the source of the epileptogenic disturbance. Unless the history of the case is perfect as to the part of the body first involved in the attack, the determination of this is the first object to be noted; not at all infrequently the patient feels the spasm beginning in the hand or the foot, or has a sensation of numbness or tingling in some particular part before unconsciousness begins, but in others no such premonition exists, yet the spasm uniformly begins in a certain group of muscles and then gradually spreads until a general convulsion is on; as in one of my cases, the paroxysm consisted only of a convulsive movement beginning in the right hand, extending until the whole upper extremity and face were involved, with loss of consciousness, but no general convulsion. To carefully note these details is the object of the observation which may have to be continued for several weeks before the necessary data can be obtained. A study of the subject of cerebral localization must coincidentally be made if not *thoroughly* understood, or the services of a skillful neurologist engaged to assist in the case.

The medicinal treatment should consist of the administration of arsenic and the compound syrup of hypophosphites (National Formulary to be preferred), or other tonics which may be peculiarly indicated in any particular case. Bromids must be suspended for some weeks, so that the patient may be freed from their depressing effects. The patient is prepared for operation in the same manner as for any other trephining.

#### OPERATION.

After a large area of skull has been exposed over the proper region, search is made for external trouble and for fractures—as fissure of the skull so often occurs in apparently trivial injuries that there may be no history of an accident. Care must be exercised not to mistake a suture for the line of an old fracture as has sometimes been done. If any superficial source of irritation be found it is corrected in the special manner demanded by each individual case; excision of a scar in the scalp, liberation of nerves from adhesions, elevation of depressed fragments of bone, etc. Usually it is necessary to open the cranium.

If the skull be not too hard, the most speedy and satisfactory method of reaching the dura is by use of the gouge, but if it does not readily cut, the trephine is employed and a "button" removed somewhere near the affected region—*exact* location is not essential as the opening is to be freely enlarged; in fact, a large opening is generally preferable in nearly all cranial surgery, since simple relief from compression is almost invariably of benefit, even though no operation on the brain be made. Great care is taken in the use of the trephine in epileptic cases because the skull is likely to vary in thickness to a remarkable degree, even in the space of a half inch, as shown in this specimen mentioned in my last lecture as having been removed for the relief of epilepsy (case of osteoma). From this it will be seen how easily the trephine might injure the brain if applied near the end of the bony tumor.



Section of osteoma; actual thickness.

As soon as the dura is exposed the Keen's forceps are applied and the opening enlarged to at least one and a half by two inches. When sufficient bone is removed the dura is inspected. It may be that a depressed fracture has been relieved by removal of the bone—if so the impression in the dura shows it. There may have been a fragment of the inner table driven through the dura—if so, it is now visible. Osteophytes may have formed—if so, their presence is now discovered. Tumor of the meninges or cortex may be the cause of the convulsions—if so, the abnormal tenseness of the dura, or even its protrusion into the opening, is an indication for further exploration. The examination being completed, a large flap of the dura is now turned back, unless an extra-dural cause has been found and removed; and attention paid to intracranial abnormal conditions.

When it is evident that a depressed fracture has been corrected by removal of bone in the act of trephining, it may be taken for granted that the cause of epilepsy has been removed and no further procedure is permissible, unless some special reason exist for opening the dura—a step which adds greatly to the danger. So if the operator is satisfied, the scalp is closed with catgut drainage. But if spicula have been found projecting through the dura, the membranes are opened and fragments of bone extracted; it is not good practice to seize them and extract them by force, without first making a free opening in the dura; which is afterward sewed up.

Quite often osteophytes are found irritating the dura or the brain; in such case the dura is incised and the offending foreign bodies carefully extracted. Bleeding which oftentimes follows is quite copious and hard to control; a compress of gauze wrung from water at 105 to 110 degrees is applied with firm pressure for three or four minutes and usually is sufficient. In some instances it may be necessary to tie some vessel. If all other means fail, the tip of the Paquelin cautery may be applied, but it is objectionable and not to be recommended except as a *dernier ressort*; when used free drainage is always provided.

Tumors are excised in the manner described in the last lecture, the greatest care being taken to do as little damage as possible to the contiguous brain matter. Abscesses are evacuated, irrigated and drained.

Pachymeningitis, perhaps of many years ago, may be met with localized adhesions or effusion. If adhesions, they are gently broken up with much care not to injure the underlying brain; frequently, however, the cortex is very firmly attached to the membranes so that separation is impossible; when so, the particular part of the cortex involved is excised to the depth of a quarter of an inch by means of a very sharp knife or scissors. Iodoform is dusted in very freely after removal of the affected parts or separation of adhesions and the wound closed in such a manner as to secure primary union everywhere. If old meningitis with localized effusion be found, evacuation with irrigation, breaking up any adhesions present, and application of catgut drainage is all that can be done.

Sometimes—and this is occasionally true of very marked Jacksonian epilepsy—the most careful examination fails to show any focal lesion discernible by the eye or the finger; in such instances, Sachs asserts that excision of the affected area is the only rational treatment of the disease, and may prove wholly successful if long-continued irritation has not permanently injured other centers; and even if a complete cure is not effected, the frequency of the attacks may be diminished to the great comfort of the patient. The method is this: the motor area is stimulated by the application of electricity (an induced current from a Du Bois-Reymond coil furnished with one Daniell cell, or the Barrett chlorid of zinc battery) by means of two aseptic electrodes of platinum 2 millimeters apart. In handling these, the operator must envelop his hands in sterilized towels to prevent contamination; or better still they may be manipulated by an assistant who takes no other part in the operation, and who carefully protects the points from coming in contact with anything beside the brain after they are sterilized. As these electrodes are changed from one part of the motor area to another, careful observation will show response in each segment; when the particular spot is reached which causes motion in that part of the body first affected in the attack of epilepsy, the cortical and subcortical substance is excised. Bleeding is checked by gauze pressure or hot water—if not, the tip of the Paquelin cautery is applied sufficiently red to stop hemorrhage; the objections to the use of the cautery are that it requires drainage for some days, it causes a scar in the brain tissue much more marked than that following simple excision, and epilepsy may return as a result of excessive scar contraction. The wound is well covered with iodoform, closed with a few strands of catgut for drainage, and the usual dressings of sublimate gauze and cotton applied.

Following such an operation, paralysis of the extremity will occur; if a large area is cut away the paralysis will be permanent; if a small one, restoration of function may eventually be secured. There is considerable danger of death when a large amount of brain tissue is excised—much more than in removal of abnormal growths or deposits.

#### CASES.

In regard to Jacksonian epilepsy, one of my cases corroborates the assertion of Lucas Champonierre that the symptoms do not always coincide with the

location of the lesion. Briefly stated, the facts are these:

J. B., aged 13 years, when 5 years of age, fell and fractured his skull at the junction of the parietal and occipital bones. In spite of great depression of the fragment and long continued unconsciousness, the attending physician did nothing except to adopt the "expectant plan" of treatment. The child, however, made a rapid recovery from the accident and seemed in excellent health for some months. Then spasmodic movements were noticed from time to time in the hand and arm of the side opposite the head injury. These convulsive attacks increased in severity and extent until the whole side became involved and finally general epilepsy supervened. The epilepsy continued for years, the intellect finally becoming so impaired that the parents decided to consent to operation.

Upon reflecting the scalp I found a marked depression, which upon opening the skull was seen to affect the inner table much more than the outer, quite a fragment having been driven through the dura; this was found lying in a depression in the brain itself. After correcting this trouble, I extended the opening in the skull forward so as to permit examination of the Rolandic region. I could find no evidence of trouble here, so completed my work without further exploration. One severe general convulsion was noted on the third day, but though all antispasmodic remedies have been prohibited since there has been no further epileptic manifestation in a period of more than two years. I am therefore compelled to believe that the irritation was transmitted from the posterior parietal and upper occipital convolutions to the motor area.

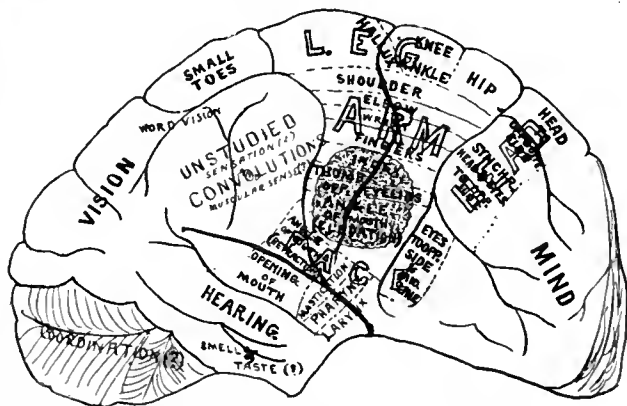


Figure showing known areas in the brain and position of tumor—purely diagrammatic.

The local irritation in this case was in the angular gyrus, the supramarginal convolution and the first occipital. Whether there was "word-blindness" or not I could not determine, as the boy had never learned to read, though he has since done so. There was no hemiopia.

Upon the other hand, one may *exactly* locate the disturbing lesion and come within a fraction of an inch of its center in opening the skull. Thus in the case of tumor, reported in my lecture upon that subject:

P. P. B., of Norris, Mo., 28 years of age, presented the history of rapidly developing epilepsy, due to brain tumor. The only localizing symptoms were: epileptic seizures beginning in the thumb and index finger of the left hand, the muscles of the eyelid and the angle of the mouth—these followed by the typical symptoms of *grand mal*. Upon these "pointers" then a trephine was applied; the center pin of the trephine could not be removed and so penetrated the inner table; when the button of bone was removed, revealing a sarcoma of the dura, the center-pin was found to have pierced the exact middle of the tumor as shown in the specimen here exhibited!

How was such accuracy possible? Or was it mere chance? Here was a case presenting symptoms in different parts of the body anatomically quite remote from each other. Why should they indicate with any degree of precision the location of the tumor?

Examination of the diagram which shows the exact situation of the malignant growth, reveals the fact that the centers which preside over these widely separated sections of the body lie in contiguous fields of the motor region; and as our methods of external measurements are almost as exact as our knowledge of cerebral topography it was an easy matter to decide where to reach the causative agent in this particular epilepsy.

A number of other interesting cases of epilepsy have been operated on by me, two of which I mentioned in speaking of brain tumor, but none of the others, I believe, have passed three years since this treatment was instituted—so the time has not yet come for making positive deductions from my own work. Yet the results as thus far seen are satisfactory in all but one case—a most dismal failure—and encourage me in the belief that I have done right in operating in every instance; for the amount of benefit already given in the brief interval of three years or less is enough to repay for the time and trouble even though a return of the convulsions should yet occur. But I am satisfied a number of the cases will terminate in cure and I certainly shall continue to practice surgical treatment in every appropriate case, unless I meet with more evidences of failure than I have in the past.

In conclusion, I offer the following brief synopsis of our present ideas of what should constitute the

#### RULES FOR TREPHINING.

*When to Operate.*—1. An epileptic seizure invariably affecting a single group of muscles, or a general convulsion which always begins in a definite region may be regarded as sufficient guide to trephine over the area of the brain presiding over that particular part.

2. An intense *localized* headache preceding or succeeding each epileptic attack is sufficient to warrant exploratory trephining.

3. If a general epilepsy follow a depressed fracture the trephine should be advised—though results have not been, upon the whole, particularly brilliant.

4. In general convulsive epilepsy if paresis or paralysis of any group of muscles follows (even temporarily) an attack, trephining is admissible at the point indicated by cerebral localization.

5. Perversions of hearing preceding a convulsion (auditory auræ) point to trouble in the temporal lobe; exploratory trephining may have to be done upon both sides of the head.

6. Hallucinations of vision (visual auræ) strongly indicate lesion in the occipital convolutions.

7. An aura consisting of a disturbance of taste or smell justifies inspection of the temporo-sphenoidal lobes of both sides.

8. Aphasia (which may persist but for a moment or continue for several hours) sometimes is met as a symptom, and imperatively demands exposure of the left third frontal convolution.

*When not to Operate.*—1. No operation is justifiable in general epilepsy without some localizing sign and not dependent upon discoverable injury to bone.

2. Operation should not be performed in epilepsy which is clearly due to old pachymeningitis—the risks are too great in proportion to the good results to be anticipated.

3. Operation is not to be advised when there is a history of a previous lepto-meningitis (either traumatic, syphilitic or tubercular).

## ORIGINAL ARTICLES.

### CLINICAL NOTES ON PSORIASIS, WITH ESPECIAL REFERENCE TO ITS PROGNOSIS AND TREATMENT.

Read before the Medical Society of the State of New York, Feb. 7, 1895.

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In his recent work upon the treatment of syphilis, Professor Fournier makes the remark; that too little attention is often paid to the real treatment and cure of the disease, and that too many physicians and patients are content with only the removal of the symptoms as they arise; it thus happens that in relatively few instances is the treatment of syphilis carried out in a patient and thorough manner to a cure. It is within the memory of quite young men when that disease was regarded as incurable, and it is only within the last decade that definite rules have been established (largely through the work of Fournier) which, if accurately carried out, will commonly result in the radical cure of syphilis.

Much the same may be said in regard to psoriasis; for, thus far, physicians and patients have been far too often satisfied with attempting to remove the eruption as it recurs, again and again, and commonly far too little study and attention has been given to the underlying cause and its removal. And yet I believe that the time has come when the treatment of psoriasis should be placed on a much more certain and definite basis than is now generally accepted, and the influence of diet and hygiene in its production recognized and when, consequently, we can offer to our patients much more encouragement as to a real cure of the trouble.

To the end of understanding better the clinical relations of psoriasis, and therefore its treatment and prognosis, I have made a study of my recorded notes of 366 cases in private practice, which have been under my personal observation and care. These cases occurred among 9,483 miscellaneous cases of skin disease, making it to form almost 4 per cent; it thus comes fourth on the list as to frequency, after eczema, acne and syphilis.

In a recent clinical study of 1,000 cases of psoriasis occurring among 25,443 cases of miscellaneous skin diseases in my public and private practice together, the proportion in public practice was found to be 3.69 per cent.

The ages of these 366 patients at the time of applying for treatment is shown in the following table:

TABLE I.—AGES OF 366 PATIENTS WITH PSORIASIS.

	M	F	T
5 years and under . . . . .	1	0	1
5 to 10 years . . . . .	2	4	6
10 to 15 years . . . . .	3	12	15
15 to 20 years . . . . .	17	29	46
20 to 25 years . . . . .	28	30	58
25 to 30 years . . . . .	35	28	63
30 to 35 years . . . . .	43	19	62
35 to 40 years . . . . .	27	9	36
40 to 45 years . . . . .	23	4	27
45 to 50 years . . . . .	16	2	18
50 to 55 years . . . . .	7	5	12
55 to 60 years . . . . .	3	4	7
60 to 65 years . . . . .	2	5	7
65 to 70 years . . . . .	3	2	5
70 to 75 years . . . . .	1	1	2
Unknown age . . . . .	1	0	1
Total . . . . .	212	154	366

<sup>1</sup> Trans. Congr. Internat. de Dermat. etc., Paris, 1889, p 878; also Maryland Medical Journal September and October 1891.



It is here seen that males are affected with psoriasis more frequently than females, there being 212 males to 154 females, respectively 57.92 and 42.07 per cent.

The youngest patient seen with the disease was a male nearly 5 years of age, the oldest also a male just 75 years old. The largest number of patients applied for treatment between the ages of 25 and 30, when there were 63 patients or nearly 18 per cent of all the cases; but there were also almost as many cases during the five years of life before and after this period. Thus, together, during the fifteen years between 20 and 35 years of age there were 183 cases, or exactly one-half of the entire number.

It is impossible, however, to draw from this table any exact conclusion in regard to the age of the patient at which psoriasis is most likely to develop for the first time, for in many instances the disease had lasted for many years before coming under treatment, as will be seen in a later table. In the next table, II, is given the age at which the eruption first appeared, according to the statements recorded in the notes of the cases:

TABLE II.—AGES OF 366 PRIVATE PATIENTS WITH PSORIASIS, AT WHICH THE ERUPTION FIRST APPEARED.

	M	F	T
During infancy . . . . .	5	0	5
1 year to 2 years . . . . .	1	1	2
2 to 3 years . . . . .	2	2	4
3 to 4 years . . . . .	2	3	5
4 to 5 years . . . . .	2	4	6
5 years and under . . . . .	12	10	22
"During childhood" . . . . .	4	3	7
5 to 10 years . . . . .	14	18	32
10 to 15 years . . . . .	22	41	63
15 to 20 years . . . . .	48	28	76
20 to 25 years . . . . .	42	16	58
25 to 30 years . . . . .	19	14	33
30 to 35 years . . . . .	23	5	28
35 to 40 years . . . . .	10	5	15
40 to 45 years . . . . .	7	1	8
45 to 50 years . . . . .	5	4	9
50 to 55 years . . . . .	2	4	6
55 to 60 years . . . . .	1	2	3
60 to 65 years . . . . .	1	2	3
Not stated . . . . .	2	1	3
Total . . . . .	212	154	366

These cases are, perhaps too few to permit any very definite conclusions to be drawn from them, as to the first development of the disease, but a little study of the table develops many items of interest.

The disease belongs principally, to the early formative period of life. Thus, it is seen that in the largest number of instances, namely 76, or over 20 per cent. the eruption was first observed in the period between 15 and 20 years of age, and in a very large number, 63, between the ages of 10 and 15, while, the eruption first appeared in 197 cases, or almost 55 per cent. of the whole, between 10 and 25 years of age. After this period the number of cases diminishes very rapidly, there being only twelve patients in whom the eruption first appeared after 50 years of age. It is seen, however, that there are relatively few cases during very early life, there being only twenty-two instances in which it appeared before the age of 5 years. These facts appear quite opposed to the statement of Neumann<sup>2</sup> who asserts that the eruption generally appears about the sixth year of life.

It is a little curious to note that while the fe-

males are largely in excess between the ages of 10 and 15, in the next period of five years the number of males is nearly double that of the females; while, between 20 and 25 the males present nearly three times the number of cases found in females. The question arises whether the great difference relates in any way to the effect of the later development of the sexual function in males than in females.

Psoriasis is known to be one of the most rebellious of all skin diseases; beginning often quite early in life it may persist indefinitely, even in spite of active treatment, and often wears out the patience both of the physician and patient. In a certain small proportion of cases it will seem to disappear even without treatment, and to remain absent for varying periods, perhaps entirely. Such cases are, however, very rare, and the disappearance of the eruption seems to depend on some radical change in the mode of life, or sometimes follows a change of abode. A prolonged residence in a warm climate will occasionally arrest the disease, but it is liable to recur on return to a colder or more changeable climate. In some cases it becomes less pronounced after middle life and may become confined to a few lesions, giving little annoyance.

The duration of the eruption at the time of applying for treatment is shown in the next table, III:

TABLE III.—DURATION OF PSORIASIS IN 366 CASES AT THE TIME OF APPLYING FOR TREATMENT.

	M	F	T
Under 1 month . . . . .	7	8	12
1 to 3 months . . . . .	0	0	0
3 to 6 months . . . . .	7	5	12
6 months to 1 year . . . . .	20	15	35
1 to 2 years . . . . .	10	14	24
2 to 3 years . . . . .	9	8	17
3 to 4 years . . . . .	15	9	24
4 to 5 years . . . . .	12	9	21
5 to 10 years . . . . .	42	42	84
10 to 15 years . . . . .	25	22	47
15 to 20 years . . . . .	23	15	38
20 to 25 years . . . . .	19	3	22
25 to 30 years . . . . .	10	2	12
30 to 40 years . . . . .	8	2	10
40 to 50 years . . . . .	2	1	3
50 to 60 years . . . . .	0	1	1
Not stated . . . . .	3	1	4
Total . . . . .	212	154	366

This table fully bears out the chronic character of the disease, for there appear cases in it which had lasted thirty years or more at the time of first observation; in a very large number of instances eighty-four or nearly one-quarter of the entire number, the eruption had existed from five to ten years previous to the first visit.

The natural history of psoriasis is therefore to be reckoned by years rather than by days and months. Thus, of these 366 cases, no less than 221, or over 60 per cent. had lasted for five years or over.

Comparatively few cases were observed at or soon after the first appearance of the eruption, only twelve cases during the first three months, and only twenty-four cases in all during the first six months of the existence of the eruption. It will be seen later, that this is a fact of no little importance in connection with the proper treatment of the disease and its prognosis. Something more can be learned in regard to the obstinacy of the complaint by a consideration of the periods of time during which these patients were under observation. These are shown in the following table, IV:

<sup>2</sup> Neumann Lehrbuch der Hautkrankheiten, Wein, 1873, p 259.

TABLE IV.—DURATION OF OBSERVATION OF 366 PATIENTS WITH PSORIASIS.

	M	F	T
1 month or less (74 seen but once) . . . . .	95	45	140
1 to 3 months . . . . .	6	15	21
3 to 6 months . . . . .	14	16	30
6 months to 1 year . . . . .	32	28	60
1 to 2 years . . . . .	18	12	30
2 to 3 years . . . . .	7	8	15
3 to 4 years . . . . .	8	3	11
4 to 5 years . . . . .	5	4	9
5 to 10 years . . . . .	16	13	29
10 to 15 years . . . . .	6	7	13
15 to 20 years . . . . .	4	2	6
20 to 30 years . . . . .	1	1	2
Total . . . . .	212	154	366

Here it will be seen that a large number of the cases were seen but for a short time, 191, or over one-half, for a period less than six months, and of these, 74 were seen but once, and many others but two or three times. In looking over the notes of these cases, we find that some of them yielded to treatment and were apparently cured even in a short time, while many were lost sight of before any conclusions could be reached as to the value of treatment. In many of the cases which were for a longer time under observation, the notes show it was often for recurrences of the eruption, for these patients are commonly satisfied with its disappearance, and are seldom willing to undergo prolonged medical supervision with a view to the cure of the disease. In studying the records of these cases we find that in proportion to the length of time the disease has already continued, either before or while under observation, in about the same degree will the eruption resist treatment; in other words, as the disease becomes engrafted on the individual, the results are less satisfactory, much as is observed in connection with gout, with which, as we shall see, this eruption is frequently closely allied and, indeed, often closely connected.

This brings us to a brief consideration of the nature of psoriasis. Any one who has followed out cases of the disease during a period of years must be convinced that it is not a local affection, in the sense in which we speak of epithelioma, verruca, the parasitic eruptions, etc., and it is certain that it is not due to any specific poison introduced from without, as in the case of syphilis and leprosy, nor is there any definite evidence that it is of malarial origin.

Every evidence points to the fact that it must depend upon some internal cause, which at one time or another produces the changes in the skin. Unless, therefore, measures are taken looking toward the alteration or removal of the internal or general condition underlying the disease, we can not hope for a permanent cure. All have been disappointed again and again by the recurrence of the eruption, even after its complete disappearance under local treatment, and all acknowledge the futility of local measures to prevent its appearance or development.

What the exact underlying cause of psoriasis is, we are not yet prepared to say, but advances are being slowly made in this direction.

Heredity has been commonly supposed to have a very great influence in its production, and many writers state this with considerable positiveness. But as far as I can learn by a study of the cases here analyzed, as well as also from the much larger number seen in public practice, this element is of relatively little importance. Notes have been taken of all my private cases, and in most instances the pa-

tients have been carefully interrogated, both as to the positive and negative aspects of this question. The results are tabulated in the following table, v:

TABLE V.—HEREDITY OF PSORIASIS.

	M	F	T
Cases with anterior heredity . . . . .	28	16	44
Cases with posterior heredity . . . . .	6	6	12
Cases with no history of heredity . . . . .	131	111	242
Unknown or unrecorded . . . . .	47	21	68
Total . . . . .	212	154	366
ANTERIOR HEREDITY.			
Parents affected . . . . .	22	15	37
Grand-parents affected . . . . .	3	0	3
Parents and grand-parents affected . . . . .	3	1	4
Total . . . . .	28	16	44
POSTERIOR HEREDITY.			
Children affected . . . . .	6	6	12
Grand-children affected . . . . .	0	0	0
Total . . . . .	6	6	12
COLLATERAL HEREDITY.			
Cases with brothers affected . . . . .	23	13	36
Cases with sisters affected . . . . .	25	12	37
Cases with collateral relatives affected . . . . .	3	6	9
Total . . . . .	51	31	82

Here we see that of 366 cases only 56 showed any anterior or posterior heredity; in 68 cases there was no definite record, while in 242 cases, or over 66 per cent., there was no history of heredity, either in immediate ancestors or children, and in only 15 per cent was there any assurance that this had occurred. This certainly is not any greater proportion of concurrence than could be traced in many diseases, and bears no comparison with that found in eczema. In regard to collateral heredity we find 82 cases in which this was recognized, a no larger proportion than might be expected among brothers and sisters brought up under similar conditions as to diet, hygiene, etc.

As remarked before, it is often very difficult to determine with certainty the underlying causes which operate to produce the eruption, for it is observed in those presenting such widely diverse conditions of life, and under the greatest variety of circumstances. It develops with about equal frequency among the poor and the rich. Not only will it appear after exhaustive diseases, after pregnancy, and in those debilitated by various excesses, but it comes also in subjects who are apparently in the best of health and enjoying the surroundings of a healthy and apparently proper life. No single cause or element, or any combination of causes or elements can be traced in every case. The evidence increases, however, that it is more or less closely allied to the blood states which are known as the gouty and rheumatic; and we can often clinically identify the cases belonging to one or the other of these classes. Upon our recognition of the base upon which the disease rests will depend necessarily our success in treatment and consequently our prognosis.

Undoubtedly the most common systematic condition found is that associated with the still little understood suboxidation process, which underlies or is akin to that found in gout.

Sir Henry Holland<sup>3</sup> says: "I can not doubt from my own observations that certain of these (skin)

<sup>3</sup> Holland, Medical Notes and Reflexions, Philadelphia, 1857, p. 212.

disorders often occur as the result of the habit in question (gout). I have so often seen psoriasis, for example, occurring in gouty families—sometimes alternating with acute attacks of that disease, sometimes suspended by them, sometimes seeming to prevent them in persons thus disposed, that it is difficult not to assign the same morbid cause to these results."

Dr. Garrod<sup>4</sup> believes that psoriasis is, perhaps, the most frequent form in which the cutaneous (gouty) disease manifests itself, and that there are many cases in which the skin and joint affection are alternated.

Sir Thomas Watson<sup>5</sup> speaking of psoriasis and lepra says: "I believe that they sometimes depend upon the presence, or the generation of an excess of acid in the system; and that they are often cured by alkalin remedies, I am sure."

Prout<sup>6</sup> mentions the alternation of leprosy and scaly skin diseases with deposits of phosphate of lime in the urine, in patients who have been subject to gout and rheumatism, the urinary affection becoming better as the cutaneous affection has become worse, and vice versa.

I have purposely quoted from these older writers, rather than from those of recent date, better known in connection with diseases of the skin, because the tendency of modern specialism has been rather in the direction of the minute study of local lesions, and of the local causes of diseases of the skin and away from constitutional conditions, and consequently the so-called humoral views of older writers have been rather overlooked of late.

These who have been quoted, (and the number could be greatly increased if desired) were general practitioners and teachers of prominence, and all were experienced and accurate observers, and their opinions should have weight in this, as they have in other matters.

These observations, and others made by equally careful and acute observers I can, to a good measure, indorse by my own experience, and many cases in my own practice abundantly confirm their truth. As yet, however, no perfectly well-defined statements can be made as to the precise condition which may be looked for in all cases, even in those which present symptoms which may be looked upon as gouty; but I believe that real advances will be made in proportion as they are recognized and treated.

The urine is often a most valuable guide in the recognition and treatment of the acid state which underlies many cases of psoriasis, and should receive more attention than is commonly the case in the management of this disease. In my recorded observations of the urine of patients with psoriasis, this excretion was seldom such as could be regarded as that of health, and although an analysis of the data does not show any very great uniformity in the deviations from the normal, the changes found were such as one should expect in those functional derangements of the liver and other organs which have to do with the metabolic processes in the system. The specific gravity in them varied greatly, ranging from 1008 to 1040; in relatively few instances was it below normal, and very generally it was much above the normal point, a gravity from 1030 to 1035 being not infrequent; it was common to find a very great difference

between various specimens from the same patient. Albumin was found but once; sugar was not found at all, even in specimens with the highest specific gravities, the increased weight being due to urea and organic salts.

In most of the examinations I have found very decided hyper-acidity, with crystalline deposits of uric acid, urates, oxalate of lime, and occasionally stellar phosphates. The cases which present this acid state of the system well marked are commonly characterized by a congested state of the eruption, often attended with burning or itching, and present a marked contrast to the sluggish and indolent eruption shown by those exhibiting simple debility or the strumous state. It is not possible, as yet, to determine and express the differences presented by those in whom the acidity takes the rheumatic form; clinically they resemble the gouty cases, but often the rheumatic element will be manifested more or less acutely in the joints or otherwise, of which I have known some striking examples.

Whether there is really any difference in psoriasis found in these three commonly recognized states, is difficult to determine. I myself am inclined to think that there is but one cause for the eruption, the acid blood state belonging or leading up to gout; this may be developed more or less in the rheumatic and strumous, as well as in those where its fuller development ends in gouty deposit in, or inflammation of the small joints.

As may be supposed, the treatment of psoriasis will depend very largely upon the recognition of the blood state, or condition upon which the disease depends. While most persons with this eruption will appear to be in perfect health, I believe that there is always some departure from the normal which can and should be discovered and reached if the disease is really to be cured. In many instances the eruption depends wholly upon pure debility, and a prolonged and most careful tonic course will ultimately overcome the difficulty. In the gouty and rheumatic class of cases, undoubted benefit results from a prolonged and faithful alkalin course of treatment, with such remedies as meet the underlying blood state. In many cases a strumous habit will be at the bottom of the trouble, the faulty metabolism being dependent on this, and cod-liver oil, phosphates, etc., will be needed, alternated occasionally with alterative doses of mercury. I do not allude to cases of syphilitic skin lesions, which often closely resemble the eruption in question, for these have nothing to do with it and should never be spoken of as syphilitic psoriasis. A number of writers have reported the cure of psoriasis with full and prolonged doses of iodid of potassium, others have praised antimony, while the number and variety of remedies which have been advocated in this disease are so great that the mere enumeration of them would occupy and waste much time and space; their very number and variety indicate the difficulties attending the treatment of psoriasis, and that there must be causes which are not yet fully understood.

There is certainly no single specific for psoriasis, although arsenic seems to come nearer to this than any one remedy; when given in full and persistent doses it often serves to remove the eruption, and to keep it in abeyance. Arsenic is a very safe remedy, as the drug is eliminated almost immediately from the system, largely by the urine and, as far as I can

<sup>4</sup> Garrod, Reynolds' System of Medicine, Philadelphia, 1868, vol. i. p. 824.

<sup>5</sup> Watson, Practice of Physic, Philadelphia, 1858, p. 1295.

<sup>6</sup> Prout, Stomach and Renal Diseases, Philadelphia, 1843, p. 221.

learn, no ultimately toxic effects occur even from its free and prolonged use. In one instance a patient of mine, a gentleman in whom the eruption began at 22 years of age, took nearly eight ounces of the pure Fowler's solution in a single year; and some time ago he calculated that he had taken over half a gallon of pure Fowler's solution in the course of fourteen years.

But arsenic constantly fails either to remove the eruption or to prevent relapses, nor could we expect it so to do, for the most that arsenic can do is to so control the nerve elements that they shall not be irritated by the acid condition of the blood; when its use is suspended or when it loses its controlling effect, the same condition returns as before. In cases where arsenic has seemed to cure the eruption, the blood state which called forth the skin lesions had probably been of but brief duration, and the arsenic had aided the tissue in returning to the normal.

In psoriasis, therefore, the patient should be studied, rather than the eruption; his diet, habits of life, the state of the emunctories, the condition of the nutrition, and many features which a careful physician notes and takes into consideration in connection with other complaints. My plea is, that one who approaches a case of psoriasis should by no means be content with alone recognizing the local conditions of the skin, and prescribing local measures to benefit them, but that, with broad medical knowledge, he should study the patient and seek to rectify the causes back of the local manifestation on the skin.

Time and space fail to fully develop here the details of this interesting and most important part of our subject, but a few of the most practical matters may be considered.

As may be judged from what has preceded, alkalies should never be neglected in psoriasis. They should not be used sparingly but, taking the urine as a guide, they should be pushed with judgment, and be continued long enough to effect the desired result. Potash, lithia, soda, in various forms and combinations, are remedies of incalculable value in this disease.

But it would hardly be expected that any one remedy or group of remedies would cure a disease which has been such a *bête noire* to the profession; alkalies alone will not accomplish this, but their free use is only urged in connection with other measures. While we know that alkalies are of benefit in gout and rheumatism, we know also that their simple exhibition, without due reference to other remedies, and dietetic and hygienic regulations, will never permanently cure either of these complaints.

In psoriasis, therefore, they must also be given in combination with and alternated with other remedies. Colchicum is often a great aid, and in sthenic cases aconite often assists greatly; prolonged alkaline treatment will often result in more or less anemia, and iron and manganese will also come in as adjuncts, while strychnia, phosphates, cod-liver oil, and many tonics and reconstructives may be needed in fully overcoming the disease.

The proper use of water will also aid in the treatment. The acidity of the urine, as is known, is modified by free dilution, and the changes of assimilation and disassimilation which are at fault in psoriasis, are hastened and improved by the free passage of water through the system. Treatment by means of mineral springs has long been a favorite

one in psoriasis, and undoubtedly many cases have been greatly benefited by the use of medicinal waters of many and various kinds.

One objection to the treatment of psoriasis by means of visits to mineral springs is that, as a rule, these visits must necessarily be short, and while they may possibly be of service at the time, it is impossible in this brief period to so modify the system that the eruption shall not return when the active treatment is omitted; the patient is often thus misled into a neglect of the proper protracted course of treatment which can alone be of permanent benefit. After many visits to many mineral springs, in this country and Europe, I have become more and more convinced that the single element which is of value is the water common to them all. I, therefore, advocate the free use of common water to psoriasis patients taken, as at the springs, hot, and on an empty stomach, a half to an hour before meals. When very convenient to the patient, I also advise visits to mineral springs as an adjuvant, during the summer months, when the regular treatment is apt to be neglected, owing to absence from personal supervision.

But, as in pronounced gout, simple medication will not remove and keep away the disease without aid from diet and hygiene, so in psoriasis these aids are necessary. The effect of a full and stimulating diet is often shown in psoriasis by a rapid increase in the eruption, in its congested and irritable character, and in the freer production of scales; whereas a light and unstimulating diet, with total abstinence from alcohol, will often be followed by an improvement in the eruption. Everything which contributes to the production of an acid state of the system also tends to increase the skin difficulty, and every indulgence in sweets, pastry, fermented wines and beer or spirits may precipitate an attack and will always aggravate the existing eruption.

Excessive meat eating will also increase the disease which, however, will frequently improve with much greater rapidity under the same treatment as before, when the quantity of meat taken is greatly lessened or when it is entirely cut off. I have a considerable number of psoriatic patients who have taken no meat, or only very little fish and white meat of poultry, with the result of being free from the eruption for a long period of time. Fatty matter, however, if properly digested, will aid in removing the diseased state.

Hygiene is also often of importance in psoriasis. This includes proper attention to the clothing worn, to exercise, and to the mode of life. Pure wool should be worn next to the skin, to prevent all chilling of the surface and check of perspiration, which I have repeatedly seen followed by outbreaks of the eruption. Exercise should be moderate, but sufficient to keep the circulation active, and this will often need to be inquired into and directed by the physician, as also the general mode of life, hours of eating and sleeping, etc.; for few patients fully understand or carry out the rules conducive to a perfectly healthy life. A warm and equable climate undoubtedly conduces to the cure of the disease, and raw and damp cold climates, and sudden changes of season, tend to develop and perpetuate the disease. I have known patients to remain quite free from the eruption as long as they resided in the tropics.

The local treatment of psoriasis is undoubtedly very



important; very much can be done by it in the way of more rapid removal of the eruption present, and their use should never be neglected. Many remedies, including chrysarobin, pyrogallie acid, salicylic acid, naphthalin, gallaceto-phenon, aristol and others, all are of great value, and by means of one or the other of them the eruption may often be promptly removed. Bathing of various kinds, including sea bathing, is also of much assistance. But it would lead beyond the limits intended, to consider these in this paper, which is intended to show the importance of constitutional rather than local measures in obtaining the really best results in psoriasis.

The prognosis of psoriasis has always been most unsatisfactory. While all recognize that the eruption may be removed again and again by local treatment, the majority of writers imply, if they do not assert, that the disease is very uncertain of cure; and I find that this view of the case is taken more or less strongly in proportion as the writer emphasized more or less strongly the value of local treatment.

But to return to the remarks made at the opening of this paper: as in the case of syphilis the ultimate cure depends largely upon the intelligence, faithfulness and persistence put into the treatment by both the physician and patient, so in the case of psoriasis, its cure depends upon the same elements.

I believe that psoriasis can and should be cured; but, as in the case of syphilis, relatively few cases are cured so as to never give further manifestations, so in psoriasis it is often extremely hard for the patient and physician to patiently persist in the plan of treatment which will end in a permanent cure.

It is very difficult, indeed next to impossible, to give any statistical presentation in regard to the cure of the cases which have been here analyzed, for in a consultation practice, drawn from many quarters, the patients are so commonly lost sight of and so rarely seen when freed from this trouble, even as in olden time only one of the ten lepers returned to give thanks for his cure. But from a considerable number of cases with whose later history I am acquainted, I feel positive that sufficient knowledge, care and patience on the part of the physician and patient will result in the real cure of this complaint, which has too often been relegated to the now lessening category of incurable diseases.

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## PHENACETIN AS A TOXIC AGENT.

Read before the Section on General Medicine of the Texas State Medical Association at Dallas, April, 1895.

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Phenacetin has such a wide range of usefulness as a remedial agent, that it may not be uninteresting to bear in mind some of the toxic effects which the drug is liable to produce. Notwithstanding the fact that phenacetin (with the exception, perhaps of phenocoll) seems to be the least poisonous of the coal-tar derivatives, yet in sufficiently large amounts it may cause serious after effects and undoubtedly, death.

With the collaboration of Dr. William S. Carter, I have carefully studied the physiologic actions of phenacetin in an extended series of experiments upon the lower animals.<sup>1</sup> Dr. Carter and myself did not

notice marked untoward symptoms, even when the remedy was administered in comparatively large doses, nor did we observe any particular changes in the character of the blood itself, changes which, according to other investigators are sometimes produced. Later observations, however, lead me to the belief that phenacetin, especially in large quantities does cause alarming symptoms, chief among which may be mentioned a markedly disordered circulation accompanied with symptoms of collapse. These symptoms have been noticed both in the lower animals and in man.

The fact must not be lost sight of that phenacetin may be adulterated with acetanilid, and other substances, and it is possible that to this adulteration may be due some of the poisonous effects attributed to the drug in question, as reported by various writers. Thus in a case published not very long ago,<sup>2</sup> in which serious symptoms of poisoning were observed, it was found that the powder given as pure phenacetin consisted really of equal parts of this remedy and of acetanilid. Again, Reuter<sup>3</sup> has called attention to the fact that phenacetin contains at times some unconverted parphenetidin, this latter substance producing, even in small doses, toxic effects, especially nephritis with albuminuria.

But be all this as it may, experimental investigation and clinical evidence have shown that phenacetin *per se* exercises a toxic action, particularly when it is ingested in excessive quantities.

Kingsberg and Kast<sup>4</sup> found that large amounts of phenacetin produced in dogs an irregular gait, rapid respiration, vomiting, somnolence, cyanosis and discoloration of the blood, asserting that this latter phenomenon was due to the conversion of hemoglobin into methemoglobin. The same opinion is entertained by Hare<sup>5</sup> in his able essay. Muscular weakness under the influence of phenacetin, probably due to a spinal action, has been observed by Mahnert.<sup>6</sup> Hoppe<sup>7</sup> has reported a case, that of a student, in whom two grammes (30 grs.) of the drug caused insomnia, weakness, inability to stand, and a slight typhalism. Holloper<sup>8</sup> records the case of a woman, who, having taken about a gramme and a half (22 grains) in the course of six hours, showed the following symptoms: great dyspnea, general marked lividity, restlessness, precordial pain, inability to stand, involuntary defecation, dilated pupils, cold perspiration. She finally recovered under the use of ammonia and alcohol. The blueness of the surface of the body, however, lasted for more than three days. For over a week the patient was unable to be around the room, convalescence being very slow. Mahnert<sup>9</sup> has observed urticaria, and Hare<sup>10</sup> has seen large wheals, following the use of phenacetin.

Through the courtesy of a brother practitioner (whose name I have been requested to withhold), residing in a prominent city of the State of New York, I am enabled to report the following highly interesting case of phenacetin poisoning, which seems to corroborate much of what has already been stated in regard to the matter:

A healthy mother who had given birth to two

<sup>2</sup> London Lancet, Dec. 20, 1890.

<sup>3</sup> Pharmaceutis. Zeitung, March 21, 1890.

<sup>4</sup> Centralbl. f. Gesamt. Therap., April, 1887.

<sup>5</sup> Fever: Its Pathology and Treatment, 1891.

<sup>6</sup> Deutsch. Med. Wochenschrift, XIV, 1888.

<sup>7</sup> Therap. Monatshefte, II, 1888.

<sup>8</sup> Medical News, 1889.

<sup>9</sup> Loc. citat.

<sup>10</sup> Loc. citat.

<sup>1</sup> Notes on New Remedies, September, 1892.

healthy children, which had thriven and are now living, was delivered early in the year (1895) of a child weighing six and one-half pounds, after a two and a half hours labor. The presentation was R. S. P., the legs extended against the front of the body, the placental insertion low and posterior, as diagnosed before labor by the location of the round ligaments and confirmed by the clean cut hole in the membrane close to the placenta found after delivery. A large amount of liquor amnii was present. The child was very rapidly expelled by pressure on the fundus; the delivered parts were enveloped at once in flannel, without traction; the flexed arms were slipped out readily; complete flexion of the head was maintained by pressure through the abdomen and on the face, so that no traction was made on the neck (Wigand-Martin method) and the funic pulse was certainly not arrested two minutes up to the time when the mouth was brought up to the vulva, swept clean, and the child began to breathe. Then the head was very slowly shelled out. At no time was much force required, at no time was the child cyanotic, and at no time was there any indication of convulsive movement or attempt at respiration before birth. A good pink color, regular respiration and heart action, were present from the first, so that it is not in the least likely that cerebral or spinal injury, or inhalation pneumonia, could have accounted for the subsequent cyanosis. The child did well until its fifth day, losing less than half a pound. On the fifth day a slight diarrhea developed, without temperature and without sepsis from the navel, which sloughed off that day. Three grain bismuth powders three or four times a day were ordered for the diarrhea. They were in a pink box which had been used for the other child, about a year old at this time. On the sixth day, four of the powders were given, making seven in all, the diarrhea ceasing. On the night of the sixth day the baby was very fretful and somewhat weak, and purplish in color. On the seventh day the eyeballs were jaundiced, color dusky, and the child restless, but otherwise her actions were entirely normal except for some hebetude. The digestion was good, the pulse of fair quality—130 to 140—the temperature in the rectum, respiration, and pupils normal; but on the seventh and eighth days the lips and finger nails were black and the extremest cyanosis was present. On the eighth day, Prof. Charles Jewett went over the case carefully, confirmed the statement that the lungs were entirely clear, and found nothing whatever to account for the condition. On this day bloody urine in large quantity was passed. The prognosis was very bad and the child looked as if it could live but two or three hours at most when seen by Professor Jewett. Without much hope, oxygen was ordered. On the ninth day it was seen that during the night, after about the fourth application of oxygen (ten minutes out of each half hour) that the color had somewhat improved with each administration, and the action was distinctly soothing. The stools on this day became of a coffee color, the temperature  $100\frac{1}{2}$  degrees F., and the baby, as always nursed well.

From this time on the baby had ups and downs, the cyanosis continuing but never as grave in degree. The case had practically no history except the cyanosis of varying intensity. The oxygen was efficient for only two days. On the eleventh day the promise was brighter, the child not pink, but the duski-

ness distinctly less, though from this time on marked jaundice was present, with less color in the urine, anemia of a very high degree, and pronounced weight-loss. The pulse about this time was weak for a couple of days, at no time above 150, and the temperature never above  $100\frac{1}{2}$  degrees F. Before the thirtieth, the original weight was regained, and by the fiftieth the anemia was nearly gone.

Just after the consultation, the physician, author of the foregoing report, found two powder boxes of exactly the same appearance; one labelled, "for baby's diarrhea, three or four times a day," and the other labelled, "For the other child's fever and pain—not over three a day." The nurse then found that she had given seven 2 grain doses of phenacetin, instead of seven 3 grain doses of bismuth; on the first day, 6 grains, on the third day 8 grains, and that it was on the night subsequent to the last dose in the evening, that the cyanosis began.

Somewhat elaborate details concerning the delivery, etc., have been given in order to show that no injury during delivery, or other cause, could explain the condition of the little patient adequately. It was, undoubtedly, a pure case of phenacetin poisoning.

No comments seem necessary on the above report. It may not be out of place in this instance, however, to recall the observations of Reuter<sup>11</sup> regarding parphenetidin which phenacetin sometimes contains as an impurity, and which, it is believed, causes toxic effects even in small quantities. The author just referred to gives the following method for the detection of parphenetidin in phenacetin; "2.5 grammes ( $38\frac{3}{4}$  grains) of chloral hydrate are melted in a small test-tube on a water-bath, and 0.5 gramme ( $7\frac{3}{4}$  grains) of phenacetin added. Upon shaking, a solution will be formed, and if the phenacetin be absolutely pure the solution will remain colorless for at least five minutes, but after that time will assume a rose-red color. If, however, the parphenetidin be present, and it be exposed to the same temperature on a water-bath for not more than two or three minutes, the solution becomes colored, according to the quantity of contamination present, into more or less intensely violet, varying from a red violet to a blue violet."

In conclusion, I may be allowed to remark that in cases of poisoning by phenacetin, cardiac and, more especially, respiratory stimulation by drugs would be useful. The results obtained in the case herein reported, in which oxygen inhalations seemed to do well, and in that reported by Hollopter, in which stimulation by ammonia and alcohol acted efficiently also, are self-explanatory. In a given case, prolonged artificial respiration as a last resort would seem to be particularly indicated.

#### AN AURAL MASSEUR.

BY CHEVALIER JACKSON, M.D.

PITTSBURG, PA.

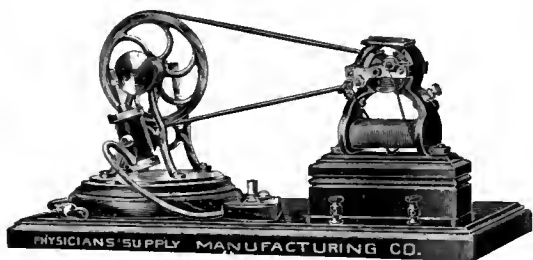
The accompanying illustration shows an instrument which has yielded me splendid results in the treatment of non-purulent middle-ear disease during almost three years. Until I devised it, I scarcely knew what to do with the class of cases that come with a story something like this: "Doctor, I came to see if you could do anything for me. I am hard of

<sup>11</sup> Loc. citat.; also *Annual of the Universal Medical Sciences*, 1892.

hearing and have annoying noises in my ears. I am told that both my throat catarrh and Eustachian catarrh have been cured. My general health is good. Yet my trouble is growing worse. I have a bag and have Politzerized myself until I am sick of it. I seem to have gotten all the benefit that it will yield me. Can you do anything for me, Doctor?"

I had often been at "my wits' end" trying to suggest or do something that had not already been suggested or done in such cases. But for nearly three years past I have been able, with the aid of the instrument illustrated, to get results that seemed marvelous considering the obstinacy and chronicity of this class of cases.

The action of the instrument is practically on the principle of pneumatic massage. I used to apply pneumatic massage by means of either a Sieglé speculum or a bit of rubber tubing—in either case operated by the mouth; rather an indelicate procedure. Then I tried operating them with a syringe. I have also used the Delstanche. But with none of these did I get anything like the results that I have since obtained from the use of this masseur.



Its construction and operation will be readily understood from the following description, by reference to the cut: it consists essentially of a cylinder oscillating on a central pivot, and within this cylinder a piston moved up and down, by being connected with a revolving crank disk. Motion is imparted to the masseur by a small electric motor run by a battery, storage cell, lighting circuit or other source of electricity. It might be operated by a crank arrangement. A rubber tube leads from the bottom of the cylinder and ends in an ear piece to be inserted in the external auditory meatus of the patient. When the instrument is set in motion, the moving up and down of the piston within the cylinder causes a to-and-fro motion of the column of air confined in the tube and meatus, resulting in a to-and-fro motion of the membrana tympani and ossicula. And if we start on the exhaust stroke, with the plunger down, the first half of each revolution of the crank disk will draw the membrana tympani outward, and the second half of each revolution will release it and allow it to resume its former position. When operated in this way, by starting on the exhaust stroke, the result is not simply the to-and-fro motion of the membrana tympani, but is an alternate withdrawal and release. Considering the pathologic conditions present, to this may be attributed the very much better results from this instrument than are obtained from the Delstanche or Sieglé. However, be the true reason what it may, there can be no question as to the fact that the results are better. The ear piece is placed at an airtight fit into the meatus, and the energy of action regulated by placing the crank pin in one or another of the holes in the crank disk. These holes vary in the distance of their location from the axis of the shaft;

the farther the crank pin from the axis, the longer (therefore the more energetic) the stroke. The energy of action could be regulated by making a more or less tight fit of the ear piece in the meatus, but if this is resorted to the exhausting action is lost and this I think, is a disadvantage. A very mild action has given me the best results.

It has seemed most advantageous to apply the masseur every alternate day, sittings of thirty seconds to a minute duration, the masseur making from one hundred to one hundred and fifty revolutions to the minute. Knowing well how treacherous is enthusiasm I have refrained from publication until the instrument had been fairly and faithfully tried and the permanency of the results observed. As this has covered a period of two years and ten months, the present writing will seem not unduly hasty and the results entitled to be considered mature.

The word "benefited" is meant to include both relief of tinnitus and increase of hearing distance. In many cases the relief of both these symptoms was so marked and so immediate from a single sitting that the patient was greatly delighted. In some cases the results were but slight at first and increased at each subsequent sitting, while in other cases the benefit only appeared after a number of applications. Psychic effect was marked; patients were fascinated. But great care was taken to eliminate error from this in the records, which are of the cases of my own and those of Shirls Jackson.

Here is a resumé of my results:

Total number of ears treated . . . . .	100
Number of ears treated that were better than c.34 . . . . .	61
Number of the latter benefited . . . . .	46
Number that could only hear watch on contact . . . . .	39
Number of the latter benefited . . . . .	19
Percentage of benefit in cases better than contact . . . . .	.75
Percentage of benefit in cases not better than contact . . . . .	.48
Percentage of benefit in all the cases . . . . .	.65

Cases that could only hear on pressure, not on mere contact, were not isolated in the records.

Unlike Politzerization the application is not disagreeable to the patient and is readily applied to any one, regardless of the ability to swallow water at command. Children do not object to its repetition, and it has yielded good results in a few cases when promptly used in ear trouble following acute diseases.

Taking it all in all, my results have been much better since adding this instrument to my armamentarium.

## EXPERIENCE OF AN AMERICAN PHYSICIAN IN MEXICO.

BY D. H. GALLOWAY, M.D.  
CHICAGO.

*A Case of Cancrum Oris.*—One day happening to be in the dispensary conducted by Dr. Salmans, in Silao, I saw a child brought in which the Doctor had no sooner seen than he exclaimed: "Take it away! It will die!" Although I had never seen a case of cancrum oris, it was scarcely necessary for him to name the disease. The appearance and odor were something frightful, and death was then but a question of a few hours. When the Doctor had finished prescribing for the thirty or forty patients waiting, I asked him about the disease. He told me that in some two years' practice in that state, he had seen eight or ten cases of this dreadful malady; that he did nothing more than tell the people that the disease would be fatal, and dismissed them. He also

informed me that the Mexican doctors pursued the same course. This was not so much from a belief that the disease was incurable, as from the fact that the people among whom it occurred were too poor to pay for treatment, and too indifferent and ignorant to coöperate energetically or intelligently with the physician in its treatment. My duties in the medical service of the railroad company were sufficiently light to leave considerable time at my disposal. I requested the Doctor to turn the next case over to me, and if much deformity had not already been caused, I would attempt its cure. In most cases a large amount of tissue had been destroyed before the doctor was consulted. In such cases the chances that any treatment would stop the course of the disease are very slight; moreover, when such deformity had already been produced it would seem inhuman to try to save the child's life, for such a child would be a constant source of misery to itself and all about it as long as it lived; where the over-production of babies is so great that even the vigorous and healthy can not get enough to eat, the maimed will fare badly indeed.

September 6 I was again in the dispensary, when a woman brought in a child, a glance at whose face and a whiff of the horrible stench which preceded it, being sufficient to identify it as a case of cancrum oris. The Doctor told her to take the child out of the room, that it would die. Tears filled the mother's eyes as she left the room; this unusual exhibition of feeling reminded the Doctor of my offer, and he suggested that this would be a good case to begin on. I followed the woman outside and told her that if she would do exactly as I should direct, that I would undertake to cure the child. To this she readily agreed. The boy's name was Juan Sanchez, and he was 2½ years old. Like all of this class he was fearfully filthy, and I instructed the mother to take him home, give him a thorough scrubbing, from head to foot, and bring him to my office. This would not only make him a little less loathsome to handle, but would also be an earnest of her desire to have him live. In a short time she appeared at my office with the boy cleaner, probably, than he had ever been before or would ever be again. I placed two chairs facing each other, outside of the door, gave her one and I took the other. I had the mother hold the child on its back in her lap, in such manner that she could perfectly control its hands and feet. I then took its head between my knees, as in a vise, first covering my knees with a newspaper that I might be less likely to infection by pediculus capitis.

The disease had started around the upper central incisors. The upper lip was edematous, so that it projected beyond the point of the nose; the swelling extending to the cheeks. The blackening had not involved the lips, but extended for a considerable distance on both sides of the teeth. With a pair of dissecting forceps I removed the two teeth and scraped away the blackened portion. As I did so the connective tissue strung out like hair. Then I took an absorbent cotton wad on a toothpick, dipped it in strong nitric acid, canterized the discolored surface, and in a few minutes washed it with water. I then dismissed her with instructions to come to the office every morning. The next morning, Sept. 7, I treated it with a saturated solution of copper sulphate in water. Blackened spots had reappeared, and these I picked out with forceps before using the wash.

September 8 I removed the rudiments of the secondary set of teeth and a portion of the alveolar process, used strong nitric acid and followed with the copper solution. On the 9th I repeated the copper sulphate treatment. Pus was coming from the nose in great abundance. September 10 the child first began to show signs of improvement, and from this time on it slowly became better, under the use of the sulphate of copper every day. The edema gradually lessened and some effort toward repair of the damage was apparent. Nearly every morning I found one or more black spots, like pin heads, and this treatment was continued twenty-two days. For several days no blackening was to be seen and the wound was covered with healthy granulations.

I did not see the case for four days, and then found the cavity almost completely filled up, mucous membrane had formed over it all, and the only mark left by the disease was a cleft through the alveolar ridge, probably one-sixteenth of an inch wide, having something the appearance of a cleft palate. To me, the most remarkable thing about the case was the filling-in of the dental arch as perfectly, excepting the slight cleft, as it had been before the teeth had first made their appearance. I was absent from the city for a month, and on my return was unable to find the patient. I was anxious to know whether the cleft became smaller. I do not believe it would ever entirely close up. The boy would never have any upper central incisors.

#### ECTOPIA TESTICULI.

BY JNO. MADDEN, M.D.

MILWAUKEE, WIS.

The drawings herewith submitted are to illustrate a case of, and an operation for the excision of an ectopic testicle, made by the author on March 4 of the present year. The patient is a young man, 22 years old. Four or five years ago he first noticed a bulging at the left external abdominal ring which was accompanied by a dull pain extending to the loins and back. For one, two or three weeks the bulging would disappear, during which time he felt no discomfort.

An examination of the part while the tumor was present, disclosed only the presence of a mass of soft tissue in the inguinal canal, in the midst of which could be felt a cord which was taken to be the spermatic cord. The conclusion was therefore reached that the testicle was within the abdomen, its descent prevented by the smallness of the internal abdominal ring, and that the cord felt was the spermatic cord bent upon itself, the testicle presenting head foremost at the internal ring. An operation was advised, either to bring down the displaced organ and secure it within the scrotum, or, in case this was found impossible or impracticable, to remove it altogether.

On cutting down into the inguinal canal some difficulty was experienced in getting hold of the "cord," for the tumor was not then presenting. It was finally reached, however, and drawn down, when a small testicle appeared just without the internal ring, firmly held by a cord behind it. It was then discovered that the supposed cord in the inguinal canal was the epididymus, which, with one end attached to the testicle, trailed down the inguinal canal (see Fig. 1). The real cord of the testicle proved to be so short that it could not be pulled far out of the internal ring. It was therefore ligated with



double ligature and cut off close to the testicle. Fig. 2 is a drawing made from the object and very accurately represents the parts removed.

The wound was closed with the continued (etage) catgut suture (Fig. 3), embracing all of which were five stout interrupted silk sutures. (Fig. 4). Nothing disturbed the patient's convalescence.

It should be remarked that the right testicle of this subject is in the normal position, and seems to have reached a development compensating for the lack of development in the displaced organ.

In 1887 the author removed a very large testicle from the inguinal canal of a young man 19 years of age. This was also on the left side. A microscopic examination showed the organ to be the seat of very extensive sarcomatous degeneration. This patient

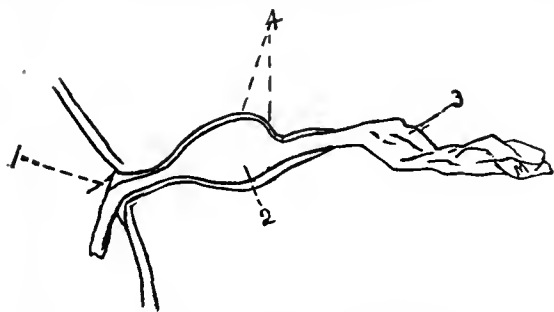


FIG. 1—1. Internal ring. 2. Testicle. 3. Epididymus. 4. Prolongation of abdominal peritoneum making "tunica vaginalis."

died of exhaustion about six weeks after the operation, and a post-mortem revealed enormous sarcomata of the supra-renal capsules.

In recent years the literature of this subject has become quite extensive; but still there is not enough material at hand to establish any well-defined rules of surgical procedure. Indeed, it is more probable that each case will continue to present a distinct problem, to be solved according to the nature of the

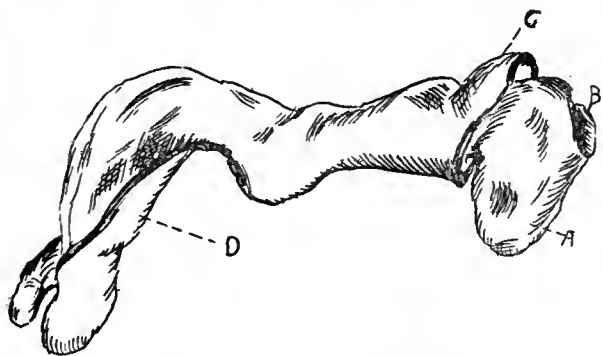


FIG. 2—A. Testicle. B. Cut surface where end was severed. C. Tunica slipped back. D. Epididymus (natural size).

surrounding conditions. If, as some operators seem to think, the atrophied ectopic testicle would develop after being brought into a normal position within the scrotum, a good deal of effort should be made to accomplish this object. The most favorable report I have been able to find, in which the object of the operation was to replace (or rather transplant) the ectopic organ in the scrotum is that of Jalaguier (*Le Bulletin Medical*, Paris, March 5, 1894). He reports fifteen cases in thirteen subjects. Herniæ co-existed in six cases. In two "the testicles became normal in size in from thirty to thirty-six months." In twelve others, at the end of three to fifteen months, the organs were "movable, sensitive, of normal consistency, and showed no disposition to retract." This

author is of opinion that, in retained testicle, there exists a fibrous band connecting the testicle with the cribriform fascia and confining it. He advises operation in all cases where the subject is over 5 years of age, and in cases connected with troublesome herniæ.

Terillon (*Le Bulletin Medical*, March 8, 1894) reported six cases, congenital hernia in four, operated on by himself. In three cases "result was satisfactory." In one, the testicle retracted to its former site, and in two atrophy took place.

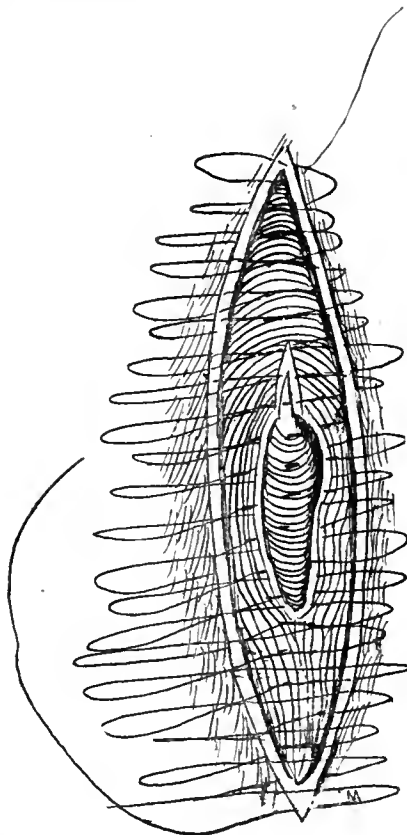


FIG. 3—Etage Suture for obliterating Inguinal Canal. A. Closing wound.

W. Von Schuttler, of Finland, (*Lyons Medical*, Lyons July 16, 1894) reported two cases operated on by him, one and a half years ago, in which the result was good. In two other cases (date of operation not given) he performed castration because the displaced testicle could not be fastened in the scrotum. In all of his cases hernia existed, and, in one of them, the hernia was strangulated.

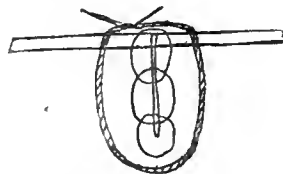


FIG. 4—Sectional view Etage and Interrupted Sutures.

Guibert of Reims (*Annales des Maladies des Organes Genitourinaires*, March, 1894) reported a case of abdominal ectopia of both testicles in a boy of 18, upon whom he operated a year before, bringing one of the displaced organs into the scrotum. At the time the report was made, the subject was said to have "one good testicle in the normal position, normal erections and emissions in which there were some good sper-

matozoa, while others were deformed and broken." As the condition of the subject in respect to erections and the nature of the semen before the operation is not given, this evidence of improvement is not very valuable.

Felizet (*Le Bulletin Medical*, March 12, 1894) makes the observation that "when the organ is movable, it is generally normal in form, volume, and consistency and will descend if enlargement of the inguinal canal takes place; but when fixed is usually altered in size and texture and is painful." My own recent case contradicts this statement; for this testicle was freely movable but very much atrophied and painful.

At a meeting of the London Medical Society (*Lancet*, April 16, 1894) Mr. C. B. Keetley reported two cases upon which he operated to bring the testicle within the scrotum. In one of these cases he was unable to bring the organ down far enough to fasten it in the scrotum. He had therefore made an incision in the thigh, opposite a corresponding incision in the upper part of the scrotum where the testicle was fastened and covered by uniting the scrotum with the thigh. In this position it was allowed to remain five months. It was then brought down and fastened in the scrotum where it remained. A discussion arose as to whether an atrophied ectopic testicle would grow when artificially transplanted in the normal position. Mr. Keetley replied that the organ had "already grown."

In 1890 (*Lancet* February 1), Mr. Watson Cheyne reported two cases in the same subject. In this case the testicles were lying in the inguinal canal, "but could be made to come down through the external ring." The right side was operated on a year before by suturing the testicle to the bottom of the scrotum and closing the external abdominal ring, passing some of the sutures, used to close the ring, through the cord and skin. The result was fairly satisfactory. Ten months after, the left side was operated on. In this case, the surgeon passed a silk ligature through the cord above the testicle, brought it through the bottom of the scrotum, and tied it to a bar of wire projecting from a frame made fast to the perineum. The stitch was removed on the eleventh day and the testicle remained in the scrotum.

Of the American cases we find one reported by E. A. Balloch, of Washington, D. C., *Medical Record*, August 6, 1892). In this patient who was 47 years old, one organ was removed in 1889 and the other in 1891 for "painful orchitis."

Dr. O. L. Bartlett of Rockland, Me., operated successfully in 1892 on a subject in which the left testicle was invisible and the right in the inguinal canal. The right gland was put in its proper locality and "sexual power was perfect." Hamilton Williams, M.D., of Brooklyn, reported (*Medical Record*, Dec. 7, 1889) a case of sexual hypochondria in a subject, in which there was an absence of the right testis, while the left was in the inguinal canal. An operation upon the left was attended by success in all respects. Dr. Gerster, of New York, reported a case in 1886, in which ectopic testicle was a complication of hernia; castration was performed and the testicle was found to be sarcomatous.

Two considerations must influence our judgment in deciding what is best to be done in dealing with this class of cases. Investigation has shown (see article of H. Royes Bell in "Int. Ency. of Surgery") that the ectopic testicle is not productive of virile

spermatozoa. To this rule there seems to be but few exceptions. The second consideration is the liability of the retained organ to undergo destructive inflammation or malignant change. Of the thirty-six cases mentioned in this paper, two were removed because of long standing orchitis, and two were the seat of sarcomatous degeneration. Thus 11 per cent. of the ectopic organs were the seat of destructive disease. It would seem, then, that in subjects possessing one healthy gland normally situated, the atrophied and useless testicle should be promptly sacrificed.

In case, however, both testicles are retained, the justice of adopting measures for their preservation is apparent. Should it finally be demonstrated that an ectopic aspermatozoic testis may become virile when put in its normal place, there will exist sufficient reason for making every attempt to do so.

63 Sentinel Building.

## ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Continued from page 669.)

### CHAPTER X.

*Case 2.*—Yellow fever, black vomit, death. John Sullivan entered Charity Hospital Oct. 8, 1873, about fourth day of disease, great congestion of capillaries of face, neck and extremities, jaundice, hiccough, nausea, pain in head especially in frontal region. Pulse 82, respiration 28, temperature of axilla 98.2. October 9, 8 A.M., pulse 72, respiration 28, temperature 97.1; black vomit. The liquid ejected in abundance is of low specific gravity and strong acid reaction and contains numerous dark specks and flakes resembling coffee grounds. Hands feel cold. Great congestion of peripheral capillaries. Jaundice; conjunctiva of eyes congested and yellow; tongue red at tip and edges. Gums very red with some oozing of blood. Patient says that he has pain everywhere. Urinary excretion suppressed. 8 P.M., pulse 80, respiration 30, temperature 99.2. Spits up black vomit all over the bed.

October 10, 8 A.M., pulseless, respiration 40; temperature 92.2. Suppression of urine. Patient restless and delirious. Spits up black vomit which resembles black liquid blood. Died at 10 A.M. Temperature of axilla at moment of death 99.2. There was no rise of temperature after death. Examination of black vomit; clear straw-colored liquid, holding in suspension dark coffee-ground-looking flocculi and flakes resembling coffee grounds, which settled to the bottom of the vessel, when the liquid was allowed to remain at rest. Reaction strongly acid. The reaction was found upon analysis to be due to acetic and hydrochloric acids. Under the microscope, I observed broken capillaries, cells of mucous membrane of stomach, blood corpuscles and angular masses of hematin and cells of the gastric mucous membrane stained with hematin. Numerous bacteria and retating animalculæ, about one ten-thousandth of an inch in diameter rapidly appeared and increased in numbers. Specific gravity of black vomit 1004. When filtered, the colored blood corpuscles, masses of hematin, and mucous cells remained on the filter, and a clear, light, straw-colored liquid passed through. The filtered liquid gave a heavy precipitate with nitrate of silver, and a mere turbidness with the chlorid of barium. Nitric acid produced no precipitate in the filtered liquid. The graded solution of the nitrate of the per- (red) oxid of mercury used in the analysis of the urine after the method of Liebig produced a heavy white precipitate from the presence of urea. The usual process for urea in the blood and organic liquids revealed the presence of urea. This specimen of black vomit was collected October 9 at 10 A.M. Upon carefully tasting the black vomit I found it to be decidedly bitter like bile, although I was unable by chemic tests to detect either the coloring matter or the acids of bile. The black vomit be-

came thicker toward the close of life, and more nearly resembled dark grumous blood. During the last thirty-six hours of life, this patient emitted a foul stench, and presented a horrible appearance, with the dark filthy stains of black vomit on the bed-clothes, and even the sides of the walls; streams of black vomit running from the corners of his mouth, and immense swarms of flies hovering over and around his bed.

Post-mortem examination: results similar to those recorded in many other cases of yellow fever already presented in detail.

*Case 3.*—Yellow fever, black vomit, death. Daniel McMonagale, age 18, native of Ohio, left his native State two years previous to the present attack; resided in Memphis and Vicksburg, and has been in New Orleans two weeks. Has had chills and fever at various times during the past two months. Entered Charity Hospital evening of Oct. 11, 1873. I saw this patient for the first time on the morning of October 12, 8 A.M. At this time, although not actually delirious, is unable to give a full and accurate account of his present attack. Surface of body covered with petechiæ. Gums red. Tongue very red at tip and edges. Body of tongue coated with light yellow fur. Tenderness on pressure of epigastrium. Conjunctiva of eyes injected. Center of tongue cracked, with dark blood oozing from the denuded surface. Conjunctiva of eyes and surface of body present a distinct yellow color. Nausea; pulse 110, respiration 22, temperature of axilla 104.6. 8 P.M., pulse 113, respiration 26, temperature of axilla 105.5. The pulse has increased two beats, the respiration four, and the temperature of the axilla, 0.9 F. Has ejected the matters contained in the stomach, with some flakes and streaks of dark blood. A small amount of urine was collected during the day which contained bile, albumin and urinary casts. The urinary secretion is scant and evidently diminished in amount. Injection of ice-cold water into the rectum was ordered; ice bag to epigastrium, and water charged with carbonic acid, iced milk and fragments of ice internally.

October 13, 8 A.M., pulse 110, respiration 29, temperature 104.5. Dull and stupid. Has thrown up black vomit in considerable quantity. The injection of the ice-cold water appeared to be beneficial and to increase the flow of urine. 8 P.M., pulse 112, respiration 34, temperature of axilla 104.7. Continue ice-cold injections to rectum and treatment. October 14, 8 A.M., pulse 116, respiration 35, temperature 103.3. Delirious; jaundice; great capillary congestion; urine scant. During the night the patient discharged black vomit over his bed and against the sides of the wall. At the present time, spits up black vomit against the wall, like tobacco juice. The black vomit appears to come up without any effort. The nurse found it almost impossible to collect the black vomit for microscopic and chemic analysis. No urine has been collected since the first day, although the nurse states that the patient has passed it in bed. The injection of the rectum with cold water appeared to produce beneficial effects upon the congested and embarrassed kidneys. 8 P.M., pulse 130, respiration 38, temperature of axilla 103.3. Great capillary congestion, conjunctiva and surface of a yellow mottled appearance. Petechiæ have continued upon the surface. Notwithstanding the increase in the rapidity of the pulse and respiration, the temperature has fallen 2.2 F. since October 12. Died October 15 at 6 A.M. This patient was delirious for thirty-six hours before death.

Autopsy three hours after death: exterior of body of a golden jaundiced color; lower portions of a deep purplish mottled appearance. Black vomit issuing from corners of mouth and streaming down the neck. Limbs, trunk and face full and plump. Blood issuing from both ears. Thorax: lower portions of lungs congested, otherwise normal. Heart: muscular fibers presented a yellow appearance and were much softer than in healthy hearts, and in the heart of malarial fever. Under a magnifying power of 450 diameters the transverse striæ of the muscular fibers were found to be indistinct, and to be filled with granular matter and small oil globules. The granular matter and small oil globules appeared to be deposited around as well as within the muscular fibrillæ. The blood from the cavities of the heart was carefully collected; it was still warm, and fluid. Upon standing a few min-

utes in the glass vessel it coagulated. Under the microscope the vast majority of the colored blood corpuscles presented a normal appearance; a few presented a crenated stellate appearance. The blood corpuscles ran together, forming rouleaux as in the blood of inflammation. The fibrin was diminished in amount—the clot was voluminous and soft, but the fibrin was in larger amount, and the clot was more firm than in those cases in which there had been complete suppression of the urine. Upon careful examination, with a high power, 1-18 of inch, I discovered no bacteria, animalculæ nor fungi in the blood. The blood, however, contained numerous oil globules. Reaction of blood neutral or very slightly alkaline. Upon standing for a few hours, golden-colored serum was pressed out of the clot, which also contained colored corpuscles. At the end of three days the clot still remained undissolved. The serum was less deeply colored than in those cases in which there was complete suppression of urine. The liver upon the exterior presented a yellowish mottled appearance. This appearance was also observed when sections of the organ were made, and appeared to be due to the congestion of the hepatic capillaries within each lobule. The periphery of each lobule, including the portal system of capillaries, was of the usual yellow color, and the oil appeared to be accumulated in largest amount in this portion of the lobuli. Some portions of the liver were without any marked capillary congestion of the hepatic venous capillaries, and presented a uniform yellow appearance. This liver in a general view, presented more nearly the Spanish brown color of the liver of health than in many cases of yellow fever; and this depth of color was due to two causes: 1, to the great congestion of the central capillary (hepatic capillaries) of each lobulus; and 2, to the presence of dark granular masses of hematin, scattered chiefly through the portal system of capillaries, and which had evidently been deposited during the preceding attack of malarial fever. The blood was much brighter in color in the capillaries of the liver than in malarial fever. The blood from the cavities of the heart and from the blood vessels of the liver also changed to a bright arterial hue. The voluntary muscles, as those of the thorax, presented a brilliant hue when exposed to the atmosphere. The muscular fibers of the heart on the contrary presented a distinct yellow color like that of the liver. The gall bladder was entirely empty, kidneys of a yellowish color and congested. Sections of the kidneys with Valentin's knife were carefully examined with magnifying powers ranging from 1-2 to 1-18 inch objective. The Malpighian corpuscles and tubuli uriniferi contained detached cells, oil globules and yellow granular matter. These matters have accumulated to a much less extent, however, than in the kidneys of those cases of yellow fever in which there had been complete suppression of urine. Urinary bladder distended with golden orange-colored urine. Specific gravity 1012; reaction acid; urine contained albumin in considerable amount with detached cells and casts; no grape sugar. Alimentary canal, mucous membrane of stomach congested, with denuded patches, in which the ends of broken vessels filled with dark liquid blood were plainly seen, especially when low magnifying powers were employed. The stomach contained eight fluid ounces of thick, grumous, almost black liquid blood or black vomit. Under the microscope, the contents of the stomach

contained numerous blood corpuscles variously altered in their forms, masses of hematin, mucus corpuscles, broken capillaries, detached epithelium from mucous membrane and granular casts of the glands of the mucous membrane of the stomach. No animalculæ or vegetable organisms were observed in the black vomit. Some oil globules were observed, which were referred to the milk which the patient had taken before death. The black vomit emitted a foul putrid odor as of decomposed blood. Reaction of black vomit slightly acid. Spleen, enlarged, softened and exhibited the marks of preceding malarial fever.

The foregoing investigations occupied my time fully for twelve hours without intermission. I determined to institute a series of experiments with black vomit upon living animals, and at 6 P.M., Oct. 15, 1873, I instituted the following experiments:

EXPERIMENTS UPON LIVING ANIMALS WITH THE BLOOD FROM THE HEART, AND THE BLACK VOMIT FROM THE STOMACH, OF YELLOW FEVER CASES.

Experiment 305.—With a small "subcutaneous" syringe, I injected beneath the skin of a healthy puppy, about thirty drops of blood taken from the heart of a yellow fever patient three hours after death. No ill effects were observed.

Experiment 306.—In like manner I injected beneath the skin of an active guinea pig about the same quantity of blood from the yellow fever heart. The next day, Oct. 16, 1873, the guinea pig appeared lively and ate its food. October 17, the animal appears sluggish and refuses food. October 18 animal feeble; moves with difficulty, and is evidently ill from the effects of the injection. October 19, 5 A.M., I found the guinea pig dead, cold and stiff.

Post-mortem examination.—Body emits a disagreeable odor; cellular tissue of skin and surface discolored and greatly congested around the point of the injection of the yellow fever blood. Cellular tissue and skin softened in those portions around the area of injection. Under the microscope the fluid from these portions of the cellular tissue was found to contain bacteria and revolving animalculæ. Cavities of the heart distended with dark, almost black, loosely coagulated blood. Blood changed rapidly to the arterial hue upon exposure to the atmosphere. Under the microscope the blood corpuscles presented no peculiar alteration. Liver congested. The microscope revealed no accumulation of oil in the textures of the liver. Liver cells distinct but pale. No bacteria, or animal or vegetable organisms were observed in the blood of the heart, or in the blood and structures of the liver.

Experiment 307.—Into the subcutaneous tissue of a large, healthy and active male guinea pig, I injected about thirty drops of black vomit, taken from the stomach of the yellow fever patient three hours after death. The black vomit thus carefully injected into the cellular tissue caused the death of this animal in six hours.

Post-mortem examination.—Diffused redness, and great capillary congestion of cellular tissue beneath the skin. Congestion greatest in the immediate vicinity of the injection. Body emits a foul putrid odor. Immediately around the point where the black vomit had been injected dark blood had been effused, and the textures presented precisely the appearance of those wounded and poisoned by the fangs of the rattlesnake or copperhead. The cavities of the heart

were distended with dark loosely coagulated blood. No animalculæ, bacteria or fungi, or algæ discovered in the blood. Decomposition rapid; and although the animal was examined almost immediately after death, the odor was disagreeable and resembled that of the black vomit.

Experiment 308.—I injected into the subcutaneous tissue of a large healthy guinea pig, about thirty drops of black vomit which I had preserved from a case of yellow fever, ejected shortly before death on Oct. 9, 1873, six days before the present experiment. Death caused by the black vomit in six hours.

Post-mortem examination.—Results similar in all respects to those recorded in the preceding experiment; intense congestion of cellular tissue around locality of injection of black vomit; no animalculæ or vegetable organisms in blood; putrefaction rapid and marked by foul odor.

Experiment 309.—I injected into the subcutaneous tissue of a guinea pig about thirty drops of putrid blood, which I had extracted from the cavities of the heart of a subject who had died six days before, on October 9, in a "congestive" malarial chill. Death caused by the putrid malarial blood in eight hours.

Post-mortem changes similar to those recorded in experiments third and fourth.

The preceding experiments are of importance in establishing the fact that black vomit, taken from the stomach immediately after death, or ejected during life in yellow fever, will, when injected into the subcutaneous tissue, produce as deadly and as rapidly fatal results as putrid blood.

We deduce the following practical conclusions:

1. Black vomit, when absorbed into the circulatory system, may act as a deadly septic poison.
2. As the capillaries of the stomach in yellow fever are often ruptured, and the epithelium of the mucous membrane denuded, it is possible that in some cases the absorption of black vomit, especially after it has undergone putrefactive changes in the stomach, may be an important cause of the fatal issue.
3. If remedies could be used which would prevent putrefactive changes in the black vomit and render it comparatively inert, a certain proportion of cases might be rescued, after the appearance of black vomit.

The preceding experiments and reasoning led me to employ the sulpho-carbolate of sodium, in doses of 20 grains, every four or six hours in the treatment of yellow fever. I have used the sulpho-carbolate of sodium in about forty cases of yellow fever, with satisfactory results. I find that it is readily borne by the stomach at all stages of the disease; that so far from exciting nausea or vomiting, it often modifies and arrests these distressing symptoms. It appeared in some cases to arrest the decomposition of the black vomit. One case accompanied by a temperature of 107.1 degrees, and attended with black vomit recovered under its use, combined with ice-water injections into the rectum. At some future time we hope to present statements of these cases.

Davaine claims to have made the following discoveries: after injecting beneath the skin of an animal's neck a single drop of putrid blood, the surrounding tissue became extensively infiltrated, and death soon followed with symptoms of septicemia. The blood of this animal was then employed to inject other animals in a similar way, and was found to be more poisonous than the original putrid blood. A



third and fourth animal was then injected, each with the blood of the preceding one, and in this way twenty-four in all were experimented on. The results seemed to show that the toxic power of the septic material increases by dilution.

Stricker, in a series of experiments undertaken to test these statements, inoculated 25 animals with healthy, 23 with putrid, and 73 with blood diluted by transmission. Of the first series, 4 died. Of the second series 11 died. In experiments with diluted blood, when it had passed through 13 different animals, 53 of the 73 died. From this it appears that even the very small amount of 1-1250 of a cubic centimeter of poisonous material could cause death when injected hypodermically. Davaine's statement that organisms form in the blood and increase by every transmission, was not sustained by investigation. Stricker found numerous colorless bodies in the blood of these animals, but he did not regard them as organisms, but rather as protoplasmic bodies. The following facts he regards as ascertained:

1. That transmission greatly increases the injurious and fatal action of the putrid matter.
2. That the original disease was infectious, but that through inoculation it became contagious.
3. That though it be not proved yet it is probable that the special poison is a living contagion (*contagium animatum*) for such rapid proliferation is only possible in organized material.
4. That the poison is diffusible and is not destroyed by boiling (*Allg. Wein Med. Zeitung*, 20, 1873; *New York Medical Record*, July 1, 1873, p. 311).

If it be true that the poison of yellow fever may be generated in human beings under certain conditions of the constitution, and more especially of the chemical and physical constitution of the blood and of the nervous and muscular structures, when subjected to the combined influences of heat and crowding in an impure atmosphere; if it be still further true that decomposition, both before and after death, is more rapid than in any other form of disease, and if this decomposition forms the most favorable condition for the rapid multiplication of bacteria and fungi, and other simple organisms; it is reasonable, in the light of the preceding experiments of Davaine and Stricker, to suppose that these organisms may become carriers of the poison, and may constitute an important medium of its dissemination from the original foci.

Magendie has shown by actual experiments on living animals that an excess of alkalinity in the blood, interferes not only with the freedom of the passage of this liquid through the capillary vessels and diminishes the property of coagulation, but also, when thus modified, the blood tends to penetrate the walls of the capillaries by imbibition, and to produce those disorders in the mucous membrane, which have long been known under the name of inflammation.

Magendie by injecting carbonate of soda into the veins of animals, produced edema of the lungs, with its pathognomonic signs at the outset, and cadaveric lesions when it causes death. Thus proving that when the blood becomes surcharged with an alkalin principle its serous matter increases in quantity, escapes from its vessels among the lobular ramifications of the lungs, distends and bursts them, and carrying with it the coagulable part, in a semi-liquid state, collects in irregular masses, which appear to be formed in large measure of fibrinate of soda and potassa.

On comparing the disorders caused by spontaneous excess of alkalinity in the blood, with those produced by injecting carbonate of soda into the veins, or by a frequent repetition of blood-letting, Magendie found the same symptoms and similar results.

If any substance possessing the property of combining chemically and of forming salts with the fibrin, such as fibrinate of soda, potassa, or ammonia, be injected into the veins of a living animal, the fibrin will lose its coagulability, and this change affects the blood generally, and although it may contain the usual proportion of fibrin, it becomes unfit for circulation, and stagnates in the capillaries and especially in the pulmonary vessels, and local lesions, as apoplexy, hemorrhage, or hepatization follow.

Magendie has in like manner, tested the effects of defibrinization upon the process of inflammation during the reparation of wounds. He selected a dog from whom he had successively removed several portions of fibrin. A longitudinal incision was made through the skin, and some depth of muscle in the anterior and middle part of the neck. The blood that escaped from the divided vessels appeared more liquid than usual; it did not coagulate on the blade of the bistoury. The lips of the wound were united by the twisted suture, and the animal left to himself. The animal survived the operation a few days only. An examination of the wound after death revealed the absence of any real adhesion by coagulable lymph, and the divided tissues were discolored, dry and hardly at all swollen.

The older writers were acquainted with the fact that alkalin salts prevented the coagulation of the blood, and John Huxham in his "Essay of Fevers," uses this fact to explain the changes of the blood in scurvy and putrid petechial fevers:

"It is well known that volatile alkali salts mixed with the blood, when just drawn, or rather after it runs from the vein, keep it from coagulating and hinder it from separating into crasamentum and serum, as usual. The experiment is easy, and every one will find it true on trial. This very adequately resembles the blood drawn from the bleeding scorbutics, and also from most persons that labor under putrid petechial fevers, when the blood is drawn very early in the disease.

"All humors of the body, actually putrefied, become a strong alkali, and putrid blood loses its consistency, and soon after its color, running into a yellowish dark-colored sanies. The blood drawn in some greatly putrid petechial fevers, hath had this appearance, and been observed actually to stink as soon as drawn, as well as the urine, as soon as made; so far was the putrefaction advanced, while even life was still subsiding. The surprisingly great and speedy corruption of bodies dying of pestilential fevers with spots, shows this likewise; I have known such a corpse air as much, as they call it, in seven or eight hours, as dead bodies commonly do in seven or eight days, and to leak out a most putrid sanies, from all the outlets of the body; which by-the-by, is a reason why persons dying of such fevers should be buried very soon."—"An Essay on Fevers," etc., by John Huxham, M.D., 1757, pp. 50, 51.

Andral has shown that in the diminution of the fibrin, relatively to the globules, we must recognize the grand condition of the blood favorable to the production of hemorrhages; and in his investigations he found the relations of these two factors so constant that he found it impossible not to regard the one as the cause of the other. In scurvy the proportion of globules is natural, or varies within narrow limits, while the quantity of the fibrin is diminished, and its coagulative quality is at the same time altered; and this condition is most favorable to the production of repeated and profuse hemorrhages.

The tendency of the formation of petechial and

livid spots, during the progress of malignant fevers, in the Middle Ages, is referable chiefly to the scorbutic condition of most patients, at those times, when salt meat constituted the chief nutriment during a large portion of the year, and fresh vegetables were almost unknown. In this connection it should be remembered, that authors have declared that they have found an excess of alkaline matters in the imperfectly coagulated blood of persons who have died of low fevers or scurvy, attended with livid petechiæ and spots. An analogous result was announced by M. Frémy and Andral.

Without doubt the supposition is correct that the peculiar hygienic condition of the people of Europe, before the eighteenth century, caused them to be frequently attacked with diseases, one of whose principal elements, if not their starting point, was a state of dissolution of the blood. The dissolved and incoagulable blood, petechial and passive hemorrhages, so constantly described by authors, in their histories of epidemic fevers, in the Middle Ages, are most philosophically referred in a measure at least, to the scorbutic state of the blood of the patients, and to the bad ventilation and filthy habits of the times. In the epidemics which prevailed in Europe during the Middle Ages, it was common to observe gangrene, hemorrhage from various parts, extensive ecchymosis, or thousands of petechiæ covering the skin, while the symptoms of typhoid fever, and of the various contagious eruptive fevers, developed themselves with a high degree of intensity, and the greatest rapidity. These affections were the external manifestation of an internal condition of the blood.

Erasmus, the philosopher, who flourished toward the close of the sixteenth century, wrote that in his day, the inhabitants of London, were every year, from spring to harvest, attacked by a malignant fever, which committed the greatest ravages in that city, and especially among the poorer classes. "The supply of water," Erasmus says; "fails the inhabitants; they have to seek it at a great distance from the city; the river water is carried on their backs, and is so dear that the poor can not procure enough of it to wash themselves, and keep their houses clean. These houses are of wood, and very cold in winter, which makes it necessary to fill the rooms with straw. But as this can not be often renewed, it becomes spoiled and very injurious."

Grant who practiced medicine, and wrote toward the close of the last century, suggested the inquiry, whether the peculiar hygienic condition of the people of Europe before the eighteenth century, must not have caused them to be frequently attacked with diseases, one of whose principal elements, if not their starting point, was a state of dissolution of the blood. It is certainly remarkable that the observers of preceding ages, constantly speak of dissolved and incoagulable blood in their histories of epidemics.

Huxham in his "Essay on Fevers," has given a large number of observations, illustrating the great tendency to petechiæ and passive hemorrhages in the fevers of those times.

Andral in treating of the changes of the blood in scurvy, records the disappearance of this disease, and of the great febrile epidemics of the Middle Ages, and says:

"We must therefore admit, that in consequence of the change in the nature of the influences which necessarily act upon men, the blood which receives before the solids the

impression of the greater part of these influences, must present changes in its constitution proportioned to those undergone by the agents which operate upon it. It would appear then, that there must have been a time, when a very peculiar constitution of the blood engendered maladies, which in certain respects, may have differed from those now observed, and may not have required the same treatment. And thus it is that at different periods of the existence of our race, and the diversity of influences to which it may be subjected, diseases of very different types may arise, and undergo changes in their essential nature, which are revealed to us by the specific character of their symptoms."

The changes of the blood in certain cases of yellow fever, may have been the *result* and not the *cause* of the aberrated nervous actions. If this be true, the petechiæ and spots, observed in a certain proportion of cases, should not be regarded as true cutaneous affections characteristic of the exanthemata.

It has been said that extreme agitation of the nervous system may deprive the blood of its power to coagulate. According to several observers, a similar effect may be produced by a strong moral emotion, a concussion of the brain, the destruction of a certain portion of the spinal marrow or a violent blow upon the pit of the stomach, affecting the nervous plexus of that region. If facts of this class were appropriately verified, they would doubtless be of the highest importance; for they would show that the nervous system exerts a powerful influence over the constitution of the blood, and that consequently a lesion of innervation may deteriorate the blood, just as an alteration of the blood may modify the nervous action. Professor Dupuy announced that by dividing the pneumogastric nerves in horses, the blood of these animals lost its property of coagulating; Dr. Mayer, on the other hand, having tied the pneumogastric nerves in living animals, found that uniformly the blood had coagulated throughout the entire pulmonary circulation. These facts, as well as those relating to the effects of lightning, excessive heat and excessive exercise in warm weather, require additional proof. If it be true that the changes of the blood may be in accordance with the portion of the nervous system affected, as in section of the pneumogastric and sympathetic, it may be inferred that the changes of the blood in yellow fever may vary within certain limits with the portion of the nervous system chiefly involved.

#### EXPERIMENTS ON THE EFFECTS OF PUTRID ANIMAL MATTERS.

One of the most remarkable phenomenon presented by animals into whose veins Magendie more than thirty years ago, injected putrid substances was what is termed inflammation of the intestines; that is to say, exhalation of a matter having the color of washings of flesh.

Various observers have pointed out the effects of certain animal substances in raising the temperature when injected into the circulation. Billroth and Hufschmidt, found that in all the cases in which putrid solutions or recent pus were injected into the subcutaneous tissue or into the blood, there was a rise of temperature in the rectum, which was considerable even within two hours after the injection, and reached its maximum in from two to twenty-eight hours; that the minimum exceeded the normal temperature by 1.6 C. (2.88 F.), and the maximum, 2.2 C., (3.96 F.), and that if the injection was only done once, a rapid defervescence generally

set in, shortly after the acme had been reached; while on the other hand, after repeated injections death constantly occurred, generally with very high temperatures.

C. Weber has determined by similar experiments, the heat producing and inflammatory effects of pus, of fluids from inflamed tissues, and of pyemic and septicemic blood, and even of the blood of an animal merely suffering from simple inflammatory fever, when injected subcutaneously or into serous cavities.

Frese by numerous experiments, showed that the blood of animals suffering from any kind of fever, induced a rise of temperature, when introduced into the circulation of a healthy animal of the same species.

(To be continued.)

## PRE-COLUMBIAN LEPROSY.

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(Continued from page 672.)

Professor Putnam, of Peabody Museum, Cambridge, Mass., with whom I discussed this subject at some length, is not of opinion that a horror of leprosy in ancient Peru would stand in the way of the burial of leprous representations with their dead. "For," says he, "whatever custom has been transmitted from generations to generations is, in Peru, always kept up, whatever might have been the events and circumstances which might deprive the custom of all meaning. Even if they do not understand the meaning of a rite, they will perform it because their fathers did." Mummies are now found in that country, tied up in sacks, the false head sticking out, tied up separately, just as they were in the distant past. The custom was, and is still, to bury with the dead such objects as might indicate his condition of life, or any peculiarity belonging to him as an individual, even some circumstance peculiar to the time in which he lived. There is a mummy in the Peabody Museum which was buried with a decree of the sovereign Pontiff which was published at the time when the man was living, and which, so far as we can see, had nothing to do with him as an individual.

Professor Putnam tells of his discovery of a corpse in one of the many stone graves scattered over Tennessee, Arkansas and Missouri, which presented a curvature of the spine, and buried with the same he found a piece of pottery representing that identical curvature. Therefore we may expect, even if only one such is found, that some relation existed between deformities of deceased persons and the objects which were buried with them. In Professor Putnam's museum, he informs me there is a piece of *huacos* pottery, showing the side of the nose and the side of the upper lip and part of the cheek eaten away. The pathologists of Harvard University, who examined this specimen, are of the opinion that these deformities might represent lupus. The same pathologists are not able to affirm that the so-called evidences of syphilis, in ancient bones of America, which are so plentiful in the Peabody Museum, are of any value to prove the disease. They question whether syphilitic disease could produce effects which could not be mistaken for the effects of some other diseases, as tuberculosis, rheumatism, etc. Professor Putnam personally has gone over the same ground as Professor Joseph Jones. The latter thought he had

found unmistakable evidences of pre-Columbian syphilis. Putnam found no evidences of the Tennessee mounds, which he could swear to as being certainly syphilitic.

I called Professor Putnam's attention to a Peruvian skull in the American Museum, of the Bandelier collection, which was being classified. It was an Inca skull, and showed evidence of disease at the junction of the parietal and frontal bones in the supratemporal region; a diseased spot of an inch and a half in diameter. The bone was cancellated and eburnated, with deep corrugations as if eaten by disease; the tissue was almost eaten through. But what was more peculiar was that a knife mark so fine that it could only be seen clearly with a glass, passed around the diseased spot. When held to the light and examined from the inside, through the foramen magnum, this part of the skull appeared almost entirely eaten through. No evidence of disease except by this transmission of light could be observed on the internal surface of the skull. Evidently an operation had been made on a tumor or ulcer of the scalp, and the instrument had left its mark on the bone beneath the periosteum. This looks very much like syphilis.

Professor Putnam showed me a trephined Inca skull which evidently had not been fractured. It was evident in this specimen that a round flap of scalp had been removed before the operation. This evidence consisted in a whitening and a smoother appearance of the bone. Putnam thinks that if this operation was really performed without any fracture to warrant it, it may have been done to release some evil spirit, which their superstition led them to suspect was in the skull. My own opinion is that we have here an exostosis, and one that might well have been syphilitic.

According to Professor Putnam, there are numerous evidences of intercourse between America and Asia in very ancient times. "There were," says he, "probably two routes from India to this country; one through the Malay archipelago and thence from island to island, and slowly through numerous generations, up to the Aleutian Islands, where Behring's Strait alone separated the slow invasion from the great continent." Putnam supposes that when this slow emigration had reached this extreme point, the commercial population of America went to meet them. I may here say that it would be just as probable that the people who could creep from island to island for centuries might have themselves made that last step, and crossing the strait, entered in relation with the population of the continent. The other route is across the South Pacific Islands.

"If leprosy inoculated America before Columbus, it must have occurred," says Professor Putnam, "very early in the history of this continent. It must have long antedated the earliest period at which it could have inoculated Japan, 660 B. C. For the disease must have come with that East Indian current, if there was such current, when it touched South America; and this was certainly long before 660 B. C."

Dr. Augustus Le Plongeon, whose explorations in Yucatan have already been referred to, has kindly given me the following facts about his experiences in Peru and Yucatan, as far as they relate to my subject:

"First as regards Peru. You may not be aware that I have practiced medicine in Lima from 1862 to

NOTE.—If leprosy had come to America from East Asia by this route, we should have some indications of it, by traces left in the South Pacific Islands. But there was never leprosy in those islands.

1870, studying meanwhile ancient Inca civilization. My collection of ceramics, dug up under my supervision from the *huacos*, was one of the most complete in Lima when I left the city. My practice was very extensive among all classes of society and I must say that, at this moment, I do not recall having seen cases of leprosy among the Indians. The cases I recollect having seen were among the negroes particularly and the white descendants of Europeans,<sup>5</sup> that is the Creoles. Of course syphilis was, and is still common among the Indians. Anciently, throughout America, it was for some reason unknown to me, regarded as a "sacred disease." I have not used the Quichua language for so many years that I have wellnigh forgotten it. I do not remember if it contained a word for leprosy. . . . Professor Bandelier, who is now delving in the tombs of the ancient Peruvians has sent some of his finds to the Museum of Natural History in Central Park. Among other things a curious skull, with a deep hollow, caused I should judge by syphilis, and a lot of curious jars, etc. . . . I have never heard that those affected with leprosy in Peru were kept apart from other people. I suppose that the cases were too few to attract the attention of the authorities. As to Yucatan, where I have resided during eleven years, mostly among the aborigines, I do not recollect having met with a single leprosy case among them. There were a few cases of syphilis, where they have had contact with the whites. To-day the Indian population of Yucatan seems to be a particularly healthy vigorous race. I have seen cases of leprosy, but they were confined to the Creoles. Two of the principal families of Merida, the capital, are known to be leprosy. Juan Peon Contreras, a member of said families who generally intermarry among themselves, although very wealthy, was at one time director of the Yucatan Museum, and a disgusting object to look at, literally falling to pieces. Still he was commingling with other people without hindrance. Another such case I saw at the Island of Cozumel. I repeat, the cases are rare. I have no doubt that the disease was known in the country ages before the advent of the Spaniards. The Maya word for leprosy is *naycan*, from the verb *nay*, to corrode, to eat up. This is not a name of modern invention; it is found in the dictionaries and vocabularies of the language made by the Franciscans in the sixteenth century. I have a small medical book written in Maya language by a native, one hundred years ago, but I do not find in it any mention of leprosy.

"My study of the mural paintings in the funeral chamber of Prince Coh, at Chichen, also of the bas-reliefs that adorn the walls of the public monuments in that ancient city, proves to me that in remote ages the inhabitants of Yucatan, in fact of all Central America, had as close communication with those of all other civilized countries as they have to-day. They had close relations with India and Indo-China, where they introduced their civilization, as I show in my book 'Queen Moo and the Egyptian Sphinx,' that will be given publicity in two or three months. I discovered portraits of Carthagenians sculptured on the walls; representations of negroes from Africa, Mongolians from East Asia, Burmese from Indo-China, etc., painted and carved on pillars and walls. In fact the Nagas, the serpent worshippers, who developed such high civilization in the

south of India and the Indian peninsula were immigrants from *Pátala* (America), who reached Asia in times anterior to the invasion of India by the Aryans.

"I do not suppose that sailors in those times were more careful than sailors in our days, and I have no doubt that they spread diseases among the inhabitants of the countries they visited, just as the crews of Captain Cook spread syphilis among those of the islands in the Pacific. The communication between Asia and America being then frequent there can be no doubt that such contagious diseases as syphilis and leprosy were disseminated throughout the earth's inhabitants as they are to-day, and it seems to me impossible to determine where such a peculiar disease originated. We know that at one time syphilis was as common in America, as leprosy in East India, and it is most probable that the inhabitants of these countries interchanged compliments; those of America introducing syphilis into Asia, those of Asia importing leprosy in America."

Diego de Landa, in a manuscript written in 1566 and entitled "*Relacion de las Cosas de Yucatan*," in a chapter entitled, "*Varias Calamidades experimentadas en Yucatan en el siglo anterior á la conquista, huracanes, pestilencias guerras*, etc." says, that "those who escaped took heart of grace to build houses, and cultivated the land, and multiplied themselves, being much aided by fifteen years of good and healthy weather, and that the last year was the most fertile of all; as they began to reap their harvest there broke out in the whole country some pestilential fevers, which lasted twenty-four hours. After these diseases abated, there came a stream of gnats. From this pestilence many people died, and a great part of the harvest remained ungathered. These miseries were succeeded by a pestilence of large pimples which rotted the body with great stench, so that their limbs fell off in four or five days."

This is the only passage of the "*Relacion*" which mentions anything having the least resemblance to leprosy. There is falling off of the limbs, but they fall off in four or five days, and it is almost evident that the rottenness belonged to the soft tissues, and not to the bone. It may have been smallpox.

In Cogolludo's "*Historia de Yucatan*" (Diego Lopez Cogolludo, Madrid, 1688) where he gives a description of all the calamities, diseases especially, which afflicted the peninsula, there is not one line that can be interpreted as a reference to leprosy.

NOTE.—*Milagrosa, que no fe, sabe su origen, etc.* Miracles of all kinds due to an image of the Holy Mother. Cures an apostema on the sole of the foot, a tumor in the face, and in the throat. Fevers of every description cured. Sick stomachs cured by the Holy Image, etc.—(Lib. xii, Cap. xix.)

*De otros milagros.*—An Indian woman, having given birth to a child, could not for a whole hour eject the natural superfluity, etc. Another feels sudden pains in the stomach, etc. Another woman feels a pain in the temples, which extends presently to the whole face; Holy Image brought, and patient cured. Fever of a youth cured. Other fever. During five months a boy 14 years old had had fever, and after a while his face and his legs swelled. Cured.—(Lib. xii, Cap. xx.)

The conquerors and original colonists seeing the continual sufferings from diseases, of the poor, strangers as well as aborigines, founded a hospital, which has now existed for eighty years and more, at the date of this writing. How they founded it, the King being patron, how it was administered at the expense of the city and intrusted to the monks of St. Juan de Dios, is stated in this book, etc.—(Lib. i, Cap. xiv, p. 216.)

Death of Landa. The time came which the Divine Majesty

<sup>5</sup> They suffered from elephantiasis.



had appointed for giving to the blessed Bishop Don Fr. Diego de Landa, the reward which his many services and virtues merited; he died in consequence of a bad cold which he took while preaching on the passion and death of Christ. He became feverish, and felt a puncture in the side. He sent for counsel to our hospital and our physician considering the pain accompanying the fever, judged that it was a pain of the side and bled him. The Bishop said at once that he believed himself to be dying and prepared for his last hour. Lot of absurd details.—(Lib. vi, Cap. xviii.)

*Enfermedad peligrosa en Merida, año de 1609, etc.*—In that same year 1609, in the month of September, the inhabitants of Merida were much troubled by a disease; the Spaniards had had little experience of it in this country, and it was very dangerous. It consisted in hot fever with measles and pustules. Processions resorted to. At the end of that year the disease passed away.—(Lib. ix, Cap. i.)

*Don Gaspar Nunez de Leon mourat de melarchia*, a word which is not in the dictionary, and has some relation with honey.—(Lib. xii, Cap. i.)

*Milagro Notabilissime con unos Indios, etc.* The miracles with Indians is this, in two words: they were deeply buried while digging, and by the intercession of San Diego, dug out again. (No leprosy.) Divers other accidents are reported. There was also a dying priest whom prayers recalled to life.—(Lib. xii, Cap. x, p. 709.)

*Desgracias procedentes a la peste, etc.* A number of ships taken and burned at sea. In June the pestilence began in Campeche, and soon the city was said to be entirely deserted. Orations, processions, etc. At the end of July the disease began in Merida, where many persons perished in a few days. (No leprosy.)—(Lib. xii, Cap. xii.)

*Varios accidentes con que morian los enfermos, etc.* Symptoms—Various accidents. Terrible headache and pains in all the bones, which seemed to go to pieces, or to be pressed as in a vise. After a short time violent fever sometimes, but not always with delirium. *Vomissements de sang corrompu*, and after this symptom few recovered; others had a flux of the belly, of choleraic humors. (Yellow fever?)—(Lib. xii, Cap. xiv.)

*De algunos senalados religiosos que, etc.* Some distinguished ecclesiastics who died of the pestilence. One mounts into the pulpit all right, and comes down with the symptoms of pestilence. Dies the eighth day. Another is infected while taking care of the sick. Other cases of the same kind. (Yellow fever?)—(Lib. xii, Cap. xv.)

(To be continued.)

## SOCIETY PROCEEDINGS.

### National Association of Railway Surgeons.

*Abstract of the Proceedings of the Eighth Annual Meeting, held in Chicago, Ill., May 1, 2 and 3, 1895.*

#### FIRST DAY—MORNING SESSION.

The Association convened in the hall of the Young Men's Christian Association, and was called together by the Chairman of the Committee of Arrangements, Dr. A. I. Bouffleur, of Chicago.

Prayer was offered by Rev. Dr. Thomas.

Dr. BOUFFLEUR introduced Hon. A. F. Walker, of Chicago, who delivered an "Address of Welcome." Dr. W. B. Outten, of St. Louis, responded on behalf of the Association.

PRESIDENT THORN was then introduced by Dr. Bouffleur, and delivered the

#### PRESIDENTIAL ADDRESS,

In which he reviewed the foundation and growth of the Association, which in 1888 had 181 members, and now has over 1800. A tender tribute was paid to the late Dr. A. W. Ridenour, of Massillon, Ohio, the inspirer and progenitor of the Association.

The reports of the Secretary and Treasurer were then read, and on motion, adopted.

Dr. WOOSTER, of Grand Rapids, Mich., offered a resolution pledging support to *The Railway Surgeon*.

On motion, the Association adjourned till 2 P.M.

#### FIRST DAY—AFTERNOON SESSION.

After some routine business was transacted, the reading of papers was proceeded with.

Dr. J. B. MURDOCH, of Pittsburg, Pa., read a paper entitled AMPUTATIONS CONSECUTIVE TO TRAUMATISMS.

In brief, Dr. Murdoch said: Amputations are performed consecutive to traumatism for the following reasons:

1. To save life, because of the fact that nature, unassisted, would succumb before the patient could recover from the injury; and 2, because the limb has been so destroyed by the injury that nature, even when assisted, is unable to restore it sufficiently so as to be useful to its possessor.

When should amputation be performed? The answer to this question is plain. If the amputation is inevitable it should be done at the time when it can be done with the least risk to life.

In coming to a conclusion whether we shall amputate or not, we must consider the age of the patient, his habits, the condition of his health, his environment, and the care he will receive while under treatment. We must also consider whether, in case the limb can be restored, it will be more useful and less painful than a mechanical appliance. When the surgeon is in doubt he should give the patient the benefit of it and withhold the knife.

A spirited discussion followed this paper, in which Drs. Thos. H. Manley, W. P. King, Emory Lanphear, W. B. Outten, E. W. Lee, P. H. Hoy and J. L. Eddy participated.

Dr. JOHN E. SYLVESTER, of McArthur, Ohio, narrated an interesting case of bloodless amputation at the hip joint, the patient being a 16-year old boy who took 164 grains of morphia in twenty-four hours, and is to-day alive and well.

Dr. W. H. BUECHNER, of Cleveland, Ohio, contributed a paper on "Pirogoff's Amputation," strongly favoring it.

"Silicate of Soda in Surgical Dressings," was the subject discussed by Dr. S. R. Wooster, of Grand Rapids, Mich., in which he highly recommended it in preference to other material.

A paper by Dr. Thomas H. Manley, of New York, was read by title, at the request of the author. It was entitled "Traumatic Arthroses."

The Association, on motion, then adjourned till 9 A.M., Thursday.

#### SECOND DAY—MORNING SESSION.

Dr. B. MERRILL RICKETTS, of Cincinnati, Ohio, read a paper entitled

#### EMERGENCY SURGERY IN THE ABDOMINAL CAVITY.

Pain is not always indicative of a large amount of exudation.

The presence of a large amount of fluid is not always accompanied by a rise in temperature.

There is no means of determining the character of the fluid without exploration.

The use of an exploring needle is the only means of positively determining the presence of fluid.

The temperature is sometimes subnormal.

The fluid should not be allowed to reach above normal in quantity.

It should be removed as often as necessary to keep it within the normal amount.

Open drainage should be made in all cases of tubercular fluid, even though it be within the spinal canal, by means of the lumbar puncture.

Surgical anesthesia is not necessary in case of cerebral meningitis.

The probabilities are that the irrigation of serous cavities by some pus destroyer may aid much in effecting a permanent cure.

Narcotics in any form are contra-indicated; absorption is less likely to occur with than without them.

Antithecine may prove itself one of the most valuable means in treating tubercular serous cavities without mixed infection.

HON. R. C. BELL, of Fort Wayne, Ind., was then introduced, and addressed the Association on the subject of

#### AN EXPERT WITNESS.

In beginning his address Mr. Bell said:

I am not presumptuous enough to think for a moment that I can instruct you in any of your duties as expert witnesses. Railway surgeons are very frequently called to the stand to testify, growing out of their employment by railroads. It must be so, and railways must employ surgeons. There are several reasons, a few of which I will mention. First, it is the requirement and dictate of humanity. As long as railways are operated, as long as we are to fly, as it were, upon wings from one side of the continent to the other, day and night, accidents will occur. Human suffering follows and that suffering must be alleviated by the best means that are attainable.

When you are called to the stand as expert witnesses you are placed in an exceedingly delicate position. You are known to be in the employment of a railway company, and

they ignore too often the fact that you are not employed as witnesses. You have been employed for other services. But you are required to give your opinion upon subjects in a manner which may militate for or against the respective litigants. I wish to add my testimony to the fact that after an experience of a quarter of a century I can not recall a single instance when the honest judgment and opinion of its railway surgeon has swerved a hair's breadth because of his employment by a railway company. I was witness as a lawyer to the fact of the elevation of the standard of experts and their testimony by the system of medical ethics that has been adopted and become general throughout our country. Railway surgeons because of their employment are not expected to become claim adjusters or detectives for railway companies. And nothing can be more embarrassing to a railway attorney in trying a case than to find the attending railway surgeon has made himself a partisan on the company's side.

Let me give you a little pointer. Don't know too much. It is the way to avoid a good deal of trouble on the witness stand. A man can tell what he knows, but, in the language of the old schoolmaster, "It is exceedingly difficult for an individual to communicate to others that which he does not himself possess."

DR. MILTON JAY, of Chicago, followed with a paper entitled "Thoracic and Pulmonary Injuries."

DR. ARTHUR D. BEVAN, of Chicago, read a paper entitled REAL AND ALLEGED INJURIES OF THE SPINE, which was freely discussed. The more important points made by Dr. Bevan were:

The subject of injuries of the spine has received in the last thirty years more attention from medico-legal experts than possibly any other subject.

Real injuries of the spine present positive and immediate symptoms.

Alleged injuries of the spinal cord without positive and immediate evidence of gross lesion are either cases of malingering or abnormal cerebral conditions, psychoses, or a combination of the two.

These psychoses are the results of two factors: first, a brain readily affected by suggestion; or, second, suggestions furnished by an accident with or without injury to the individual, or by suggestions furnished by the hope of pecuniary gain; and lastly, and of greater importance, suggestions furnished by medical attendants.

These cases all recover when the exciting causes are removed, rapidly under proper surroundings and advice, but recovery may be indefinitely postponed by improper surroundings and improper advice.

These psychoses will not receive their proper medico-legal position until the medical profession has been generally educated in the subject, and until legal means are provided for the punishment of malingerers and their alleged medico-legal experts.

In the afternoon the Association attended a surgical clinic given by Dr. N. Senn in the upper amphitheater of Rush Medical College. Dr. Senn showed several cases upon which he had previously operated, and also operated on several.

#### THIRD DAY—MORNING SESSION.

DR. W. B. OUTTEN, of St. Louis, read the report of the Committee on Necrology, which, on motion, was referred for publication.

The election of officers was proceeded with, the result being as follows:

President—Dr. J. B. Murphy, of Chicago.  
 Secretary—Dr. D. Emmet Welch, of Grand Rapids, Mich.  
 Treasurer—Dr. E. R. Lewis, Kansas City, Mo.  
 Vice-Presidents—Drs. W. B. Rogers, of Memphis; A. D. Bevan, Chicago; E. F. Beasley, Lafayette, Ind.; H. Logan, The Dells, Ore.; Geo. Graves, Herkimer, N. Y.; P. F. Vassering, St. Louis, Mo.; A. C. Scott, Temple, Texas.  
 Executive Committee—Drs. S. S. Thorn, Toledo, Ohio; J. A. Barr, McKee's Rock, Pa.; A. I. Bouffleur, Chicago.  
 Assistant Secretary—Dr. S. P. Wooster, Grand Rapids, Mich.

Chairman Committee of Arrangements—Dr. B. M. Ricketts, of Cincinnati, Ohio.

Chairman of Committee on Transportation—Dr. W. B. Outten, of St. Louis, Mo.

Place of next meeting—Cincinnati, Ohio.

Following the election of officers, the reading of papers was again taken up.

DR. W. R. HAMILTON, of Pittsburg, read a paper entitled "Syme's Amputation."

DR. C. D. WESCOTT, of Chicago, read a paper entitled

#### THE EYE IN RAILWAY SURGERY.

He said: An injury to the eye is the most common accident in the whole list. Hot cinders and molten metal frequently burn quite deeply into the conjunctiva. After they have been removed under cocain and thoroughly cleaned with a bland antiseptic, a small quantity of sterilized vaselin or olive oil dropped into the eye is very soothing and grateful. It is usually best not to bandage an eye thus injured, but the lid should be frequently bathed with warm borax water and the eye flushed with a saturated solution of boracic acid every three hours. Cocain should not be prescribed as an anodyne. Iced compresses will usually relieve the pain if so applied when the pain is continuous. In our shops and factories all over the world employes are daily jabbing at the cornea with sharpened sticks, pocket knives, horseshoe nails, and other improvised instruments, in attempting to remove pieces of stone, steel, emery, etc., which are innocent as compared with the instruments and methods employed. If these offending particles are not deeply imbedded in the cornea they may usually be removed without the slightest trouble by simply wiping them away with a little swab made by twisting some cotton on the end of a toothpick or something like it.

#### IS THERE ANY SPECIAL FORM OF DISEASE PECULIAR TO THE RAILWAY SERVICE?

This paper was read by DR. OUTTEN, of St. Louis. His remarks were founded on the cases occurring in the past eight years among the employes of the Missouri Pacific Railway system. Dr. Outten said in substance: It may be a surprising fact to some that the most sickness comparatively, exists among the section hands, and the next highest is the clerical force. A compilation shows the proportion of illness in different occupations as follows: Section men, 28,687; clerks, 16,269; engineers, 6,369; firemen, 8,024; brakemen, 11,390. In proportion to their number the most healthy classes are the engineers and brakemen. An analysis of 170,570 cases treated in the hospitals of the Missouri Pacific system shows that 64 per cent. of the total number of cases were rectal diseases. This certainly proves that rectal disease is peculiar to the railway service and due to the enforced irregular habits of railway employes. Other statistics gleaned from the reports show diseases ranking next highest are malarial fever, rheumatism, lumbago, diseases of the respiratory and digestive organs, and nervous diseases. I want to especially mention the fact that in over 170,000 cases among our employes, only thirty-five were to be classed under the head of alcoholism.

#### DR. J. A. BARR, of McKees Rock, Pa., read a paper entitled THE CARE OF THE INJURED FROM THE PLACE WHERE INJURED TO THE HOME OR THE HOSPITAL.

He said: The first step in the care of the injured should be taken by the railway company in the providing every engine with a box containing a rubber compress, absorbent cotton, bandages, etc., with instructions how to use in case of accident until the surgeon arrives; with caution against the too free use of stimulants in the shape of whiskies, wines and brandies, for we have seen much harm result from their use by persons not knowing the true nature of the injury; also caution against the use of dirty waste, dirty handkerchiefs, black oil and other lubricants being applied to the wounds; for we take it that every railroad injury, from the very nature of the case, is septic, and these things only add fuel to the fire. The surgeon should keep on hand at all times an emergency bag containing anesthetics, antiseptic dressings, bandages, tourniquet, stimulants, and instruments for all emergencies. When an injured person is liable to be some time in transit, the wound should be thoroughly cleansed by washing it in hot water, carbolyzed water, or better still, a solution of antipyrin. For the relief of pain, morphin, administered hypodermically, and cocain, applied locally, are the best remedies. When there is shock get the patient away from the crowd, cover him with blankets, and use in addition hot water bottles, hot irons or anything else that can be had, placing them under the body, but taking care not to burn an unconscious patient. Then give stimulants of alcohol in small, oft-repeated doses. In cases of severe burns or scalds apply common baking powder, mixed with water to the consistency of cream to the burnt surface. Another very good thing is simple petroleum spread thickly on cotton, cotton batten or old linen and applied to the surface. To transport a patient place him on a cushion, cover him with clothing or anything to keep him warm, place him on the floor of the car with the head toward the front end of the train, guard against draughts of air, and observe the caution against the too free use of stimulants.

HON. CLARK BELL, of New York, spoke briefly on the topic PERSONAL EXAMINATION OF PLAINTIFF IN PERSONAL INJURY CASES.

He stated that after a long legal strife it was now the law in all States that a plaintiff in a suit for damages for personal injury must submit to an order of the court to a personal examination by experts as to the real nature and extent of the injuries. He urged the Association to labor for the adoption of similar laws in every State, the law to contain provisions in cases where the plaintiff is a woman.

COLOR PERCEPTION IN RAILWAY EMPLOYEES—DO THE ACCEPTED METHODS OF TESTING MEET THE REQUIREMENTS?

Was the subject discussed by DR. LE ROY DIBBLE, of Kansas City. He said: Gross injustice has been done many faithful employees by Holmgran's tests. I think we should pay more attention to a man's mental acuteness than to the acuteness of his vision and color sense, or the cast-iron rules laid down for our guidance. I do not believe it is the intention of the managers of our roads to do any man injustice, but the oculists employed should be men of wide experience, and if they find a man deficient in color sense and yet by actual practical test, he can overcome this defect, he should be retained. It is impossible to measure one man's capacity by another's, mentally or physically. Our rules smack too much of trades-unionism, *i. e.*, measuring every man's capacity not by the highest standards but by the lowest, a common dead level of mediocrity. They should not be like a chain, just as strong as the weakest link, but be put on the basis of common sense, experience and mental capacity of the individual.

DR. OUTTEN indorsed the views of DR. DIBBLE.

DR. C. H. WILLIAMS, of Chicago, showed the tests used in examining employes of the Chicago, Burlington & Quincy Railroad.

Some unfinished routine business was then taken up and disposed of quickly, after which the newly elected President, DR. MURPHY, was installed.

Several papers on the program were read by title in the absence of the authors, and owing to lack of time.

It was ordered that no abstract or report of the proceedings should appear in any medical journal except the *Railway Surgeon*, as the doors had not been closed, the JOURNAL takes pleasure in rescuing from oblivion the very excellent papers that otherwise would have been buried in the pages of an exclusive periodical.

On motion, the Association adjourned to hold its next meeting in Cincinnati, Ohio.

### American Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26, and 27, 1894.

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 682.)

MONSIEUR GAUTIER'S paper was read by DR. A. LAPHORN SMITH.

### ELECTROLYSIS IN URETHRAL STRICTURE—A NEW ELECTRODE.

BY GEORGE GAUTIER, M.D., PARIS, FRANCE.

Rigid electrodes with long and thread-like conductor are generally difficult to handle and dangerous for reaching urethral strictures. They get spoiled at each application and are very expensive. For a year past I have employed a new instrument that will supplant them with advantage in all cases and which is easy and harmless to apply. This instrument is composed of a urethral bougie made of gum, the diameter of which varies with the cases to be treated, because we can have them made of all shapes in order to treat accessible strictures; those of the esophagus, urethra, lacrymal canal or rectum. This bougie is cut off at 6 centimeters from its conical end and a platinum tip is screwed on to it  $1\frac{1}{2}$  centimeters in length and of the same diameter as the bougie. This metal end is connected with the negative pole of the battery by a flexible wire which is fixed in the bougie during its manufacture. The introduction of the electrode is easy and made without violence or pain; it follows all the curves of the canal, does not irritate, and permits us to make a slow gradual dilatation which by degrees changes and modifies the nutrition of the parts and surely saves the patient from false passages, retention, and ruptures of the urethra.

The mode of operating: 1, find out beforehand with the

measuring bougie the situation of the stricture, its nature and especially its caliber; 2, inject into the bladder half a pint or more of boracic acid solution; 3, make use of an electrode of the same diameter as the exploring bougie.

Duration, intensity and nature of the operation. The electrode is connected with the negative pole of the battery, the positive pole being attached to a belt 18 centimeters long by 12 wide, covered with amedo or chamois skin, and which is applied to the abdomen or thigh. At the moment when the metallic end of the bougie reaches the strictured part of the urethra we turn on the current until 10, 15 or 20 milliamperes at the most are reached. At this moment we push in the instrument without any violence until it reaches the bladder. If the stricture is long and hard, it requires ten minutes or a quarter of an hour with an intensity of 12 or 15 milliamperes. If the strictures are short and are of unequal dimensions it will be necessary first to treat the longest strictures and to put off for a week the treatment of the other ones. Before withdrawing the electrode we turn off the current and the patient empties his bladder, thus securing the antisepsis of the latter. It is not advisable to employ too large a bougie at first, but the next day and each day following to introduce a catheter, which will also serve to fill the bladder with boracic acid solution.

A second and even a third electrolytic application will be necessary if the strictures are near together and numerous, because with the electrode the dilatation is gradual. We should always allow an interval of ten days to elapse between each application.

Results: I have by this means treated six urethral strictures; the results were in the six cases excellent. I did not notice any complication. I can not say that the cures are definite, because they are of too recent date, but I recommend this proceeding to my brethren, because of its efficacy, its painlessness and harmlessness.

MARGARET A. CLEAVES, M.D., New York City, read the following paper:

### A MEANS OF CONTROLLING AND REGULATING THE STATIC INDUCED CURRENT.

The so-called "static induced," whether developed from a frictional or an influence machine, is a current of an alternating discontinuity, whereby currents of alternating directions commence and cease intermittently.<sup>1</sup>

It is characterized by a series of oscillations, and these may vary, according to the size of the condenser from a minimum of less than 1,600 periods per second (or within the limits of audition) to 1,000,000 or more periods per second.

The therapeutic value of this current is thoroughly recognized, but the difficulty of controlling and regulating it has no doubt militated against its usefulness. In fact the only method of control heretofore in use has been that of separating the discharging rods as slowly and gently as possible. This has effected an adjustment of the frequency, but has not provided for the regulation of the other important factor, namely the quantity or amperage which might be desired with a given number of periods.

When this separation is performed with the greatest care it is still impossible to do away entirely with sudden shocks and jars which are painful to all in varying degrees but especially to nervous sensitive patients.

A certain amount of experimental work in conditions where a profound massage effect was desired, especially in pelvic conditions, convinced me that to obtain its full measure of usefulness and thus to insure its highest therapeutic success, it was necessary to be able to regulate and control the volume or amperage of this current with the same nicety that is possible with the constant, induced or sinusoidal current.

Despite the difficulty encountered in securing this control of the static induced on account of its immense E. M. F., the writer undertook in the early part of 1894 to make some experiments with various patterns of water rheostats, to see if by any possibility a regulator could be constructed on this principle through which this current could be passed without the danger of spark leakage. The first experiments were made with the Bailey water rheostat, and I found that so long as I kept my spark gap as short as the distance between the two milled screw heads, I could perfectly control it.

The same thing was proved with other water rheostats, and the fact established that all that was necessary was to keep conducting material at the maximum sparking distance apart.

Finally, the instrument shown in the cut was constructed for me by the Galvano-Faradic Mfg. Co., of New York City.

<sup>1</sup> Professor Houston.

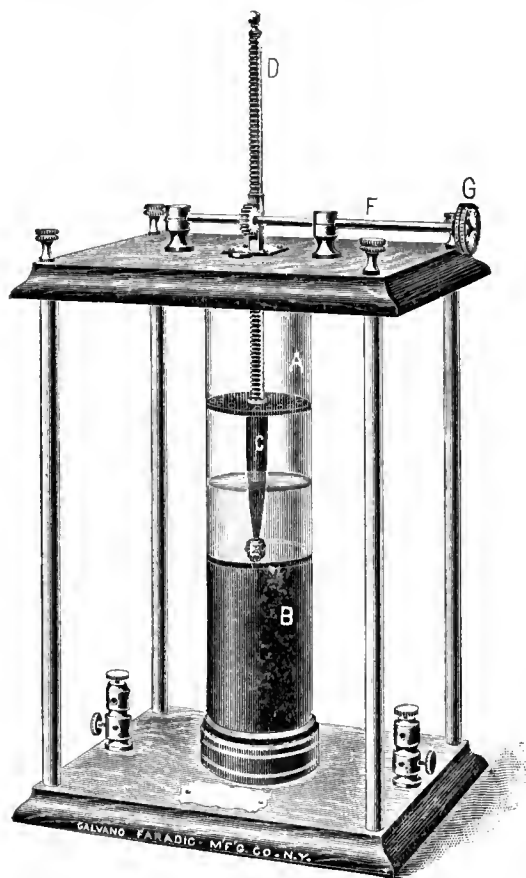
Inclosed in the glass tube *A* is a cup of pure carbon *B*. This cup is secured at the bottom and forms one of the terminals, the other terminal a tapering carbon rod *C* fastened to a metal rod *D* and wrapped with a sponge at the apex *E*.

On the top of the rheostat connected with a coarse double thread screw (a continuation of the metallic rod *D*) is a metal bar *F*, ending in a large milled screw head *G*. By turning this screw head the carbon point is raised and lowered at will.

The glass is filled with water until it touches the sponge on the end of the carbon rod.

The rheostat is wired on the principle of a shunt circuit and has double binding posts; one to receive the wires from the Leyden jars, the other for the conducting cords distributed to the patient.

The rheostat may be connected directly with the machine in the room in which it is placed, or heavy well insulated wires may be connected with the static induced binding posts and carried through apertures in the wall to an appropriate place at a distance, keeping them at all times the maximum sparking distance apart. It may then be placed at a convenient point for daily use, by the right hand of



one's operating table, for instance, and connections made in that position with the wires from the machine.

It is possible to use it with any size of the Leyden jars and a spark gap of from one to four or five inches. The latter is only desirable with the smallest jars, but with the longer spark gap the current loses the rapidity of its oscillations but gains in E. M. F.

When the rheostat is permanently connected with the machine, as I have indicated, the first thing to do is to arrange the spark gap of the size desired and set the machine in motion, then connect the conducting cords from the rheostat to the electrodes through which the current is delivered to the patient. When all the connections are made for the administration of treatment, the tapering carbon fastened to the metal rod is gradually raised by turning the screw until the current strength desired for the particular application is reached. This can be done to such an extent as to produce the most violent muscular contractions without the patient suffering from any pain, jars or shocks. With appropriate connections every voluntary muscle of the body can be put into a state of activity, with the exception of a few muscles of the head and face, and the temperature raised from a

fraction of a degree to 2 degrees. It accomplishes, in common with the usual administration by means of sparks, a marked nutritional gain. By its use all metabolic processes are encouraged. In vagino-abdominal applications, patients speak of the effect as much more pronounced than from either the induced or sinusoidal currents; an effect which they characterize as a feeling of lightness and buoyancy in the pelvis with an ability to walk with greater ease. It is not well borne in subacute inflammatory conditions of the pelvic organs. Patients with such trouble are prone to have recurrence of pain and soreness, save with the mildest applications.

The current best adapted to the treatment of pelvic conditions where relief from pain is desired as well as relief from congestion, is obtained by using the large or medium jars standardizing the frequency by a very small spark gap, say from one-eighth to one-half of an inch, and gradually turning on the whole available current strength by adjusting the controller. Where profound massage effect is desired, as in prolapsus uteri or relaxed vaginal walls, a longer spark with its greater E. M. F. but with less rapid oscillations is of greater value, and for such uses no other current can take its place. By means of this instrument when once the spark gap is arranged, the machine in motion and the patient in circuit, the operator is able to make any application, general intra-uterine, intra-vaginal, intra-nasal, to the eye or the ear, and so perfectly regulate the current as to make the treatment absolutely painless.

As a result of the physical peculiarities of the static induced, it is impossible to place a resistance in the circuit without damping the oscillations. This damping out effect I can readily appreciate both by ear and touch, but as I am in the habit of increasing the number of revolutions of my machine under these circumstances I am able to compensate for any such loss and maintain sufficiently rapid oscillations, and thus secure the same clinical effect as when there is no rheostat in circuit.

The form of the rheostat is not a new one but an adaptation from a constant current controller already on the market. The features of originality to which the writer lays claim are the conception of the idea of regulating the current strength of the static induced without varying (in any practical degree) the frequency of the oscillations and the peculiar form of rheostat by which that idea is reduced to practice. This rheostat was shown at the New York Electro-Therapeutic Society last April, and has been used by the writer ever since with perfect satisfaction.

68 Madison Avenue.

**The Influence of the Nervous System on Absorption.**—(Leubuscher and Tecklenburg, *Virchow's Archiv*. Bd., cxxxviii, Hft. 2.) The writers publish in brief the results of fresh experiments and of new trials of older ones, which appeared in detail in Tecklenburg's inaugural dissertation, Jena, 1894. These results are as follows:

1. Goltz' opinion, that after destruction of brain and spinal cord the vascular tonicity is increased, so that a frog loses only a few drops of blood from the opened aorta, is insufficient to account for his observation on the loss of blood in the operation.

2. A short time after severing the nerves of one extremity there was seen in that extremity, a dilatation of the vessels, slowing of the blood current and, as a consequence, delayed absorption. This disturbance was compensated after a short time.

3 and 4. If coils of empty intestines are exposed and the corresponding nerves in the mesentery are severed, fluid collects within the coils, pale and clear, alkaline, unaffected by heat, and acting in no way upon albumin or starch. The fluid must therefore be a transudation from the blood, not a secretion from the intestinal mucous membrane. Half as much iodid of potash (in solution) is absorbed from the intestinal coil whose nerve supply is cut off, as from a coil of equal length with full nerve connection. In the jejunum more is absorbed than in the ileum.

5. Dogs in whom the large abdominal ganglia were extirpated, showed after the operation depression, diarrhea, and later, despite feeding, an emaciation, which was overcome slowly, seven to eight weeks after the operation. The urine meanwhile showed an acid reaction, as in starvation of herbivora. Sugar was never found, traces of albumin often, small quantities of blood rarely.—*Centralblatt für innere Medicin*.



THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,  
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.  
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, MAY 11, 1895.

FOUR "SLUM" CENTERS.

The four American cities—New York, Chicago, Philadelphia and Baltimore—have been made the subject of a voluminous report regarding their "slums," or as DR. ELISHA HARRIS was wont to style them, "les pauvres faubourgs," by the HON. CARROLL D. WRIGHT, Commissioner of Labor. The report is a provisional one and is addressed to the President. The funds set apart for this work amounted to \$20,000 and were wholly inadequate to an exhaustive collection of the facts, so that the centers of the fields, only, were undertaken to be covered.

The report is a book of 620 pages, the larger proportion of which is full of tables conveying finely comminuted tabulated information as to age-periods of inhabitants, nativity and parentage, size of families, illiteracy, occupations and weekly earnings, school attendance, condition of children, condition of married women having specified number of living children, numbers of families and individuals in tenements, the health of people living in the slums, sanitary condition of tenements. About one-seventh part of the total estimated slum population of the four cities, or 582,000 was reached; namely, 83,852 souls are comprised in DR. WRIGHT's report.

The slum population is largely foreign-born; in New York it is more than 62 per cent.; in Chicago it is 57 per cent.; in Philadelphia it is 60 per cent., but in Baltimore it is not above 40 per cent. However, if we look at the total foreign populations of the cities, we find that the foreign-born population of Baltimore is 15.88 per cent.; in the slums it is 40.2; of Chicago 40.98, in the slums 57.51; in New York City 42.23, in her slums 62.58; in Philadelphia 25.75, in her slums 60.4. Of the nationalities tend-

ing to these slums, the Italians predominate in Chicago, New York and Philadelphia, while in Baltimore Germans give the largest percentage; Russians and Polacks come second in Philadelphia and Baltimore. The Irish and Poles are second in New York, while Austro-Hungary and Russia are second in Chicago.

As DR. PORTUGALOFF has expressed his views of rapid up-rising of the land of PETER THE GREAT, when he says: "Not many centuries ago a great desert stretched where now is Russia and where now a-smell as of myriads of pinched bed-bugs is spread all over Eastern Europe," so do Russia and Italy and Poland send to our cities their unclean slum majorities with odorous qualities and difficult sanitary problems.

The percentage of illiteracy is much higher in the slums than in the cities at large, and in all cases the higher percentage of illiterates is among the foreign-born. The range of illiteracy is expressed by 47 per cent. in New York (the highest) and 20 per cent. in Baltimore, where it was the lowest; Philadelphia had 37 and Chicago 47 per cent.

The health of the slum-dwellers was found to be better than was to be expected. This important branch of the inquiry was confided to DR. ALFRED S. HOUGHTON, of New York City. The reports of the experts and agents employed for this inquiry are nearly unanimous in showing small proportional sickness in the slum centers.

It should be stated that the canvass was made in the most thorough manner—just as if a Federal census were in progress—each house and every floor being visited and the inquiry conducted in respect of each person therein dwelling. The schedules show that no more sickness prevailed in the slums than in other parts of the respective cities. While in some of the districts there were found abjectly wretched conditions of the domicile, the small number of cases of sickness was a distinct surprise to the canvassers. The canvass was made in the spring of the year, the windows were everywhere open and the air of the apartments was, far less foul than in the winter season.

Then, too, in all of these cities, the families are too poor to long retain their sick members, if there are hospital accommodations available. In nearly all these cities there are hospitals for general and for specialized diseases, so that if a worthy tenement-house dweller falls sick there is commonly a hospital bed waiting for him somewhere.

O<sub>2</sub> N<sub>2</sub> A<sub>1</sub>.

It is no longer correct to represent the chemie composition of the atmosphere by the familiar symbols O<sub>2</sub> N<sub>2</sub>—argon, the new element, must be taken into the account, and the formula now is O<sub>2</sub> N<sub>2</sub> A<sub>1</sub>.

This era-marking discovery by LORD RAYLEIGH and PROFESSOR RAMSEY, which was fully described in the

JOURNAL of Sept. 1, 1894,<sup>1</sup> is the scientific sensation of the day, and although if the HODGKINS fund prize has been awarded to the discoverers, it has escaped observation, they continue to be the recipients of the highest tokens of recognition by learned bodies everywhere. Among the most recent of these tributes is the award to LORD RAYLEIGH of the FARADAY gold medal by the Chemical Society of London, and of the LEBLANC medal to PROFESSOR RAMSEY by the Société Chimique de Paris; while it is just announced that "on the recommendation of the National Academy of Science the trustees have voted to make the first award of the BARNARD medal for the most important discovery in physical or astronomical science to LORD RAYLEIGH, the discoverer of argon, a constituent of the atmosphere."

In searching for argon in other compounds, PROFESSOR RAMSEY unearthed the fact that an American had barely missed anticipating himself and LORD RAYLEIGH. In Bulletin No. 78 of the U. S. Geological Survey (1892) is a paper by MR. W. F. HILLEBRAND "On the Occurrence of Nitrogen in Uraninite," in which is detailed the process by which the investigator had produced a gas whose properties, as described in the paper, leave little room for doubt that it was argon, in combination, as now known, with helium. From the hints in MR. HILLEBRAND'S paper PROFESSOR RAMSEY selected cleveite, one of the uraninite group, and there found the object of his search. This discovery is of only less interest than that of argon itself, for helium is but little known on account of its supposed rarity.

PROFESSOR BERTHELOT, of the Paris Chemical Society, has also been experimenting with the new gas, and claims to have succeeded where LORD RAYLEIGH has heretofore failed—that is, in effecting a chemical combination of argon. In the course of his experiments to this end, he obtained spectroscopic effects which incline him to believe that the aurora borealis is caused by the action of electric currents on argon and other elements in our atmosphere—hereafter to be indicated by the symbols  $O_2$   $N_2$   $A_1$ .

#### FOR REVENUE ONLY.

The suggestion in the JOURNAL editorial of last week,<sup>1</sup> that the bias of the Report of the Royal Opium Commission was dictated by commercial considerations, receives support from other sources. That exceedingly well-informed journal, the *New York Sun*, says that "East Indian business interests of all kinds must be vastly relieved at the tenor of the British Royal Commission's report on the opium question. That Commission was appointed in the autumn of 1893 to consider the evils of opium eating and the financial difficulties that would be involved should the traffic be abolished by law."

The Commission has found no evils from the "temperate use of opium in India"—on the contrary, such use may be "even beneficial," as it argues from the fact that "the opium habit prevails among some of the most manly, hardworking, thrifty races of India." But the financial difficulties that would be involved, should the half million acres now under poppy cultivation be made unproductive by an adverse report on the use of opium, are very obvious.

The dictum of the Royal Commission will not be accepted by the medical world outside of India, nor even there outside of the native races. As the *Medical Record* says: "So far as Caucasians are concerned we can not too emphatically assert that the Commission's conclusions do not apply at all. The use of opium is a distinct evil. Its moderate use is impossible. There are practically no temperate opium users. The opium eater always wants more and continues to want more until he is physically and mentally a wreck."

The defense of the opium habit by Great Britain is made for revenue only.

#### "CHOLERA AND OYSTERS."

Not content with having fixed the stigma of being a typhoid-fever carrier upon the oyster, our English cousins are now attacking that hitherto supposedly innocuous bivalve as a disseminator of Asiatic cholera. Following the *British Medical Journal's* series of articles on the conveyance of certain water-borne diseases by oysters and other shellfish comes a report by DR. THORNE THORNE to the Local Government Board upon the distribution of cholera in England in 1893, from which it appears that the disease was conveyed to different parts of the Kingdom either by oysters shipped from, or in the persons of excursionists who had eaten oysters in, Grimsby and Cleesthorpe—two popular seaside resorts at the mouth of the Humber.

In its review of the evidence submitted in the report the *Journal* says: "Reverting, in conclusion, to the general question, we would point out that no absolute conclusion is come to in the report, but that portion of it dealing with the question of shellfish and the spread of cholera concludes with words which can not be held to go beyond the inference which may properly be drawn from all the facts set out. They are as follows: 'One thing is certain—oysters and shellfish, both at the mouth of the Humber and at other points along the English coast line, are at times so grown and stored that they must of necessity be periodically bathed in sewage more or less dilute; oysters have more than once appeared to serve as the medium for communicating disease, such as enteric fever, to man; and so long as conditions exist, such as those with which the oyster trade of Cleesthorpe and Grimsby is shown to be associated,

<sup>1</sup> "The Hodgkins Fund Prize," p. 355, vol. XXIII, No. 9.  
<sup>1</sup> "Defense of Opium Eating," p. 685.

—conditions which may at any time involve risk of the fouling of such shellfish with the excreta of persons suffering from diseases of the type of cholera and enteric fever—so long will it be impossible to assert that their use as an article of diet is not concerned in the production of diseases of the class in question.”

Henceforth let the “blue point” be anathema, the oyster be ostracized—anyway until next September.

#### THE COLLECTIVE INVESTIGATION.

In response to many requests, the JOURNAL reproduces in this number the blank form for the collective investigation of the antitoxin treatment of diphtheria, which will be found, as before, following the last page of reading matter. The contributions to this attempt to arrive at a consensus of opinion on a most important and warmly debated question are already so numerous as to give promise of an interesting and weighty set of conclusions, and the promptitude of the responses is no less gratifying—the first filled-out form was received from DR. E. E. FYKE, of Centralia, Ill., 252 miles distant, on Monday morning, April 22, the blank form being first printed in the issue of Saturday, April 20. Not less alert was our San Francisco correspondent, DR. KUHLMAN, whose letter, under date of April 25, appears on another page.

Touching the flat-footed assertions contained in this letter, the JOURNAL will only remark that that which is pronounced “impossible of execution” is being executed. *Ex uno disce omnes.*

PRESIDENT COLE.—As we go to press with a largely increased edition we learn by telegraph of the election of DR. RICHARD BEVERLY COLE, of San Francisco, to the Presidency of the AMERICAN MEDICAL ASSOCIATION. His unfaltering zeal in the cause of science, and his faithful services on behalf of the ASSOCIATION, are well known to the entire profession.

The next annual meeting will be held in Atlanta, Ga., the city of historical reminiscences, noted for its salubrity, its educational advantages and its commercial activity. The members of the ASSOCIATION will have the opportunity of renewing the pleasant acquaintances formed five years ago.

## CORRESPONDENCE.

### Editorial Correspondence.

FORT WAYNE, IND., May 5, 1895.

TO THE JOURNAL:—The JOURNAL Special Train over the Pennsylvania Railroad, left the Union Depot promptly at 3:15 P.M., as advertised. The train was equal in its appointments to all that had been claimed for it by the railroad company. The following are some of those who were on the train:

U. O. B. Wingate and wife, Milwaukee, Wis.  
W. H. Washburn and wife, Milwaukee, Wis.  
H. B. Stehman, Chicago.  
J. T. Priestley and wife, Des Moines, Iowa.  
D. W. Graham, Chicago.

M. E. Connell, Wauwatosa, Wis.  
W. B. Hill, Milwaukee, Wis.  
F. W. Rogers, Hartford, Wis.  
W. Q. Marsh, Sierra Mojada, Mex.  
D. M. Thurston, Beeville, Tex.  
W. Whitford, Chicago.  
Chas. H. Gillespie, Chicago.  
W. C. Abaly, Madison, Wis.  
G. G. Beethooven, C Johnston Smith, Anheuser-Bush Brewing Association.  
H. B. Ellis, Los Angeles, Cal.  
Wm. LeMoyné Wills, Los Angeles, Cal.  
C. F. Greebe, Chicago.  
J. B. Charlton, Clear Lake, Iowa.  
A. C. Wedge and wife, Albert Lea, Minn.  
C. G. Pauly, Iowa.  
E. H. Dorland, Chicago.  
C. Fenger, Chicago.  
U. B. Will and wife, Peoria, Ill.  
N. Senn, Chicago.  
L. H. Montgomery and wife, Chicago.  
E. S. Talbot, Chicago.  
Daniel R. Brower, Chicago.  
T. J. Sullivan and wife, Chicago.  
Albert Sutton, Tacoma, Wash.  
J. W. Graham, Denver, Colo.  
J. B. Murphy, Chicago.  
Joseph Eastman, Indiana.  
W. B. Rogers, Memphis, Tenn.  
W. X. Sudduth, Minneapolis, Minn.  
Marie L. Mergler, Chicago.  
Edward Jackson, Denver, Colo.  
A. C. Corr, Carlinville, Ill.  
W. R. Fringer, Rockford, Ill.  
A. W. Richards.  
John W. Bean and wife, Ellensburg, Wash.  
James W. Cokenower and wife, Des Moines, Iowa.  
R. Beverly Cole, San Francisco.  
J. E. Woodbridge, Youngstown, Ohio.  
A. Garcelon, Lewistown, Me.  
J. B. Hamilton, Chicago.  
R. A. McClelland, Yorkville, Ill.  
M. C. Knight, Aurora, Ill.  
Chas. Truax, Chicago.  
A. J. Horlick, Racine, Wis.  
A. E. Kemick, Chicago.  
M. L. Hildreth, Lyons, Neb.  
H. B. Sears, Beaver Dam, Wis.  
B. C. Whitney, Burlington, Iowa.  
F. E. Sampson, Creston, Iowa.  
Hugh T. Patrick, Chicago.  
Geo. W. King, Helena, Mont.  
J. M. Wick, Cedar Falls, Iowa.  
D. W. Smouse, Des Moines, Iowa.  
D. W. Crouse, Waterloo, Iowa.  
W. R. Skinner, Cedar Rapids, Iowa.  
B. H. Criley, Dallas Center, Iowa.  
F. C. Hull, Carlisle, Iowa.  
H. P. Newman and wife, Chicago.  
E. F. Ingals, Chicago.  
F. B. Turck, Chicago.  
W. J. Bridgman and wife.  
M. B. Ward, Topeka, Kan.  
Elmer Lee, Chicago.  
C. E. Fawcett, Stewartville, Minn.  
B. F. Uran, Kankakee, Ill.  
B. F. Crummer, Omaha, Neb.  
Charles M. Robertson and wife, Davenport, Iowa.  
A. W. Campbell, Chicago.  
H. R. Holmes, Portland, Ore.  
Zan Catter, Chicago.  
W. R. Grady, Chicago.  
W. F. Grinstead, Cairo, Ill.  
R. C. Beatey, St. Louis.  
A. L. Hummel, Philadelphia.  
A. K. Kaime, St. Louis.  
Walker C. Taylor, St. Louis.  
B. T. Whitmore and wife, Chicago.  
N. S. Kaime, St. Louis.  
S. G. Gunt, Kansas City, Mo.  
Jas. A. Lydston, Chicago.  
G. W. Reynolds, Chicago.  
F. J. Maxwell, Keokuk, Iowa.

### His Ipse Dixit.

SAN FRANCISCO, CAL., April 25, 1895.

To the Editor:—As a member of the AMERICAN MEDICAL ASSOCIATION, I ask you to give space in the JOURNAL for the following:

1. The JOURNAL's scheme for ascertaining the therapeutic value of so-called “antitoxin diphtheria serum” is impossible of execution for the following reasons: *a*, it is impossible to identify the so-called Löffler bacillus diphthericus by any description now extant; *b*, it will require at least one year to complete the cycle of a scientific bacteriologic diagnosis of any case of diphtheria—admitting that the disease may be due to a bacillus capable of identification, which has not been done thus far; *c*, statistics unsupported by a scientific bacteriologic diagnosis, including post-mortem examination, are unreliable, inasmuch as the serum-therapy is based entirely upon the factum that diphtheria is caused by the so-called Löffler bacillus diphthericus.

2. In a paper read by me on the 16th inst., before the State Medical Society of California, entitled, “The Status Presens of Antitoxic Blood-Serum,” I have shown by an abundance of scientific data and statistics: *a*, that antitoxin blood-serum antedates Behring as a therapeutic agent; *b*, that the so-called Löffler bacillus is not the cause of true Bretenneau diphtheria; *c*, that antitoxin blood-serums bear no relation to the causes operating in infectious diseases; *d*, that it does not insure immunity; *e*, that it does not cure; *f*, that it causes chemic decomposition of the blood and is a dangerous remedy; *g*, that it increased the mortality in diphtheria in Berlin during the year 1894 about 25 per cent.

Respectfully submitted,

CHAS. G. KUHLMAN, M.D.

935 Market Street.

## BOOK NOTICES.

The History of the Pennsylvania Hospital 1751-1895. By THOMAS G. MORTON, M.D., assisted by FRANK WOODBURY, M.D. 4 to., cl., gilt top, uncut edges, pp. 574. Philadelphia: Times Printing House. 1895.

The late President Hays, in one of his innumerable addresses, pointed out the necessity of compiling county, mu-

nicipal and special histories now, while in the greater part of the country, there were living persons who knew the beginning; that in a few years owing to the restless and migratory habits of the people, even the traditions of the first planting would be absent. History can not be written by contemporaries; it must be written by those living outside and beyond the influence of the personal animosity or friendship which formed the motive for the recorded deed, and these local "histories" commended by President Hays, afford the best possible data for the after-coming historian.

Fortunately, the history of the Pennsylvania Hospital rests on documentary evidence, and we have it here, spread before us in the highest style of art of the photographer and lithographer; an art by which the old documents are preserved, yellow with the century and a half that has passed over them, and wrinkled as they appear in this year of our Lord 1895. Pictures of the old worthies as they appeared in their day are republished, among others a half tone from the identical engraving from which was taken the picture of Benj. Rush that we reproduced last week. It is true that Americans have no old ruined castles to point out to the visitor, but we can do better; we may point to some of our great charitable institutions, after a century and a half of usefulness not only showing neither weakness nor old age, but young, fresh and bright, greeting the twentieth century with kindness, and perennial vigor; and those fortunate enough to have a copy of this report, may appropriately say: "Well done! Pennsylvania Hospital."

**Personal Reminiscences and Recollections of Forty-six Years' Membership in the Medical Society of the District of Columbia, and residence in this city; with Biographical Sketches of many of the Deceased Members.** By SAMUEL C. BUSEY, M.D., LL.D. Cl., 8vo., pp. 373. Washington, D. C. 1895.

Dr. Busey has long been known as one of Washington's literary physicians; a fluent writer, and an eloquent speaker. His long identification with the medical work of the District, and his extensive acquaintance, enable him to speak on these topics with *ex-cathedra* utterance. His reminiscences of early life in Washington are interesting, not only to those whose lot is cast in the Capital City, but as well to young practitioners everywhere. His account is sometimes amusing:

"The prescribed fee for each visit was one dollar. Many times the bill was settled with a fraction, and often a small fraction of the amount, in fact the beginner took whatever he could get, and was glad to receive such portion, however large or small the bill might be."

Those who now see the beautiful city with the decorative effects that forty years fostering care by Congress has created, can scarcely realize what Washington was in the days of young Busey's advent, as amusingly set forth in this book. The account of his student life as a private pupil of Professor Geo. B. Wood, is a pleasing bit of medical history.

**A System of Surgery; by American Authors.** Edited by FREDERIC S. DENNIS, M.D., Professor of the Principles and Practice of Surgery, Bellevue Hospital Medical College, New York; President of the American Surgical Association, etc.; assisted by JOHN S. BILLINGS, M.D., LL.D., D. C. L., Deputy Surgeon-General, U. S. A. To be completed in four imperial octavo volumes, containing about 900 pages, each with index. Illustrated with figures in colors and in black. Volume I, 870 pages, 422 engravings and 2 colored plates. Price per volume: \$6 in cloth; \$7 in leather; \$8.50 in half morocco, gilt back and top. Philadelphia: Lea Brothers & Co. 1895.

There are forty-six contributors "named in the list," of whom twelve have contributed to this volume. The book appropriately opens with a condensed history of Surgery by Dr. John S. Billings. The assignment of this portion of the work to one who has the great Army library at his com-

mand is appropriate. We notice an inaccuracy in the five-line notice of the late Frank Hastings Hamilton, of New York. In the parenthesis the figures "(1813-66)" should be 1813-86, if, as is apparent, the year of the birth and death is meant by the figures. The last twenty years of the distinguished surgeon's life were by no means the least important. The chapter on Surgical Pathology, by Dr. W. T. Councilman, is the most satisfactory one hundred pages on this subject with which we are acquainted, and especially when taken in connection with the magnificent chapter by Professor W. H. Welch on the General Bacteriology of Surgical Infections. The chapters on Gunshot Wounds, by Dr. P. S. Conner; Fractures and Dislocations by Dr. Dennis; on Traumatic Fever, Erysipelas and Tetanus by Dr. J. Collins Warren and on Operative Surgery by Dr. Stephen Smith are noteworthy contributions. We have no hesitation in assigning this book to the first rank among the books of its class.

The weak point in most American works on surgery, judged by the European standard, has usually been the pathology, but no more competent hands than these could have been found in America, and we are proud to offer in this work a specimen of the quality of our new school of American Pathology, as promulgated by Welch, Councilman and Warren.

The mechanical execution of the book is worthy of the great publishing house that has issued it.

## NECROLOGY.

R. L. LUCKETT, M.D., of Boyce, La., died April 25 at his plantation near that town. After studying at Yale College, he took his medical degree at the New Orleans School of Medicine (now extinct), in 1860. He entered the Confederate ranks as private, but was promoted to surgeon's duty on the staffs of Generals Polk and Bragg. He was United States Marshal in 1894. He was in the lower house of his State Legislature from 1874 to 1879, and in the Senate for four years later.

EDWARD SHIPPEN, M.D., of Philadelphia, died April 23, aged 68 years. He was a native of that city and a graduate from the University of Pennsylvania, in the class of 1848. In the late war he was surgeon of the Artillery Reserves of his State and from 1861 to the end of the war, most of the time being with the Army of the Potomac. He was lineally descended from the senior Dr. William Shippen, who was one of the founders of the Pennsylvania Hospital, of the school that afterward became the University, and a trustee of the first medical college, and for thirty years a trustee of Princeton College.

MR. JOHN BIRD, of London, a blind surgeon and author of many publications on the condition of the blind, died late in April at the age of 84 years. He was preëminent in the profession for the efforts put forth for the amelioration of the lot of his fellow-sufferers. He became a member of the Royal College of Surgeons, England, and a Licentiate of the Apothecaries' Society in 1834, after pursuing his medical studies at St. Bartholomew's. Mr. Bird was the author of "Observations on the Neglected Condition of the Blind in England," the publication of which he followed by a "Lecture on the Capabilities, Rights, and Treatment of the Blind," and a "Letter on the Duty of Superseding the System of Exile Education of the Deaf and Dumb, as well as of the Blind, by Social Education, as recently established in the Communal Schools of Paris." This was published in 1856, and the same year he also wrote a biography of the blind James Wilson, and at other times contributed articles on social pathology and the needs of the deaf and dumb.



ARTHUR R. OPPENHEIMER, M.D., of Baltimore, Md., April 29, aged 22. He was first assistant resident physician of the Johns Hopkins Hospital.—Charles Ottilie, M.D., of La Crosse, Wis., April 30, aged 64.—Joseph Rowland, M.D., of Media, Pa., April 29, aged 82.—Elsie F. Anderson, M.D., of Valparaiso, Ind., April 29.—Thomas Seaton, M.D., of Bolivar, Pa., April 29, aged 82.—Spencer Byrne, M.D., of Marengo, Ind., April 28.

## PUBLIC HEALTH.

**Free Public Baths.**—The New York Legislature has enacted a law making it mandatory upon cities of that State having populations of over 50,000 inhabitants to establish free public baths, and authorizing cities with less than 50,000 inhabitants to raise money for a like purpose. Cleanliness, says the Hindu, is the key to heaven.

**Bacteriologic Laboratory for Paris.**—M. Dubois, on behalf of a special committee of the Municipal Council of Paris, presents a report advising the creation of a special laboratory for the bacteriologic examination of diphtheria. The committee is of opinion that there is urgent need of installing an official laboratory for gratuitous examination of microscopic preparations and cultures. Apart from the Pasteur Institute, which desires to be confined to its own sphere, the committee thinks there is no laboratory better qualified for this work than that of the microscopic and bacteriologic laboratory of Paris directed by Mignel. The Council voted an appropriation of 10,000 francs for this purpose.<sup>1</sup>

**Poisonous Dried Apples.**—United States Consular Agent Krauss at Zittau in Germany, reports to the Department of State that American evaporated apples offered for sale there have been submitted to a chemic analysis and found to contain oxid of zinc. The investigation was made at the instance of the police department, and samples were taken from three grocers. At the request of one of the merchants a chemist made an analysis of some of the apples, and certified that the quantity of zinc salt contained in a very large portion of apple jam made from the apples in question could convey into the human system about one-fifth as much zinc as may be given to infants without causing nausea. No case could be found, however, where the fruit had caused illness.

**The Hunger of the World.**—Mr. E. G. Ravenstein, the eminent English geographer and statistician, has made some calculations to find when the earth will be unable to find nourishment for its population and they will be forced to cannibalism or starvation. According to him when the number exceeds 5,994,000,000, or in round numbers, 6,000,000,000, this emergency will arise, and Mr. Ravenstein believes the population of the globe will reach this figure in 284 years more. He points out that the average decimal increase is 8 per cent., divided as follows: Europe, 8.7 per cent.; Asia, 6 per cent.; Africa, 10 per cent.; Australia and Oceanica, 30 per cent.; North America, 22 per cent.; South America, 15 per cent.

**Barbarism of Ignorance.**—A few weeks since a quarantine guard at Shawneetown, Ill., shot a citizen who was attempting to escape from a smallpox quarantine. On the 4th inst. a "pest-house riot" broke out at Winchester, Ky., where a colored prisoner in the county jail has smallpox. A building, erected five miles from the town for his reception, was burned down during the night, and the farmers armed with rifles are guarding the roads in anticipation that the smallpox prisoner may be taken through their neighborhood to some obscure locality. Meanwhile the sheriff, whose residence is in the jail, has his smallpox prisoner on his hands

and can not get him out of town. The barbarities of shot-gun quarantines are the results of ignorance and superstition—foster-parents of cruelty.

**Smallpox in Indiana and Ohio.**—Dr. C. N. Metcalf, Secretary of the Indiana State Board of Health, reports to the JOURNAL, under date of May 7, 1 case of smallpox at Terre Haute, 1 death; 2 cases at Evansville; 1 case at Indianapolis and 1 death at Tell City. Dr. Metcalf adds that the persons sick are all colored and the origin of the disease is not known.

Under the same date Dr. C. O. Probst, Secretary of the Ohio State Board, reports in Cincinnati 24 cases and 7 deaths, making in all 89 cases and 17 deaths; all cases have been taken to the Branch Hospital; 54 of the cases occurred in one square on the river front; all the inhabitants of this square have been vaccinated. In Cleveland 8 cases have been reported; the first cases were operatives in a woolen mill, and the origin of the disease is supposed to be infected rags; all of the cases have been removed to the Infectious Disease Hospital. No other cases reported in the State.

**Rewards of Early Rising.**—Aside from the helminthous property ascribed to the early bird by the adage, a recent newspaper writer implies that if one would become a healthy and well-preserved monarch all that is necessary is to acquire the habit of early rising. In support of his theory he cites the Emperor Francis Joseph of Austria, who invariably retires to rest at 9 and is up at 5—sometimes even at 4—in the morning and who is "athletic, elastic and youthfully active." King Humbert of Italy, likewise remarkably well-preserved, is also up with the lark and has taken his first breakfast long before the majority of his subjects are out of bed. Among the early risers Emperor William, the Queen Regent of Spain, King Charles of Roumania, King Oscar of Sweden, King Leopold of Belgium—indeed, says this writer, "it only requires a passing glance at the various thrones of Europe to show that those monarchs most healthy and well-preserved for their years are precisely those who, according to the new-fangled doctrine of the medical authorities, ought to be the ones most physically decrepit." The moral of which has been already pointed out: Get up early if you would be a healthy and well-preserved monarch.

**Effective Disinfection.**—Under the Sanitary Act of 1891 the sanitary authorities of London are bound to provide temporary shelter free of charge to all persons who are compelled to leave their dwellings for the purpose of enabling such dwellings to be disinfected. To what extent this obviously necessary measure is complied with is not definitely known, but the American reader will infer that like many other well-intended sanitary requirements it is more frequently honored in the breach than in the observance. Dr. Anthony Roche in a letter to the *Irish Times* calls attention to the London requirement with a view to securing its adoption in Dublin, whereupon the *Medical Press* says: "The requirement is but little known in the metropolis." As Dr. Roche points out, it is useless to disinfect infected premises if the occupants whose clothing is saturated with infection, are allowed to wander about the streets or carry the infection into neighboring premises.

**Influenza as a Factor of Increased Death Rates.**—The returns of deaths from influenza during the recent prevalence of this disease bear no relation to its actual influence on the mortality of the period. A very large percentage of the deaths from pneumonia, bronchitis, heart disease and kidney disease should be charged up to this insidious and protean malady. In a recent clinical lecture<sup>1</sup> Dr. James Tyson said: "Another serious danger of influenza is its tendency to con-

<sup>1</sup> Le Progres Medical.

<sup>1</sup> University Medical Magazine.

vert harmless, often latent, disease into serious disease. I especially refer to kidney and heart disease. One of the results of the more recent practice by the life-insurance companies, in examining the urine of all persons seeking insurance, is the discovery that albuminuria is present in many persons who are quite free from other symptoms—a condition not serious in itself. If such a man gets influenza, however, his mild albuminuria will sometimes become a serious one. The same is true of heart disease. A murmur unattended with other symptoms may, after an attack of influenza, become associated with other symptoms and assume a serious import."

**The Typhoid Milk Can.**—The recent distressing outbreak of typhoid fever in Stamford, Conn., traced unmistakably to the milk supply of one dealer, has awakened renewed interest in the question of the sanitary control of dairies and milk distribution. Dr. Welply, of Belfast, Ireland, has just issued a timely monograph on the subject—"Creameries and Infectious Diseases." He deals at some length with an outbreak of typhoid under his own observation in which the origin of the epidemic was traced beyond a doubt to the consumption of "separated milk" distributed from a creamery in the neighborhood. "Separated milk" is the skim milk left after the cream has been removed, to which is then added enough fresh milk to bring it just within the legal standard, and it is then sold as new milk in the large towns. As the creamery receives the milk from several dairies, one infected supply may pollute the product of all the others contributed to the same creamery, and in this way a single case of rural typhoid may become almost infinitely multiplied. Dr. Welply traced up such an infected dairy as the cause of the outbreak, and then goes on to show how minute a quantity of the morbid matter is capable of wellnigh indefinite multiplication in such an ideal culture medium as milk. He found in his examination that the cows in this dairy were milked by a person whose hands had been soiled by typhoid dejecta and that some of the dairy maids acted also as nurses to the sick. Among other practical points he refers to the fact that few cows can be thoroughly milked unless the hand and the teat be kept moist, to which end the majority of milkers wet both surfaces with the first portion of milk that is drawn. Dr. Welply advocates two principal measures of prevention—first, thorough and frequent dairy inspection by competent and independent inspectors; and secondly, compulsory notification of all cases of illness occurring in dairies which send milk to creameries.

**Health Reports.**—Sanitary reports to the Supervising Surgeon-General, Marine-Hospital Service.

#### SMALLPOX—FOREIGN.

Argentina Republic: Buenos Ayres, month of February, 10 deaths.

Austria: Buda-Pesth, April 1 to 8, 3 cases.

Bohemia: Prague, April 6 to 13, 3 cases.

Brazil: Rio de Janeiro, March 23 to 30, 3 deaths.

Egypt: Alexandria, March 19 to 25, 4 cases, 1 death; Cairo, 3 cases, 3 deaths.

England: South Shields, April 13 to 20, 6 cases; Birmingham, April 6 to 13, 1 case, 1 death; Liverpool, April 6 to 13, 1 case—April 13 to 20, 5 cases, 1 death; London, April 13 to 20, 4 cases; Manchester, April 13 to 20, 1 case.

Holland: Amsterdam, April 13 to 20, 1 death; Rotterdam, April 13 to 20, 5 cases, 2 deaths.

India: Calcutta, March 16 to 23, 233 deaths.

Ireland: Dublin, April 6 to 13, 10 cases, 2 deaths—April 13 to 20, 8 cases—for three months ended March 30, 642 cases, 81 deaths.

Scotland: Edinburgh, April 1 to 6, 7 cases, 1 death—April 6 to 13, 3 cases—April 13 to 20, 2 cases 1 death; Glasgow, April 13 to 20, 8 deaths.

Russia: Batoum, April 3 to 10, 8 cases, 1 death; Moscow, April 1 to 6, 2 cases, 2 deaths; Odessa, April 1 to 13, 1 case; Warsaw, April 1 to 6, 1 death; St. Petersburg, April 6 to 13, 1 death.

West Indies: San Juan de Porto Rico, April 3 to 10, 1 death—April 10 to 17, 1 death.

#### SMALLPOX—UNITED STATES.

Arizona: Nogales, May 2, 39 cases.

Florida: Key West, May 4, 1 case.

Indiana: Evansville, April 30, 2 cases.

Michigan: Smallpox reported at Detroit and Brownstown Township, during week of April 20 to 27.

Mississippi: Vicksburg, May 1, 2 cases.

New Hampshire: Claremont, April 20 to May 3, 11 cases; Croydon, 7 cases; Newport, 1 case.

New Jersey: Hoboken, April 20 to 27, 2 cases.

Ohio: Cincinnati, April 27 to May 4, 11 cases, 1 death.

Pennsylvania: Philadelphia, April 20 to 27, 10 cases.

West Virginia: Wheeling, March 25 to May 3, 12 cases, 1 death.

#### YELLOW FEVER—FOREIGN.

Brazil: Rio de Janeiro, March 23 to 30, 20 deaths; Santos, March 23 to 30, 108 cases, 87 deaths.

Cuba: Havana, April 18 to 25, 3 cases, 1 death; Santiago de Cuba, April 1 to 28, 10 deaths.

#### CHOLERA—FOREIGN.

Argentina: Buenos Ayres, February 1 to 28, 45 deaths.

India: Madras, March 23 to 30, 1 death; Calcutta, March 16 to 23, 103 deaths.

Arabia: Camaran quarantine station. Cholera was brought to the station by the S.S. *Mohamed* and the S.S. *Yubeda*. March 23 to 30, 48 cases, 13 deaths.

## SELECTIONS.

**Surgical Tuberculosis.**—Isnardi (Turin, 1894,) reports success in the use of oil of turpentine. He uses this partly as an ointment with vaselin, equal parts, in affections of the skin, partly undiluted as an injection into fistulas or abscesses. Fistulas are first curetted, and abscesses are aspirated. Very intense inflammation follows with rise of temperature to 40 degrees C., but with no severe general symptoms. In four to six days abscesses are to be incised, packed with sterilized gauze containing the turpentine ointment. The results, as detailed by the writer in eighteen cases in children were most promising.—*Centralblatt fur Chirurgie*.

**Treatment of Leukoplakia.**—L. Leistikow, in *Monatsheft fur praktische Dermatologie*, 1894, No. 3. Leukoplakia of the mouth is generally very hard to influence therapeutically; for this reason every new remedy meets with ready trial. The success which the writer had with patients who had had syphilis, but in whom specific remedies proved useless, was worthy of note. Several times a day especially after meals and at bedtime, the following paste was applied with a swab: terre silicee, 1.5, resorcin 3, adipis 0.5. After eight to fourteen days a shriveling was noticed; then the slightly inflamed mucous membrane was brought to a normal condition best by balsam of Peru. The accompanying hyperplasia of the lower lip was also diminished, but eventually the cauterization had to be repeated two or three times.—*Centralblatt fur Chirurgie*.

**Hydatid Fremitus and Resonance.**—(*Policlinico*, 1894, No. 11) Santini drew the attention of the Academy of Sienna to the fact that a deep sonorous tone is heard on percussing an echinococcus cyst, if at the same time one listens with the stethoscope. Ravogli proved this statement on one living subject and also on the extirpated cyst, afterward also experimentally on India rubber bladders. He therefore arrives at the following conclusions: echinococcus cysts yield not only the feeling of the so-called hydatid fremitus on palpation and percussion, but also to coincident auscultation a characteristic tone, the hydatid resonance. To find these signs often requires no little pains. Failure is quite possible if the cyst wall is very thick or has degenerated, if the contents are more or less thick, and finally, if the cyst lies too deep and is covered with thick layers of tissue. The best method of examination is to place the left hand firmly

on the tumor and to percuss the terminal phalanges with the middle finger of the right hand. The hydatid resonance is more easily found than the fremitus, and may be recognized in cases in which the latter symptom is missed.

In ovarian cysts containing thin fluid, hepatic abscesses, etc., neither of these symptoms was ever found. Elasticity and extensibility of the cyst wall, and clear contents are necessary for their production.—*Centralblatt für innere Medizin.*

**Ether for Anesthesia in Munich.**—(P. Ziegler, *Munchener med. Wochenschrift*, 1894, No XXIII.) Ether has been used at the surgical clinic in Munich since May 1, 1893. The experience in 600 cases is now made public. . . . In conclusion, the unpleasant sensation of suffocation at the beginning, the cyanosis, the excessive secretion of mucus and saliva, the tardy relaxation so common in alcoholics, the frequent partial return to consciousness when the cone is removed, are annoying, but can be obviated by greater experience. Over against these is the diminished danger, since cardiac syncope is not primary, but secondary to respiratory syncope, which can be more easily overcome. Ether is not recommended for operations on the face, and is directly contraindicated in all diseases of the air passages, including compression of the trachea. He declares himself in favor of the use of ether, and the latest statistics justify him, for 1 death has resulted in 1,900 cases of chloroform anesthesia, while with ether, 1 death in 26,000 cases.—*Centralblatt für Gynäkologie.*

**Heteromorphism of Bacteria under the Influence of Lithium Salts.**—Herbst, in the domain of zoology, by the addition of lithium and potassium salts to sea water, saw the eggs of the sea-urchin (*Echinus microtuberculosis*) assume a different, hitherto unknown formation; reasoning by analogy, Gamaleia (*Wratsch*, 1894, Nos. 19 and 20) tried the effect of lithium on various bacteria and recorded a series of altered forms resulting.

Twenty-four hours after the addition of .5 to 1 per cent lithium chlorid to a cholera bouillon culture or 1 to 2 per cent to a cholera agar culture: 1, giant spirilla were seen, having considerable length and breadth, unequal thickness and distinctly corkscrew-like cells; 2, further, especially if the percentage of the lithium salts be increased, spherical or amoeboid cells. The spherical forms were in general easily stained, wholly or only in part, by alkaline aniline dyes; often the contents of these forms were finely grained with crystalline luster or pierced by lines or rods. A third and less common form displayed very fine filaments, which, if pressed more firmly together, formed a fine felt-like tissue. Here and there the impression is given that these filaments are offshoots from the thick spirilla.

In contradistinction to the involution forms which arise in decaying colonies, Gamaleia calls this transformation, heteromorphism, a term introduced by himself, since the forms he describes are found in fresh cultures and there is no appearance of degeneration, as is manifest from the imperfection of the heteromorphous forms, from their quantitative preponderance over the number of normal bacteria in the preparation, further from their larger size, their ease in staining and from the absence of the fine-grained, coccus-like destruction, characteristic of old cultures. Besides, the term, heteromorphism, is least prejudicial to the question as to the retrospective or prospective character of the forms.

Typhus bacilli showed after the addition of lithium chlorid to cultures exactly the same three types of changed forms. Other forms of bacteria, as milzbrand and diphtheria, showed no tendency to heteromorphism, nor was there any such manifestation, if sodium, potassium, caesium or rubidium were added to cholera or typhus cultures. As to the viability of the heteromorphous bacteria, it is to be noted that the giant forms have vital energy and retain their characteristics after inoculation on common gelatin. The viability of the other forms seems undecided. But, on the other hand, bacteria may acquire a certain indifference to the action of lithium, for successive inoculations on nutrient media containing the same proportion of lithium lead to a decline and disappearance of the heteromorphism.—*Centralblatt für innere Medizin.*

## MISCELLANY.

**Addresses at the Forty-seventh Annual Meeting.**—(By telegraph to the JOURNAL).—The addresses at the Forty-seventh Annual Meeting of the AMERICAN MEDICAL ASSOCIATION will be delivered by Nicholas Senn, M.D., Chicago, on Surgery; William Osler, M.D., Baltimore, on Medicine; George H. Rohé, M.D., Baltimore, on State Medicine.

**St. Francis Hospital, New York.**—Under the will of the late Mansay P. Dódin, the sum of \$1,000 was recently made over to the Sisters of the Poor who conduct the hospital above named.

**The Willard State Hospital for the Insane, New York.**—A destructive fire, without loss of life, broke out at this institution on the 28th ultimo, and consumed property valued at \$150,000. The entire institution was in danger at one time, and all the patients were gotten ready to vacate.

**Reduction in the Price of Antitoxin.**—The New York City Board of Health has recently reduced the cost of the serum produced by its Bacteriologic Bureau, as follows: "First quality, from \$1.25 to 75 cents; second quality, \$2.50 to \$1.50; third quality, \$4 to \$3." The Board will continue to supply charitable institutions and poor patients free.

**An Accumulative Doctor.**—A Socialist member of the Belgian Parliament receives \$700 per annum as physician to the lock hospital, \$320 as physician to other hospitals, beside \$200 for his services in the custom house. Add to this \$800 for his parliamentary services, and the *Gazette Medicale de Liège* thinks the doctor should contrive to live on his practice.

**Dr. Max Simon Nordau**, the author of "Degeneration," is a medically educated man. He was born at Buda-Pesth in 1849, took his medical degree in 1873, traveled and studied medicine for five years, at the end of which time he made his permanent home in Paris. He became a correspondent of the *Frankfurter Zeitung* and other German journals, also contributing social and political writings to various French reviews, some of which attracted marked notice.

**Dr. A. Conan Doyle**, whose books have had a great circulation in this country, came hither last winter to deliver lectures. From certain comments in the papers it would appear that the rewards of this visit were not such as to lead to its repetition. In fact, in the *World*, Dr. Doyle has stated that he does not care to visit America again in the winter season, for the reason that our "railroad cars are kept too hot." The *World* suggests that really he found that his audiences were too cool for him.

**David S. Ingalls.**—The late David S. Ingalls, of Springville, New York, left an estate valued at over \$600,000, the most of which was bequeathed to charitable institutions. The will was hotly contested by two surviving sisters and a niece. One of the sisters was alleged to be of unsound mind. The contest has been "on" since early in 1893. The hospitals and other charitable legatees will receive about two-thirds of the estate, the contesting relations and counsel will get one-third, nearly.

**Wound of the Bladder During Vaginal Hysterectomy.**—Jacobs reports that after incising the vaginal mucous membrane in the anterior cul-de-sac, which would allow him to place the utero-vaginal sutures, he proceeded with the finger to detach the cellular tissue separating the supra-vaginal portion of the cervix from the bladder, when suddenly and without any warning the index disappeared in the bladder. The author sutured the viscus at once and found then that the muscular fibers of the vesical wall only existed in patches, consequently the suturing was very laborious but

it was finally accomplished with fine catgut in two stages. Owing to this accident the vaginal method was abandoned; ten days later, the fistula having closed, abdominal hysterectomy was performed with recovery.<sup>1</sup>

**Iodid of Potash in Actinomycosis.**—Berard has collected all the cases of actinomycosis in which iodid of potash has been used. This treatment has brought about recovery in about 95 per cent. The iodid of potash may then be considered as a specific for this affection. What is the mode of action of the medicament? The experiments of Berard show that the actinomycetes grow readily in cultures to which iodine has been added. It seems probable, then, that the iodid of potash acts especially on the anatomic elements.<sup>2</sup>

**Treatment of Nasal Hypertrophy.**—At a recent meeting of the Paris Academy of Medicine, Lucas-Championniere showed a patient affected with nasal hypertrophy from acne. Ollier's method—decortication by the thermo-cautery without autoplasty and with a simple, weak antiseptic dressing—had given a very good result. The only difficulty is not to clog the nostrils and to touch the septum as little as possible during the decortication. Marc See stated that, instead of decorticating all the nose, he leaves strips of skin between the cauterized areas; his method, which he has used for fifteen years, may be done without chloroform. In replying, Championniere maintained that in cases as complex as the one he presented, total decortication is preferable; it gives a more complete and especially a much more rapid result.<sup>3</sup>

**Contra-indicated During Pregnancy.**—Huguenin mentions as chief of the remedies which are dangerous to the pregnant woman, salicylate of soda and ergot. Purgatives—castor oil, mineral salts and especially aloes—should be avoided. Oxalic acid and its salts—oxalate of potash, etc.—may prove dangerous. Antipyrin frequently taken inhibits the lacteal secretion; cocain locally applied for fissured nipples has the same effect, and should be proscribed for nursing women. As to operative measures, they are not absolutely contra-indicated; we may, for example, extirpate a peri-uterine tumor, the development of which hinders pregnancy, provided the operation is speedy and little blood lost. It is better to wait until the fourth or fifth month before operating. Operations in the vagina or uterus, no matter how minor, should be avoided in order to avoid suspicions of abortion in the patient's mind.<sup>4</sup>

**Action of the Nervous System on the Lymphatics.**—The study of the innervation of lymphatic vessels presents great difficulties and our knowledge of the subject is confined to some vague and incomplete notions. MM. Camus and Gley have tried to fill this gap by a series of ingenious and demonstrative experiments. These physiologists have been able to register the movements of the receptaculum chyli and the thoracic duct in the dog. By exciting the trunk of the left splanchnic nerve or the thoracic sympathetic they cause, according to conditions, dilatation and contraction of the receptaculum and duct. Hence there are in the same nerve trunk constrictor and dilator fibers for the same vessel, but the latter predominate. This contractility of the lymphatics under the influence of the nervous system plays a considerable rôle in the lymph circulation. The alternate movements of dilatation and contraction are somewhat important in certain cases, for they may be compared to the lymph hearts of certain lower vertebrates. These experiments also show that local circulations may be produced in the lymph vessels as in the blood vessels.<sup>5</sup>

**Professor Huebner of Berlin on Antitoxin.**—The address, before the Thirteenth Congress for Medicine, at Munich early

in April, by Professor Huebner, touches upon the present treatment of diphtheria at the Berlin hospitals. He holds that the statistics there show a marked reduction in the rate of mortality by that disease since the introduction of the use of the serum. He notices that the tendency of the membrane to spread to new localities is reduced. Out of 181 cases there was such spread in only 16 cases. A spread of the disease to the larynx was not observed; in 19 per cent. exanthems were produced; in a few cases fever followed the injections, and in fewer yet there was pain in the joints. The latter was transient and produced no injury to the system. The immunizing property of the serum was not of long duration. The concluding paragraphs of this address are interesting, as given below from the *Medical Press*, for April 24: "He had never believed a remedy would have such a great influence, such an immediate action; he had never believed himself so much indebted to a physician as to the discoverer of diphtheria curative serum. With confidence, he concluded, we could proceed to the building up of our experience, with good conscience we could call out to every colleague: "Prove for thyself and prove as often as thou canst, enough of the noble metal is here. How high its carat, to determine that requires the inexorable scales of time. Art, however, has the time, for it is long."

**Hydatid Cysts of the Lung.**—Behr insists on the great importance of the question of infection or non-infection which governs at the same time the evolution and the pathologic anatomy of cysts of the lung. In the latter case the hydatid is an aseptic foreign body which only reveals its presence by symptoms of compression. In the former it is not long tolerated by the tissues and numerous complications ensue. As regards the penetration of the six-hooked embryo the generally accepted opinion is that it is transported by the veins through the hepatic filter to the right ventricle and thence into the pulmonary capillaries. The dimensions of the embryo of the hepatic capillaries render this opinion probable. Nevertheless the invasion by the air passages seems none the less probable and is admitted, especially in Australia where hydatids of the lungs are relatively frequent. The eggs of the tænia may very easily become mixed with dust and be thus inspired. Diagnosis is very difficult, because there are no pathognomonic symptoms and often the small cysts are only discovered at the necropsy. The most constant sign is dyspnea and its intensity depends on the volume and situation of the tumor and the patient's respiratory capacity. Cysts in the upper part of the lungs seem to give rise to more intense dyspnea than those at the base, even if of the same size. Pain is the second important symptom for "hydatids of the chest are often more painful than those of any other region." The pain is acute, persistent, with exacerbations and may radiate far beyond the part affected.<sup>1</sup>

**Therapeutic Applications of Anemonin.**—Anemonin has been extolled in the treatment of bronchial catarrh, in convulsive coughs and in asthma. The dose is from 2 to 4 centigrams daily in capsules or alcoholic solution. Larger doses cause cephalalgia and a feeling of weight in the extremities. In amenorrhea and dysmenorrhea Bovet has used it in doses of 5 to 10 centigrams daily—but never to exceed 20. According to this author it is the analgesic *par excellence* for uterine disorders. It is easily decomposed in the intestine, however, so its action is uncertain. *Anemone pulsatilla*, in the form of tincture, was highly extolled in 1882 by Schapter for reflex eclampsia, palpitations, ephemeral febrile conditions following violent emotions or fatigue, hay fever—in short, in all neuroses of sympathetic origin. For these he prescribed 20 to 100 drops of the tincture in increasing doses. E. Martel advises the treatment of acute orchitis by tincture of anemone—20 drops daily in divided doses. Martel says that by its use the pain is much diminished and that it has a tendency

<sup>1</sup> These de Paris.

<sup>2</sup> Le Progres Medical.

<sup>3</sup> Arch. de Tocol. et de Gynecol.

<sup>4</sup> Le Progres Medical.

<sup>5</sup> Arch. de Gynecol.

<sup>1</sup> These de Paris.



to resolve the inflammatory process. Anemonin, extracted from the above plant and studied by Bronvsky in 1886, is very toxic. Two grams injected under the skin of dogs caused death in twenty-four to thirty-six hours after increasing dyspnea, slowing of the heart, torpor and paralysis. Death seemed due to cardiac paralysis. Bronvsky has used anemonin with success in bronchial catarrh, asthma and convulsive coughs. He gives 5 to 10 centigrams daily in the form of powder in two doses.<sup>1</sup>

**Before or After?**—How many physicians direct the time of taking medicine on well-defined chemico-physiologic principles? The *Medical and Surgical Reporter* has attempted to furnish such principles in the following: Iodin and iodids should be given on an empty stomach, when they rapidly diffuse into the blood; if given during digestion the acids and starch alter and weaken the action. Acids, as a rule, should be given between the digestive acts, because the mucous membrane of the stomach is then in a favorable condition for the diffusion of acids into the blood. Acids may be given before food when prescribed to check the excessive formation of the acids of the gastric juice. By giving it before meals you check the osmosis stomach-ward of the acid-forming materials. Irritating and dangerous drugs, —such as salts of arsenic, copper, zinc, and iron—should be given directly after food, except where local conditions require their administration in small doses before food. Oxid and nitrate of silver should be given after the process of digestion is ended; if given during digestion, chemic reactions destroy or impair their special attributes and defeat the object for which they were prescribed. Metallic salts, especially corrosive sublimate and also tannin and pure alcohol, impair the digestive power of the active principle of the gastric juice, so should appear in the stomach during its period of inactivity. Malt extracts, cod-liver oil, phosphates, etc., should be given with or directly after food, so that they may enter the blood with the products of digestion.

#### Hospital Notes.

**ST. CLAIR STREET HOSPITAL.**—At a meeting of the St. Clair Street Hospital trustees held in Cleveland, Ohio, April 21, it was decided to proceed at once with the erection of the proposed hospital annex; estimated cost \$2,500.—**St. Luke's Hospital at Davenport, Iowa,** was formally opened April 30.—**The Lamar Hospital, at Augusta, Ga.,** has been formally opened.—A movement is on foot to establish a public hospital at Tiffin, Ohio.—Plans have been made for the enlargement of St. Bernard's Hospital at Council Bluffs, Iowa. The probable cost of the addition will be \$40,000.—**The corner stone of the Vermilion County Hospital, Illinois,** was laid May 11. Many secret societies participated in the event.—**The managers of the Pennsylvania Hospital at their annual meeting held May 6,** elected Dr. James C. Wilson to the medical staff as attending physician, in place of Dr. Morris Longstreth.—**The new memorial surgical pavilions of the Pennsylvania Hospital** were inspected by the contributors and managers and will shortly be utilized for patients, thus nearly doubling the capacity of the hospital.—**The recently issued "History of the Pennsylvania Hospital,"** by Dr. Thos. G. Morton, assisted by Dr. Frank Woodbury, was presented to the contributors at this meeting and a formal vote of thanks therefor was passed unanimously.

#### Louisville Notes.

**SMALLPOX.**—Special Examiner Long reports from Princeton that there are sixteen cases at that place, with three exceptions all occurring in the persons of negroes. This prevalence has been due to the fact that the local authorities did not know that the law compelled all infected persons to be confined in the local pest-house,—and there has been

a free communication between the cases and unvaccinated persons.

**CITY HOSPITAL.**—The four regular schools have furnished the Board of Public Safety with a list of physicians and surgeons who are to represent them upon the visiting and consulting staff for the coming year. It is stated that there will be no conflict between the two schools of medicine and everything seems to be adjusted satisfactorily.

**DEATH REPORT.**—The report for the past week shows a total of 62 deaths. Of these 4 were due to typhoid fever, 12 to pneumonia. There were 2 stillbirths. The report for the month of April shows a total of 366 deaths. There were 43 deaths from consumption, 4 from puerperal fever, 9 from typhoid fever, and 98 from pneumonia. There were 201 males and 165 females, 258 white, 108 colored. Sixteen deaths occurred at the City Hospital and one at the eruptive hospital from smallpox. The death rate for the month was only 1.5 per 1,000 of the white population and 3 per 1,000 among the colored people.

**Good Roads.**—Our country practitioners are so much interested in the subject of good roads that we give place to the following:

#### STATE ROADS IN MASSACHUSETTS.

For the past three years the press of the United States has so thoroughly discussed the different advantages of good roads, and so universally indorsed this reform, that all classes of our citizens appreciate the necessity of, and are anxious for, the immediate adoption of such laws as will hasten the construction of State highways. Massachusetts has from the outset taken the lead in this matter, and the spirit of her Legislature has been shown by making the Highway Commission a permanent one, and by appropriating \$300,000 to be expended, under the immediate supervision of the Commission, in constructing new and rebuilding old roads. As a natural result of the popular agitation and the monster petition, which I had the honor to present to Congress in 1893, the United States recognized the necessity of a move in this direction, and under the "Agricultural Bill" made a special appropriation of \$10,000 to meet the expense of a careful investigation into the condition of roads throughout the country, and for the publication of such information as would assist the people in bettering their highways. The Department of Agriculture has issued a number of bulletins, and it is gratifying to learn that more than a score of States have already passed new road laws, while nearly all the others are planning for the adoption of measures for the promotion of this reform. Experience has shown that the course pursued by Massachusetts is the one which commends itself most strongly, both to the people at large and to their legal representatives, the various State Legislatures, and it is natural to suppose that if all were familiar with the work here the knowledge would be utilized to bring about similar legislation wherever the method of procedure is still unsettled. For this reason I would call to your attention and urge upon you the advisability of enlightening your readers on the good work we have already accomplished. Starting in June, 1892, a Temporary Commission was appointed to examine into the condition of the roads, and to draft a bill providing for the improvement of the highways of the Commonwealth. The law suggested by the Commission was, with some changes, passed in June, 1893, but, before any petitions for construction of State highways were submitted to the General Court, an act was introduced and passed June 20, 1894, increasing the powers of the Commission, and permitting the selectmen of any town, or the mayor and aldermen of any city, as well as county commissioners, to petition the Highway Commission for taking roads as State highways. In place of submitting to the Legislature a separate bill for the construction of each road, it was voted that the appropriation be used by the Highway Commission, without further legislation, in building State highways. The \$300,000 has been pretty evenly divided among fourteen counties. Before deciding which of the many petitions should be granted an official visit was paid to each locality, and full information as to the value of the proposed improvement collected. While this method has distributed the work in small sections of roads, thus increasing the expense per mile, the advantage to the people at large will be still greater, for the reason that each portion of the State highway constructed is intended to be an object lesson to those living near by.

<sup>1</sup> Les Nouveaux Remedes.

County commissioners and other officers will watch the work as it progresses, and follow out the same lines in building county and other roads which are not intended for State highways. The plan is to build, section by section, such roads as will connect the great centers of trade, and join with through roads in other States, so that both local and interstate communication will be benefited. Under date of January, 1895, the Massachusetts Highway Commission has rendered a report which covers the work of the past year, and this publication should be consulted by those who are considering legislation. The provisions of our law will permit contracts for the construction to be let to municipalities or to private corporations, but the former arrangement is preferred, as it is more effectual in teaching the people the art of road building, and protects the State against cheapening the work by the importation of foreign laborers, an element which is apt to be objectionable. A resident engineer is appointed by the Commission, and it is his duty to be in attendance, and keep a correct account of all items to be paid for by the State. Wherever the traffic was of sufficient proportions to warrant it the roads have been broadened. The advantage to owners derived from the construction of the way is, as a rule, so much greater than the injury to them by widening the road that, in a large majority of cases, the town officers have been able to procure releases without any cost. Thirty-eight sections have been contracted for, and only eight of them are to have a width of eighteen feet of hardened surface, all others being fifteen feet wide. As the primary object is to get length of way, the Commissioners are considering the advisability of building single-track roads in the thinly-settled districts. These would not be over nine feet wide, with here and there portions of double width as convenient passing points for carriages. A mile and a half of such roads can be built for less than the cost of a mile of fifteen feet width, and the advantage in getting produce to market is not lessened, provided such construction is confined to localities where the average traffic is from six to eight vehicles an hour. There is need of legislation to regulate the care of, and responsibility for, sidewalks on State highways. These being of purely local advantage should be under the supervision of the town, the wheelways alone being constructed and kept in order by the State. Progress has been made in the laboratory work on the road building stones of the State. Experiments of this kind are carried on at Harvard University in the Lawrence Scientific School, whose Dean, Prof. N. S. Shaler, is a member of the Highway Commission. The chief aim of these inquiries has been to determine the qualities which constitute fitness for road making. This will be of value to the Commission in enabling them to utilize the road material near at hand, and thus lessen the cost of construction. As this phase of the work progresses, maps are made showing the location of all deposits suitable for road building. A number of towns have already appropriated money to build their streets in the same careful manner as those constructed by the State, and others have purchased road machinery with the intention of extending the work on roads other than State highways. Careful consideration has been given to the plan of planting shade trees along the highways. With this end in view, experts have been consulted concerning the best varieties for the purpose, and the wayside trees have been examined, so as to determine the species well adapted to the climate and soil of Massachusetts. As the estimated expense of procuring and planting these trees is not less than \$500,000, the Commission has rightly made this question secondary to road building, but in the meantime they are collecting such data as will enable them to work with profit on the adornment of the roads after the construction is well in hand. The American and English elms have the advantage of fairly rapid growth, with shade high above ground, and the leaves falling from them give but little obstruction to the gutters. They have the disadvantage of being subject to the attacks of insects, so that the cost of protecting them from these pests would be considerable. Maples grow well and are beautiful, though they often shade the road too much. It is the custom in parts of Europe to plant the roadsides with trees which yield profitable crops. In France and Germany, for example, cherry trees abound. In these countries the yield of the wayside trees belongs to the neighboring land owners, but in some cases to the community, and their product is well guarded by law. There will be more or less experimenting on the part of the Commission before they decide upon the species to be planted. The law provides for the beginning of this work in the spring of 1895, and from that time it will be carried on slowly, so as to give us the benefit of experience. Every State should make a beginning

on road improvement. In thinly-settled regions of the country, where the people do not feel able to undertake much they can do no better than to start the reform by constructing sections of single-track roads. No community can afford to neglect the common roadways. Our prosperity is too intimately connected with the facilities for communication. I have spent many thousands of dollars in inaugurating and advancing this reform, and continue to take an active part in it, though for a long time I have not addressed you on the subject. The interest is now general, and the leaders numerous, consequently there is a demand for road news, more especially for the recent advancements in the line of actual experience. Here is what we have done in the old Bay State. Will you not publish it, or a portion of it, for the benefit of your readers, many of whom, without doubt, are directly or indirectly connected with, or interested in the development of the cause? Very truly yours,  
 Boston, Mass. ALBERT A. POPE.

## THE PUBLIC SERVICES.

**Army Changes.** Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from April 27, 1895, to May 3, 1895.

First Lieut. HENRY D. SNYDER, Asst. Surgeon U. S. A., is granted leave of absence for two months, to take effect upon the conclusion of his examination to determine his fitness for promotion.

**Navy Changes.** Changes in the Medical Corps of the U. S. Navy for the week ending May 4, 1895.

P. A. Surgeon E. R. STITT, detached from U. S. S. "Chicago," and to Nicaragua Canal Board inspection of work on the Isthmus.

Surgeon H. G. BEYER, detached from Naval Academy, and to the "Monongahela."

P. A. Surgeon L. W. ATLEE, from the New York Hospital, and to the "Richmond."

P. A. Surgeon J. M. EDGAR, from the "Richmond," and to the school ship "Saratoga."

P. A. Surgeon V. C. B. MEANS, from the "Saratoga," and to the New York Hospital.

Asst. Surgeon ROBERT BOYD, from Philadelphia Hospital, and to the "Monongahela."

Asst. Surgeon LEWIS MORRIS, ordered to the Philadelphia Naval Hospital.

**Marine-Hospital Changes.** Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the fifteen days ended April 30, 1895.

Surgeon C. S. D. FESSENDEN, detailed for duty on board for examination of officers, revenue cutter service, April 17, 1895.

Surgeon J. B. HAMILTON, granted leave of absence for twelve days, April 20, 1895.

Surgeon G. W. STONER, detailed to represent Service at meeting of AMERICAN MEDICAL ASSOCIATION, April 25, 1895.

Surgeon F. W. MEAD, detailed as chairman of board for physical examination of officers, revenue cutter service, April 17, 1895.

P. A. Surgeon C. E. BANKS, when relieved, to report at Bureau for duty as chief of purveying division, April 24, 1895. Granted leave of absence for fourteen days, April 29, 1895.

P. A. Surgeon L. L. WILLIAMS, detailed for duty on board for examination of officers, revenue cutter service, April 17, 1895.

P. A. Surgeon W. P. MCINTOSH, detailed for duty on board for examination of officers, revenue cutter service, April 17, 1895.

P. A. Surgeon J. J. KINYOUN, detailed to represent Service at meeting of AMERICAN MEDICAL ASSOCIATION, April 25, 1895.

P. A. Surgeon R. M. WOODWARD, to proceed to Ashtabula, Ohio, as inspector, April 19, 1895.

P. A. Surgeon C. P. WERTENBAKER, granted leave of absence for ten days, April 16, 1895.

P. A. Surgeon B. W. BROWN, detailed as recorder of board for physical examination of officers, revenue cutter service, April 17, 1895. Granted leave of absence for twenty days, April 28, 1895.

Asst. Surgeon W. J. S. STEWART, to rejoin station at Washington, D. C., April 20, 1895.

Asst. Surgeon EMIL PROCHAZKA, to proceed to Evansville, Ind., for temporary duty, April 29, 1895.

Asst. Surgeon A. R. THOMAS, granted leave of absence for thirty days, April 19, 1895.

## LETTERS RECEIVED.

Bovee J. Wesley, Washington, D. C.

Central College of Physicians and Surgeons, Indianapolis, Ind.; Chesman Nelson & Co., St. Louis, Mo.; Carothers, J. H., Martinez, Cal.

Douglas, B., Appleton, Wis.; Dulton, C. F., Cleveland, Ohio; Davis, Geo. S., (2) Detroit, Mich.; Dunwoody, J. A., Cripple Creek, Colo.

Esckridge, J. T., Denver, Colo.

Ferguson, M. B., Philadelphia, Pa.; Franklin, C. P., Philadelphia, Pa.; French, Pinckney, (2) St. Louis, Mo.

Gardner, R. W., New York, N. Y.; Gallaher, Thomas J., (2) Denver, Colo.

Harrington, J. F., Westgate, Iowa; Harrison, W. K., Chicago, Ill.; Hummel, A. L., (2) Philadelphia, Pa.

Kotshorowski, L., Smolensk, Russia.

Jenkins, Ralph, Washington, D. C.

Kerr, J. P., Pittsburg, Pa.

Luhning, O., La Crosse, Wis.

Parnele, Chas. Roome Co., New York, N. Y.; Pettyjohn, E. S., Alma, Mich.

Shattuck News Co., Granby, Conn.; Sanders, Enno, St. Louis, Mo.; Smith, Q. C., Austin, Texas.

Truax, Chas. Greene & Co., Chicago, Ill.; Tracy, J. O., Brooklyn, N. Y.

Winslow, R., Baltimore, Md.; Wilson, A. C., Youngstown, Ohio.

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, MAY 18, 1895.

No. 20.

## ADDRESSES.

### ADDRESS ON GENERAL MEDICINE.

#### THE MALARIAL DISORDERS OF LARGE CITIES, WITH ESPECIAL REFERENCE TO CHICAGO.

Delivered at the Forty-sixth Annual Meeting of the American Medical Association, held at Baltimore, Md., May 7-10, 1895.

BY WM. E. QUINE, M.D.

PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE COLLEGE OF  
PHYSICIANS AND SURGEONS OF CHICAGO AND PRESIDENT OF THE  
FACULTY; PRESIDENT ILLINOIS STATE BOARD OF HEALTH, ETC.  
CHICAGO.

It is a fact of familiar observation and comment that irregular cases of malarial disorder are occasionally met with at all seasons of the year and in all localities. It is equally well known that the conditions existing in large cities are inimical to the production of the malarial poison. The busiest metropolitan physician sees very few examples of frank periodical malarial fever that unquestionably originated in paved and sewered portions of his city. The rare cases that do occur are accounted for upon the assumption of "limited foci" of infection. If an excavation for building purposes is found in the neighborhood, no matter what the season of the year, it is readily assumed that the upturning of the soil is the cause of the patient's sickness. Or, if the individual has been out of the city, at any time within a period of a year or two, it is taken for granted with equal promptitude and with equal lack of knowledge of the truth, that he received the infection at that time, and that it has been sleeping or "latent" in his body ever since; and if he actually visited a region known to be malarious, even though it were several years before, the discovery of the fact is regarded as having almost the force of a demonstration of the exact time and place of intoxication. And, if no recent excavation can be discovered and no absence from the city has occurred, it is nevertheless unyieldingly maintained that some subtle emanation from the soil, somewhere, must be held responsible for the result.

In considering this problem it is well to include the questions of season, climate and locality. Contemplate the climate of Chicago between November and March when the earth is frozen to a depth of a foot or more, a good part of the time, and also covered with frozen snow—to say nothing of macadamized pavement; when the temperature has been below zero for a month and below the freezing point for several months; when building operations have been arrested and a recent excavation can not be found anywhere; and then try to account for the malarial affections that prevail on the finest avenues and boulevards of that city during and between the months named, by assuming that there has been some subtle morbid emanation from the soil!

The country surrounding the head of Lake Michigan was intensely miasmatic before it became densely populated and comparatively well drained; and the environs of Chicago are miasmatic still. Modern treatises say that the presence of malarial disorders in the region of the Great Lakes is not extensive, but is limited mainly to the vicinity of Lake St. Clair and the southern shore of Lake Erie. I have believed and maintained for many years that there were no such disorders in Chicago, that originated in finished portions of the city, except here and there a chance case from fresh upturnings of the soil. I used to think that malarial infection was easily recognizable, except in rare instances, on the basis of a strong individuality of its symptomatology; but now I think cases are common in which no man that lives or ever has lived can make a reliable diagnosis on a basis of their external phenomena. I also think that I have been seeing such cases all my life and labeling them "irregular typhoid fever" and "rheumatism" and "grippe" and "purpura hemorrhagica," or something else. I used to refer to the word "malaria" as the refuge of ignorance—and it was, and is, and will continue to be used by doctors when they do not know what is the matter with their patients. But when the diagnosis is supported by a microscopic demonstration it is different. We can ridicule an opinion but we must make obeisance to a fact. In this day, diagnosis is not always a mere matter of judgment. It may be a matter of demonstration. For purposes of medical literature and debate there are no cases of malarial disease in large cities and other localities regarded as non-malarious except such as have been proved by microscopic examination of the blood. And yet just such cases are common in Chicago; and if they are common in Chicago, it would be surprising if they did not occur at all in Milwaukee and Detroit and Cleveland and Buffalo.

It is interesting to recall the fact set forth in "Parkes' Treatise on Hygiene" that the inhabitants of the highly malarious plains of Troy, and of the extensive and pestilential marshy regions of India, are unanimous in testifying that those who drink marshy water are liable to have fevers at all times of the year, and that those who studiously avoid the use of such water are affected, if at all, only during the late summer and autumn months. It is also serviceable to remember that places inherently healthful are dangerous to life by reason of their connection with the breeding places of malaria through rivers which constitute the sources of water supply for their inhabitants. Aitken points out that the Upper Godavary Tract, one of the most virulently malarious regions of India, does not contain one acre of marshy ground; but its people drink the water of the Godavary River which drains more dense forest land than any river in the Empire. Similar illustrations might

be gathered from various parts of our own country. Professor Bemiss, of New Orleans, shows that the poison of malaria may live in water an indefinite and undetermined time, and be conveyed by currents through immense distances, even to remote islands and continents.

If these statements are true, we are warranted in using the facts upon which they are based in elucidating the causes of the prevalence of palustral diseases in Chicago and, possibly, in the other lake cities named. Many a marshy stream empties its waters into those of Lake Michigan. The prevailing current of the lake is northward toward the Straits of Mackinaw. The Calumet River which drains an extensive marshy area in the northwestern part of Indiana and the adjoining portion of Illinois empties its accumulations of organic matter into the lake three or four miles south of the "crib" or opening of the great tunnel which supplies the south division of the city with water. The Chicago River also drains a marshy region and its polluted waters passing into the lake and directed northward, away from the tunnel opening just alluded to, are more likely to affect the sources of supply of other portions of the city. Contrary winds, doubtless, disturb the ordinary direction of diffusion of the marsh poisons through the lake. It is not to be inferred that the water used by the citizens of Chicago is inferior to that of other large cities, for there is abundant evidence that it is not; but it can not be denied that it contains the products of the marshy regions surrounding the head of Lake Michigan. Nor is it to be assumed that every drop, nor even every ton of this water is thus contaminated. It will be sufficient to admit that here and there a citizen gets a dose of the morbid poison in his drink. This is a more rational and satisfying explanation of the midwinter origination of malarial disorders in Chicago and, possibly in other lake cities, than any supposition in favor of "limited foci" of infection which requires us to believe that frozen ground covered with frozen snow can belch forth miasm into an atmosphere whose temperature is below zero, and stock that atmosphere with living malarial organisms.

In the light of these facts, I respectfully invite attention to the following clinical records which represent, in the main, the observations of Dr. Frank Seward Johnson, Dr. Frank Billings and the writer, covering a period of several months.

*Case 1.*—A man, aged 38 years, whose health has been undisturbed for the past fifteen or eighteen years, excepting that now and then he has had vague flitting rheumatoid pains that were strikingly influenced by changes in the weather. He began to be sick in April, 1894. His sickness developed into a typical spleno-myelogenic leukemia. The first blood studies were made for me by Dr. W. A. Evans, Professor of Pathology in the College of Physicians and Surgeons, Dec. 15, 1894, and during the same month the case was used as the subject of a clinical lecture. The case is described in detail in the *Chicago Clinical Review* for January, 1895,—the description including a differential count of the blood corpuscles. The blood contained no malarial organisms. Slides preserved. Again, March 11, 1895, Dr. Evans examined the blood to ascertain the effects of the free administration of Fowler's solution and the glycerite of bone marrow. The number of red corpuscles had increased 17 per cent. and the hemoglobin gain was 8 per cent. The number of leucocytes had increased to a still greater extent. In December the ratio was 1 white to 65 red, and in March it was 1 to 55. The blood contained no protozoa. Slides preserved.

The latter part of March, 1895, the patient was admitted to the Michael Reese Hospital, and his blood was examined

for malarial organisms by Dr. Sievers of that institution. None were found. April 1 a change in attending physicians occurred and the patient passed to the care of Dr. F. S. Johnson, Professor of Pathology in the Chicago Medical College. A few days later Dr. Johnson found the blood teeming with plasmodia,—intra-corpuscular pigmented and unpigmented bodies, and free flagellated forms. There is no question as to the correctness of the original diagnosis. The case is not one of malarial cachexia with ague cake. It is one of leukemia; and the patient became infected with "malaria" after his admission to the hospital. This institution is one of the best constructed and best managed of the kind in Chicago. It is located on clean sandy soil near the lake shore and there are no recent excavations to be found near it.

*Case 2.*—Mrs. L., aged 56 years. Residence Bowen Avenue. Has lived in Chicago eighteen years. She has been an invalid eight years on account of arthritis deformans; and for the past two years has not been off the bedroom floor of her residence. Of late there has not been much suffering but there is almost universal destruction of the joints. There are also extensive cardio-vascular changes. The urine is habitually scanty, the bowels costive, appetite, digestion and general nutrition, fair. January, 1895, was called to see the lady and found her strikingly feeble, anemic, with edematous feet and ankles, and complaining of distress in her stomach. Prescribed without making a systematic examination.

March 24 visited her without being sent for. A couple of days before I had a conversation with a medical friend on the subject of masked malarial intoxication and had become curious after more complete knowledge of my patient's condition. Found her under the care of another physician and treated for "grippe." She was very ill. The attendant consented to have the lady's blood examined. I was informed by the gentleman who made the examination that the blood contained many intra-corpuscular bodies, pigmented and unpigmented, and a few organisms that were free. Nevertheless the patient died of "grippe" a few days later.

*Case 3.*—L. B., aged 6 years. Residence Prairie Avenue near 50th Street. The child was born in Chicago, has never been out of the city, and has been out of the house only two or three times since Christmas, 1894. General health good. Domicile and surroundings wholesome. March 18 the patient developed a fairly typical quotidian intermittent fever. Malarial infection proved. No excavation of recent date found.

*Case 4.*—Miss H., aged 16 (?) has lived in Chicago many years in a good house and neighborhood. No excavations near. April, 1894, she began to be sick gradually with a continued type of fever marked by irregular fluctuations, which was labeled by the attending physician, Dr. Samuel Cole, "typhoid fever with malarial features." The fever continued about four weeks and then, after an interval of normal temperature lasting a few days, there was a relapse. The patient had taken quinin freely from the beginning. Upon the basis of two examinations made by myself during the month of May, 1894, the diagnosis of the family physician was sustained. Later the blood of the patient was examined by Dr. F. S. Johnson and the fact of malarial infection, previously assumed to exist, was demonstrated. Quinin was administered with great freedom by the mouth, rectum and hypodermatic method, and arsenic and iron were also pressed systematically, but without affecting the course of the disease. The patient was seen at this time by Dr. N. S. Davis. Her illness continued over four months, uninfluenced by treatment to an important extent, and finally came to be attended with acute pulmonary tuberculosis. Death occurred five or six weeks later—the blood of the patient crowded with plasmodia to the last. Her sputa had been examined for bacilli repeatedly during the progress of the sickness, but none were found till "between three and five weeks before death."

*Case 5.*—Young lady just arrived in Chicago direct from her home in New York City. Before leaving home she had an alveolar abscess which had been thoroughly drained and which was discharging freely when she arrived in Chicago. She had a chill on the train, and some hours later when examined by Dr. Cole showed a temperature of 103.5 degrees. The abscess cavity was thoroughly and frequently irrigated with antiseptic solutions. Drainage perfect. A second chill occurred that night and the ensuing fever reached 105 degrees. The next morning patient's temperature was normal. Thorough search for pent up pus was made by the consultant, Dr. L. L. McArthur, and none was found. Dr. Cole then examined the patient's blood and found it



stocked with malarial organisms. Quinin, administered freely by the stomach, had the effect of modifying the recurrent paroxysms of fever and of lessening the number of protozoa in the blood. A violent gastro-intestinal catarrh occurred at this time which made it necessary to give the antiperiodic hypodermatically. This was done; but, notwithstanding the administration of 40 to 60 grains daily and the fact that the patient was kept profoundly cinchonized, the chills and fever increased in frequency and severity. Some abscesses occurred in the site of subcutaneous injections. Malarial infection of the blood continued till the death of the patient. It seems to have originated in New York City.

(Cases 6 to 8 inclusive, occurred in the practice of Prof. Frank Billings.)

*Case 6.*—M. W., a boy aged 10 years. Residence Drexel Boulevard. Family history good. The boy has never been seriously sick. At home he uses Waukesha water but at school he drinks hydrant water. About Dec. 1, 1894, the boy, seeming to be quite well, had two primary incisor teeth extracted. Continuous hemorrhage resulted which was checked with difficulty. December 5, epistaxis began which finally required plugging of the anterior and posterior nares for its arrest. Between December 4 and 14, numerous points of subcutaneous hemorrhage appeared, together with a subconjunctival extravasation. The child was now exsanguinated, weak, restless, of normal temperature, and exhibited a pulse rate of 120. Spleen not palpable. Liver area normal. December 14 the blood was found to contain both intra-corpuseular and free, malarial organisms. Quinin and Fowler's solution were prescribed and the patient improved steadily. December 16 the spleen was found to be palpably enlarged and there was a slight rise in temperature. Small nasal hemorrhages occurred on two or three later occasions but the boy was fully restored within a month. The patient was seen in consultation with the family physician, Dr. E. O. F. Roler. The case simulated purpura hemorrhagica and it appears certain that the information furnished by the blood examination resulted in the saving of life.

*Case 7.*—J. O. B., a laborer, aged 49, has lived in Chicago fifteen years and has not been out of the city any important length during this period. Admitted to Mercy Hospital Sept. 30, 1894. Has had irregular bowels all his life, and more or less dyspepsia the last five years. Eight years ago he had severe attacks of biliary colic and four years ago he broke his right leg near the ankle. Some deformity has resulted, the skin covering which is red and scaly. About six months ago he noticed bluish-black discolorations between the knee and ankle, which, subsequently, became yellow and itchy. Still later, similar spots appeared on the thighs, and extended until they discolored the whole integument of the lower extremities. Where he had scratched the skin it had become inflamed, and a sticky discharge issued from it. On admission his liver and spleen were found to be somewhat enlarged; his urine was normal; and the lymphatics of the groins, axillæ and neck were increased in size. His morning temperature ranged from 98 to 99.4 degrees and his evening temperature between 100 to 102.2 degrees. Originally the case was regarded and treated as one of eczema. December 2 a blood examination was made and large numbers of malarial organisms were found, free and intra-corpuseular. Quinin and arsenic were prescribed, together with an occasional purgative; and the patient improved rapidly. He left the hospital, convalescent, Jan. 8, 1895. At that time his spleen was still palpable but much diminished in size. The purpuric eczema was well. On his way home he became chilled and the next day was seized with severe colicky diarrhea which continued till he returned to the hospital, completely exhausted, January 21. At this time the blood examination was negative as to malarial organisms. The patient died three days later. The autopsy, confined to the abdomen, revealed ulcerative enteritis, a chronic splenic tumor and sclerosis of the liver.

*Case 8.*—Mrs. F. S. S., aged 36, formerly lived in the southern part of Indiana and suffered from malarial fevers, but for two years past has lived in Minneapolis, Minn., and has had good health. She still visits her old home occasionally. During the latter part of October, 1894, she was suddenly seized with severe pain in the epigastrium which radiated toward the right hypochondrium and was especially severe in the region of the gall bladder. The pain was attended with nausea and vomiting and was so intense that it required large doses of morphin, hypodermatically, to subdue it. It recurred daily but at irregular hours, for two weeks. It suddenly shifted to the region of the right kidney but contin-

ued with unabated violence at irregular times till about the middle of December. The first diagnosis was biliary colic and the second renal colic. An exploratory operation was under consideration. The urine was scanty and the twenty-four hours' urea was about half the normal quantity; but no abnormal ingredients were present. A blood examination made Jan. 4, 1895, discovered a considerable number of intra-corpuseular malarial parasites. The free use of quinin was attended with immediate improvement and at the end of six weeks the patient returned home entirely recovered. Much of the time consumed in the treatment was required to overcome the effects of the long continued and free use of morphin. Here a correct diagnosis saved the patient from a severe operation.

(Cases 9 to 13, inclusive, occurred in the practice of Dr. F. S. Johnson.)

*Case 9.*—Mrs. F. was seen a week after normal confinement. She had much headache, a little fever and an irregular lochial discharge which was profuse and bloody every afternoon. Pulse 90 to 100 and temperature 99 to 100 degrees. Blood contained many endoglobular and a few free bodies. Under the usual treatment symptoms promptly ceased.

*Case 10.*—March, 1895. Mrs. C., aged 55, has lived in Chicago forty years and in her present home fifteen years; and has not been out of the city in three years. There are no excavations in the neighborhood. The patient was perfectly well till early in January. At that time, upon awakening one morning, she found her feet red, swollen and painful and her left arm and leg numb and weak. The paresthesiæ have continued but have been inconstant as to intensity and location—absent at times and now limited to one side and then to the other. The redness and swelling of the feet disappeared in twenty-four hours to be followed by a crop of raised, infiltrated, tender erythematous spots, varying in size from that of a silver quarter dollar to that of a five cent piece, which lasted several days and left blood stains. Successive crops have appeared at irregular intervals, and the individual spots show all stages of development and decline. Five days after the onset of the sickness the patient developed a tertian intermittent fever; but this has not seemed to make any impression on the rheumatoid phenomena or the erythematous nodes. Spleen enlarged; bowels torpid; tongue coated; skin anemic and sallow. Examination of the blood discovered small endoglobular bodies and large amœboid endoglobular bodies containing pigmented particles in active motion. Under anti-malarial treatment the rheumatoid pains disappeared; the erythematous nodes continued but were lessened in number; but the chills and fever were not benefited. At the end of three weeks of such experience the patient decided to "quit doctoring." A noteworthy feature of the case is the varying persistence of its different features.

*Case 11.*—February, 1895. Mrs. M., aged 27, was chilled by the weather the night she left New York City, and on arriving in Chicago she had high fever, severe headache and general pains. All symptoms except the headache disappeared in two days under the use of salicylate of sodium and a laxative; but the headache persisted. The blood contained many plasmodia. Quinin, grs. x, was administered, and the headache ceased within twenty-four hours. Two days later the patient called attention to a circumscribed edematous redness on the front surface of both ankles and over the left inner malleolus. Treatment continued, and in a day or two the lady was well enough to resume travel. Infection seems to have occurred in New York City.

*Case 12.*—January, 1895. Mrs. M., aged 55, has not been out of the city for many years. General health good. Last two weeks has had headache, backache, post-sternal pain and a little cough, and has been getting pale and weak. Each morning at about 11 o'clock she has slight chilly sensations followed by about two hours of fever and this by sweating. Diagnosis based on blood examination. Anti-malarial treatment was slowly successful.

*Case 13.*—May 2, 1895. Infant born about Nov. 1, 1894. Suckled by a hired nurse. Thrived till it was three months old. Since that time it has been having an irregular diarrhea and has gained none in weight. No fever. On careful inquiry it was learned that the nurse had been ailing a little. An examination of her blood showed malarial infection. Examination of the infant's blood revealed numerous large and a few small endoglobular bodies. The intestinal disturbance abated instantly upon substituting sterilized cow's milk for the nurse's milk, and the blood infection disappeared promptly under the usual treatment.

The foregoing cases have been selected from a total of forty-five which, with very few exceptions, have occurred since November, 1894. Without the coöperation of the gentlemen named I would not had sufficient cases for this communication. The interesting cases occurred in their practice. Those cited have been selected because they present certain striking facts bearing upon the questions of the source of infection, the diagnosis, and the limitations of the curative powers of our best anti-malarial medicines. Of the total number, thirty unquestionably originated in Chicago between December and May and, leaving out two or three, they originated in a choice and densely populated portion of the south division. It is impossible to say how many cases have been overlooked. Blood examination was confined to suspicious or confusing ailments. Similar cases are, doubtless, quite as common in other parts of the city; but I know of no observations which establish the fact. The exact source of infection is a matter of conjecture. There may be those who can conceive of protozoa disporting themselves on the lake shore of Chicago in December or January without a stitch of clothes on, in an atmosphere that is 10 degrees below zero; but it is easier to believe that the malarial organisms, like other protozoa, live in the water and obtain entrance to the human body by being swallowed. This is not intended as a denial of the possibility, nor even of the likelihood, that marsh air may be laden with them, especially the night and early morning air containing an abundance of moisture. Indeed, if it be true, as stated by H. Gilman Thompson, that they have actually been discovered in the air, there is no ground for further controversy. But so far as known every vital phenomenon manifested by these parasites requires the presence of water; and Bartley, of Brooklyn, N. Y., has demonstrated that they exist in the common source of water supply of that city—a fact that is likely to direct investigation into like channels in relation to other cities. The proofs of water infection are quite as strong as those of air infection, and there is not a doubt that impure water is responsible for the occurrence of paludal disease with immensely greater frequency than is generally known. We have been beguiled by the belief that such diseases do not originate in large cities and especially in the dead of winter; but there is good reason to suspect that they are a more common cause of death in these places than has been supposed, and that the "masked" or atypical forms which are very common are rarely identified. As to their rate of prevalence, beyond the primary fact that physicians of active practice meet with one or two cases per week in Chicago we have no knowledge, but we are free to assume that the malarial organism has no better life prospects in the middle of a severe winter than it has at other seasons of the year, and is no more likely to get into the human body. Most of the cases met have been of the "masked" variety, and, from the standpoint of external phenomena, have not been recognizable as examples of malarial infection. Some have been easily identified on the basis of the periodicity of their symptoms—neuralgic or febrile. Cases strongly simulating pernicious anemia, rheumatism, grippe, erythema nodosum, pyemia, puerperal infection, purpura hemorrhagica, biliary and renal colic, chronic eczema and digestive derangements, are herein recorded, in which it would seem impossible to reach

a correct conclusion without a careful examination of the blood. In a few of the cases it appears probable that the demonstrated malarial infection was an incident and not the cause of the various morbid phenomena described.

Examples of a mild grade of temporary infection in which the health of the individual is but little disturbed are very common. In eight cases pulmonary tuberculosis and malarial toxemia co-existed—an impressive fact suggesting the idea that the diminished powers of resistance occasioned by one, predisposes to the other. In less than half the number a history of periodicity was elicited, but in most of these it required close questioning and observation to do so. The absence or presence of this feature is not safe ground for differential diagnosis. Distinction must be made between true periodicity and the erratic appearance and disappearance of symptoms or of fluctuations in their severity. The entire absence of fever—a characteristic of many cases—would be enough to obviate suspicion on the part of city doctors, especially in the winter season of northern latitudes, that the case in hand may be one of paludal intoxication. Nor is the therapeutic test a reliable guide to diagnosis. The failure of quinin to arrest febrile or other symptoms of disease is considered by many a demonstration that such disease is non-malarial. This assumption is not correct. A patient whose blood is teeming with hematozoa may be profoundly cinchonized for weeks and then die with an undiminished number of parasites in his circulation. In other cases, as every one knows, the medicine is instantly efficacious. These observations strongly support the conclusions of Golgi, Baccelli and others that under the one name are included separate and distinct varieties of microorganism. Quinin causes some symptoms to disappear while others persist; and those showing periodicity may be the ones to persist. Moreover, blood infection may continue after objective phenomena have ceased, but this is not usual. It is quite plain therefore that malarial disorders are of common occurrence in which it is impossible to say with any certainty of correctness, either upon the basis of the external phenomena or upon that of the action of quinin, whether or not the case in hand is of malarial origin and nature.

The active prevalence of such disorders in a city not known as a breeding place of their specific cause, and the facility with which they may be confounded with other kinds of disease, warrant the suspicion that in all large cities not more favorably situated, thousands of cases occur every year and escape recognition. In this connection some pointed questions can be asked as to the soundness of the prevailing opinions concerning the incubative period of these disorders. The duration of this period as stated by authoritative writers is extremely indefinite. It varies between a few minutes and several years. If the meaning of the term is limited to the time intervening between the reception of the hematozoon and the outbreak of a periodical fever, the indefiniteness of statement referred to is fully warranted; for, inasmuch as no outbreak of fever may occur at all, the patient may die while the germ is still sluggishly incubating. Conceive, if you can, of an infection of the human blood breeding and destroying for months or years before it makes its presence known. Name, if you can, any other infection that behaves in this manner. Yet this is the teaching of the day. Flint says that the incu-

bative period may last as long as four years, and W. H. Daly in a recent essay quotes an unnamed writer as saying that it may last seventeen years! Now is there any proof whatever that any such thing ever happened or is possible? It is said by writers—by Thompson in "An American Text-book of the Theory and Practice of Medicine," for example, that during the incubative period the patient may be in comparative health. Who knows this to be true and how did he learn it? Who has ever known of a case of demonstrated malarial infection lasting thirty days during which time the patient was in undisturbed health? It is not a question of opinion but a question of fact. Who knows?

It is well known that there are great differences between individuals in respect to the quantity of infectious matter required to make them sick. It is also true, as I have witnessed twice within a month, that a child or an adult may show a few malarial organisms in the blood to-day and not one a few days later. And this, without a dose of medicine. At the time of infection there were no evidences of sickness—certainly none so distinctly marked as to be recognizable as elements of a fixed disease. But suppose the parasites had triumphed over the blood corpuscles and feeding upon the hemoglobin, and multiplying, how many years would it take the man to discover that something was wrong? In view of what is known of water infection and suspected in relation to ice, milk and food infection; in view of the activity with which malarial disorders are known to originate in Chicago and reasonably suspected of originating in other large cities, is any one willing to stand before this body and say that malaria can incubate seventeen years, or four years, or three months, without showing any results? Suppose a citizen had visited a malarious region in the South for a few days or weeks a couple of years ago and returned to Chicago in undisturbed health; suppose he continued in perfect health till last December and then came down with a malarial fever; is that proof that he got the infection in the South? By no means. During the same period of time probably thousands of citizens who had not been out of the city at all were similarly taken sick. Yet this is the kind of evidence—utterly and absolutely worthless as it is—upon which the incubative period of malarial disorders is estimated. In the light of the revelations of Laveran we must, till reasonable proof to the contrary is furnished, regard every case of prolonged "latent" infection as an example where the individual did not get infected when he had a good chance, but did get infected in a locality that is not known to be, and yet is, a breeding place of malarial diseases.

The same considerations must be applied to the elucidation of the question of relapses. A person who has had intermittent fever and recovered perfectly may exhibit in the diseases of later life an impress of periodicity without having at the time any malarial infection whatever. In recurrent true malarial fevers it may not be easy to differentiate between relapses and new infections; but we may investigate and eventually be able to answer the question. Suppose a citizen of Chicago had ague, recovered, remained in perfect health a year and then had another attack of ague; is this a relapse? The affirmative would represent prevailing opinion, but is there any proof that prevailing opinion is correct? If the same person had had two attacks of pneumonia

or typhoid fever a year apart, who would designate the second one a "relapse?" Nobody. There is not a vestige of proof, so far as I know, that a person ever had continuous malarial infection a year without being sick in some way. If by the term "relapse," is meant repeated outbreaks of fever during the course of continuous infection—the patient being sick with other derangements caused by the infection every day of the time—the inference is different from that given to it in relation to other kinds of disease. All our literature on the etiology of malarial diseases must be revised and put in accord with existing facts. I offer no apology for discoursing upon a subject with which many of you are vastly more familiar than myself; for familiarity breeds indifference, lack of thoroughness and a thoughtless readiness to take things for granted, and it needs to be made to stop and think now and then. The fact that the germs of malaria are often conveyed into the body by other media than the air and that in a vast but undetermined percentage of cases infection is preventable, is one of the most important and imperious before us to-day. It makes the duty of the doctor plain. We grow enthusiastic in contemplating the possibilities of the antitoxins, and we take off our hats to the great army of investigators who, despite the opposition of well meaning philanthropists, "will persist in destroying a few dogs and guinea pigs in order that they may teach us how to save babies," by throttling infection the instant it invades the human sanctuary; but still, after all, prevention is a still higher aim, and it is the chief glory of our profession that its best minds and purest hearts are ceaselessly active in this direction.

#### ADDRESS.

*Before the Graduating Class of the Wisconsin College of Physicians and Surgeons, April 16, 1895.*

BY U. O. B. WINGATE, M.D.

PROFESSOR OF DISEASES OF THE NERVOUS SYSTEM AND HYGIENE.  
MILWAUKEE.

It has sometimes seemed to me that an address on occasions like this, smacked somewhat like a dish of dessert at the end of a banquet, when every one had partaken of more than enough.

I am sure that the students in the college have had their fill; I can not conceive that the Faculty are hungry for any words from one of their number; and I have grave doubts about any of the friends present being in possession of a keen relish for anything oratorical at this time. However, we seem to be victims of custom's decree, but I promise not to weary you long.

The Wisconsin College of Physicians and Surgeons has completed the second year's work of its existence, a work that speaks for itself and needs no encomiums from me. It prides itself on having earnest, faithful and conscientious teachers, students in liberal numbers, zealous in the prosecution of their studies, and it congratulates itself on taking a position in the front ranks among the younger members of American Medical Colleges. It is the purpose of its Board of Directors and Faculty to maintain the stand it has taken, to advance from year to year, and to convince the public, and the medical world as well, by its works alone. It proposes to stand on its own foundation which has been carefully constructed, and it has no fears about its firm and lasting superstructure.

To lay such a foundation and build such a structure thereon, means much hard and self-sacrificing labor, but its promoters have practiced their profession long enough to fully realize this, and they are imbued with a spirit of enterprise fully adequate to the undertaking, and feel confident that the results of such efforts will merit the commendation of a grateful public.

The great State of Wisconsin with its 2,000,000 population and rapidly increasing growth will never fail to welcome educational institutions that have engraved on their banner, "a higher scientific education," and an institution with such ideals, with a firm and steadfast purpose of its governing body, can not fail to meet with the popular approbation of our best citizens.

Gentlemen of the graduating class: It becomes my pleasant duty on behalf of the Faculty of this College, to bid you a cordial welcome into the ranks of one of the noblest, as well as one of the most ancient, of the professions that have been vouchsafed to man. Your first duty, then, is to always keep its sacred precepts before you and forever endeavor, to the utmost of your ability, to maintain its dignified and venerable character. This duty well performed, all other appropriate things will follow in proper order.

I should, perhaps, be unfaithful to my methods of teaching if I did not give you, at this time, a few words of warning relative to your own physical and mental welfare in undertaking the arduous labors inseparable from a physician's life. Statistics show that among all professional lives that of the physician is the shortest, and the reason for this physicians know full well. The demands upon your strength, both mental and physical, are far greater than in any other calling with which I am acquainted, but remember that it is not the hard mental or physical labor that kills, but the friction caused by irregular hours of rest and food, worry, disappointment in life, and the constant strain on the nervous system, so hard to regulate in the practice of medicine. Permit me, then, to counsel you to early attain as regular habits as possible, and demand for yourselves sufficient rest, else you will find yourself, all too soon, in the position of "the blind leading the blind."

The nerve force generated in your systems, you know full well, is only capable of accomplishing about so much, and what is expended in one direction will fall short in proportion in another direction. This was never better illustrated than in our modern times when we see so many falling by the wayside from troubles resulting from the strain, worry, and irregularities of the times in which we live, and you, as counselors of the people's health, should be the first to recognize the danger.

Let me counsel you to observe, with a scientific eye, what has been termed "the physical stigmata of degeneracy" of the present time, so well illustrated by the flood of printed matter that robs students of food and peace of mind. I refer more especially to that literature that treats of sudden reforms and pseudo-organized methods promulgated by pseudo-organized individuals "scarce half made up," and the idle clatter they make from time to time through the agency of printer's ink. You will find this, more or less, in all of the literature of the day, in the morning, evening, and Sunday papers, magazines,

books, medical periodicals, scientific journals, in fact in all literature. Permit me to counsel you to judge them always from strictly anatomic, physiologic and pathologic grounds, aided by chemistry, and such other recognized sciences as you can depend upon. Your usefulness in life will depend largely upon the care and discrimination with which you treat and consider these matters.

Let me warn you that intelligent people are fast learning to recognize that the physician who boasts of treating thirty or forty patients in a period when he should treat but ten, even if his boast be true, is not doing his full duty to those who have intrusted their lives to his care, any more than an artisan can rush through with a piece of work, and do it properly in half the time required to do it well. The older I grow and the more I observe, convinces me that the ideal successful life is not attained by a short, spasmodic though brilliant career, so much as by the long steady pull and the attainment of a full rounded out existence intended by the Creator of our being. To attain this, one must begin early and learn the great lesson of the earliest writers, so aptly expressed by Pope: "Know thyself; presume not God to scan. The proper study of mankind is man." Having fortified yourself with a complete knowledge and absolute control of self, you will be enabled to go forth and exercise your important function in life. Gentlemen, this is the first principle! A college life is only intended, indeed it can only expect, to teach first principles. Your diploma is only an emblem of first principles and represents but an entering wedge into future knowledge. In other words, so often repeated, it is but the introduction into student life.

The profession of medicine is a progressive work. You have to deal with human life that is of itself progressive, evolving, revolving. There is no profession that demands a more discriminating conservatism, and at the same time wholesome progressiveness so much as the one you are entering. You must always maintain a strong, healthy, physical, mental, and moral character, for upon your efforts may depend not only the life and happiness of a family, but the life, prosperity, and greatness of a nation—a world.

Whatever your impressions may have been concerning your college course, there is one thing that now must forever stand foremost in your mind's eye, that of responsibility. Heretofore you have left responsibility to your teachers; now you enter a realm where you must share that responsibility yourselves.

It is interesting to one who has been a student and teacher in a medical college, to watch the changes that take place in a medical student from the time he enters college to the time of his graduation, providing he proves himself entitled to graduation. I have passed through all of their gradations. Contemplate the green, hilarious first-year man. Inclined to destroy all with which he comes in contact. Seats in the college are marred and broken, together with windows, doors, blackboards, and it seems to the teacher that his whole intent in life is destruction. He may, under certain circumstances, if there are no other provisions, even rob graveyards of their legitimate occupants. But observe the change that comes over him in his third and fourth year of study, under conscientious and faithful preceptorship; how he changes his destructive characteristics. He be-



comes an interesting, pleasant personality to his preceptor. He is earnest and painstaking in all that pertains to reality in life. He may caution the students in the first and second years against their destructive proclivities, and tell them they ought not to do so. He is inclined to treat his preceptor with a higher degree of respect than ever before. He takes more interest during the lecture hours, and as he advances to the final examination, before he enters the sacred duties of the medical profession for life, he may show to his preceptor that he still proposes to rob graveyards, but in a far different sense from that in which he began his work. He proposes to snatch from the grave, so far as the armamentarium of a medical science will permit, the devoted husband and father, the tender wife and mother, the lovely bud of childhood, the brother, the sister, the all that is sacred to the human heart. He does not hesitate to use his anatomic knowledge for the benefit of justice in disclosing crime and wickedness in the dissecting or autopsy room and on the witness stand, regardless of the unjust criticism that frequently follows. Gentlemen, you must be patient. It is a part of your education to bear the darts that fly thick and fast, at times, about you. You must also bear with the inconsistencies of life, the deprivations of comfort and happiness, and seek satisfaction in the inward feeling, which you must try to develop at all times, that you have done your duty. Duty well performed is always sure of its reward, and the science of medicine, your chosen profession, a science that is linked with all other true sciences has nothing to fear, and you, as its true disciples, I am confident will never flinch from duty.

Remember, that while the practice of your profession is markedly different from what it was a century ago, your duties are none the less sacred nor your responsibilities none the less heavy; neither will they be while love kindles the fire of the noblest aspirations of human life, thought clothed with divine majesty scans the pages of the history of life and death, and science with its piercing light penetrates into the darkness of the unknown and reveals the truth.

## LECTURES.

### LECTURES ON INTRACRANIAL SURGERY.

IX.—THE OPERATIVE TREATMENT OF IDIOCY.

BY EMORY LANPHEAR, M.D., PH.D.

ST. LOUIS, MO.

It is with a feeling of diffidence that I take up the subject of the surgical treatment of idiocy, for I am uncertain as to the advisability of such measures; yet as medical literature, some two years ago, was glowing with accounts of wonderful results obtained, and periodicals of to-day contain articles condemning the plan as unscientific and valueless, the subject deserves more than passing notice.

#### HISTORY OF THE OPERATION.

The proposition to relieve idiocy by operation originated in America. Dr. William Fuller, of Grand Rapids, Mich., who was at the time Professor of Anatomy in the Medical College of Montreal, Canada, at a meeting of the Montreal Medical Society, in 1878, read a paper upon the subject, with the report of a case operated upon by himself. Moreover, Louis

Bauer, M.D., M.R.C.S., Eng., the distinguished Honorary Professor of Surgery in the Marion Sims College of Medicine, of St. Louis, operated for microcephalus at the St. Louis City Hospital in 1871. The microcephalus was of the acquired variety, accompanied by petit-mal, as well as the convulsive form of epilepsy (sometimes as many as twenty spasms in twenty-four hours). Dr. Bauer claimed that the cerebral trouble was due to premature ossification of the cranial sutures and so removed a large segment of the skull for the purpose of giving space for growth of brain. Recovery from the operation was speedy, and the boy disappeared. Five years later the patient when seen by Dr. Bauer was so changed in physical and intellectual condition as not to be recognized. He is now the proprietor of a general store in Arkansas and is a successful business man. So far as I can learn this was the first operation ever made for microcephalus; and although the object was relief from epileptic seizures, and not for the cure of idiocy, it can scarcely be denied that to St. Louis belongs priority in operation for microcephalia.

Scarcely any attention was paid to the essay of Dr. Fuller, except a few condemnatory comments and the subject remained in quiescence until 1890, when Lannelongue, of Paris, startled the medical world by boldly declaring that for the unfortunate idiot relief had been found in operation, as demonstrated in a large number of cases. Following the publication of his report many operators in Europe and America hastened to open the skulls of microcephalics and to rush into print almost before the wounds were healed. Happily the "epidemic" is over and we can now view the results dispassionately. As no recent articles have been published giving reports of progress, I shall base my remarks chiefly upon my own cases.

My experimental work in the operative treatment of idiocy has consisted of twelve operations, covering all classes of idiots in which there is even a faint possibility for improvement. While my cases are, perhaps, more numerous than any other American operator's, they do not approach Lannelongue's reports either in number or brilliant results; at the same time, the cases are not, like his, limited to microcephaly alone, and hence are perhaps of more value in a general way.

#### VARIETIES OF IDIOCY.

All idiots may be classed under the heads: 1, congenital; 2, microcephalic; 3, eclamptic; 4, epileptic; 5, hydrocephalic; 6, paralytic; 7, cretinic; 8, traumatic; 9, inflammatory. They all have something in common; thus, in addition to the mental trouble many are deaf mutes, or are blind, and anesthesia as well as anosmia may be present; some learn to walk late, or not at all, and most of them have a shambling gait, which in the cases of microcephalia, closely resembles that of the anthropoid apes; a general restlessness, vacant stare, thick and everted lips, etc. Altogether the proper classification is rather difficult, but the following distinctions should be noted:

1. In congenital, or genetous idiocy, the subject is often dwarfish; deformities are numerous, particularly a high vaulted palate, with teeth irregular and decayed; deficient growth of nails; eyes rolling or squinting; mental condition a total blank.

2. In microcephalic idiocy the head is small, but the physical defects are less marked than in the genetous form; there is some tendency to learn some

things, and as the subjects grow older they improve under training and present more physical and mental energy than is found in other classes. There are two varieties: *a*, congenital, in which the mental weakness is due to agenesis of brain structure, the synostosis being secondary to the cerebral defect; *b*, acquired, in which the brain has begun development but the bones, for some reason, too suddenly unite and cease to grow, with a consequent cessation of cerebral development or even retrogression, until the child from being more or less intelligent becomes a complete idiot.

3. Eclamptic idiocy succeeds infantile convulsions. As the child develops, although there may be little trouble with motion or sensation, it is found that it is capable of acquiring very little education.

4. In the epileptic form the child may have been primarily well-equipped mentally, but after the destructive paroxysms appear there is more or less marked deterioration; later on, if anything be learned in the interval between epileptic seizures, a new attack erases it from the memory. Such patients are apt to appear to be on the boundary between imbecility and insanity.

5. Hydrocephalic idiots present the usual signs of hydrocephalus. Some cases are due to porencephalia (ventricular dropsy, with more or less complete absence of the upper part of the hemispheres) while others depend upon dropsy of the arachnoid. Albers, of Bonn, makes this distinction: mental obtuseness and paralysis indicate effusion into the ventricles; while restlessness and mental derangement point to fluid in the sac of the arachnoid.

6. In paralytic idiocy the patients are tractable and docile, but the same destructive lesion that renders the patients completely paralyzed affects the centers of intellect—hence they are hopeless.

7. Cretinism is a form of idiocy quite rare in America, but very abundant in certain parts of the world (Switzerland especially) where the condition of soil, air, water, etc., give origin to it. After the sixth month the condition is readily recognizable: bodily development is very slow; the baby, though weak, is remarkably fat and appears swollen; the skin is often dusky, or yellow, but sometimes natural in color; the head large, and fontanelles wide, with sutures sometimes disjoined; the expression stupid, appetite voracious, belly swollen immensely, neck thick, but the extremities attenuated. Later, teething is not completed for many years, but is accompanied with offensive salivation and convulsions; the child does not learn to stand before the sixth year; about the seventh year it begins to make a few articulate sounds in a hoarse but shrill voice, with great difficulty in speaking. The disproportionately large feet, attenuated legs, swollen belly, cumbrously large head drooping over, an illy developed thorax—these are unmistakable.

8. Traumatic idiocy usually may be traced to injuries by attempts at abortion or by use of obstetrical forceps. In degree the mental impairment may be severe or trifling, and in continuance either temporary or permanent.

9. Inflammatory idiocy is that form which follows attacks of so-called "brain fever"—meningitis with more or less exudate.

Low grade imbeciles differ very little from the congenital idiots, except in extent of mental development; they think, feel and speak, and can be taught some simple things.

#### WHEN OPERATION MAY BE DONE.

The earlier in life the operation can be done the better; certainly it is not probable that any benefit can be expected in idiots of more than 8 or 9 years of age. Nor are all idiots fit subjects for this experimental operation. Congenital idiocy may possibly be improved through the increased flow of blood set up by the operation. Microcephalic idiocy offers decidedly the best field, especially in the form which Binnie (*Kansas City Medical Index*, May, 1891) has termed "acquired microcephalus." It is scarcely justifiable in pure eclamptic idiocy. In epileptic idiocy there may be a chance for improvement in some cases. In hydrocephalic idiocy, tapping the ventricles and establishing permanent drainage may perhaps do good in the first group; but better results are to be anticipated in the second class (arachnoid-ea hydrops). In traumatic idiocy, nearly as much can be expected as in traumatic epilepsy or insanity. In inflammatory idiocy, operation is certainly inadvisable. No operation is justifiable in cretinism; the prospects of improvement from the use of thyroid extract seem to be very bright indeed; and this line of treatment should be further investigated.

#### PRELIMINARY TREATMENT.

On the day before the operation the patient is chloroformed, and the head carefully shaved. The whole scalp is scrubbed thoroughly with soap and water; dried carefully, washed with sulphuric ether; again subjected to soap and water, and finally doused with a solution of bichlorid of mercury of the strength of 1 to 1000. The head is then enveloped in bichlorid gauze, held in place by a bandage.

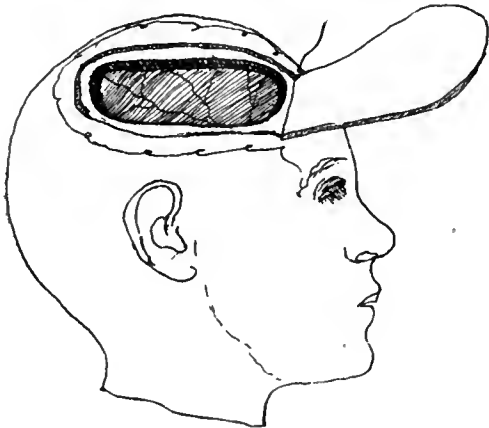
#### PREPARATION FOR OPERATION.

The child being put completely under the influence of chloroform (ether never being employed, since it causes too much congestion of the field of operation), the dressings are removed from the head and the scalp scrubbed with a saturated solution of permanganate of potassium, followed by a saturated solution of oxalic acid; it is then rinsed with bichlorid solution, and the head wrapped in towels wrung from the same. This is the last use of any antiseptic solution in the operation, as plain hot water, previously boiled, must be employed for irrigation and for wetting the "sponges," which are not sponges at all, but balls of iodoform gauze which will be thrown away as soon as used. Every instrument must have been boiled for twenty minutes immediately before using, and the hands of operator and assistant must be carefully disinfected by washing in the solutions used upon the head. These apparently trivial details in asepsis may seem superfluous to those who have seen excellent results in the work of men who are absolutely *dirty* in their methods; but if a surgeon expects to maintain a low mortality rate, especially in cerebral surgery, the closest attention must be paid to the most minute points of possible contamination. Being, therefore, certain that everything is in perfect readiness, the preliminary suturing may be done. Beginning at the median line, just at the margin of the hairy scalp, a suture of strong silk is introduced; stitches of about three-fourths of an inch being taken, the line of suture is carried backward to a point near the occipital protuberance, then turned toward the side and brought down to near the level of the ear, and thence carried forward to within some two inches of the point of beginning. By this prelimi-

nary stitching, the bleeding may be controlled far better than by an Esmarch bandage passed around the head. This step is perhaps the most important in the whole operation, because every drachm of blood lost will weigh against the recovery of the little patient. Children stand the loss of blood poorly, and I am sure that many cases have been lost on account of want of attention to hemorrhage. The condition which is called "shock," so frequently met after operations on the head, may, in most cases, be ascribed to loss of blood.

#### THE OPERATION.

The field of operation having been thus entirely surrounded, a large flap in the shape of a horseshoe, with its base forward, is quickly cut (with a single stroke of the scalpel clear to the bone) and raised. In the flap the pericranium is included; at the sutures there are some adhesions, but these are readily freed by the handle of the knife. The bleeding points, few in number, are seized with hemostatic forceps, and the flap enveloped in bichlorid gauze wrung out of hot water. Hemorrhage having been completely checked, an attempt should be made to go through the skull with the sharp gouge, which is preferable to the mallet and chisel and to the trephine whenever



the bone is soft and thin enough to permit. I have seen disastrous results from the use of the trephine, and have myself lost one patient under circumstances that seem to point to the use of the mallet and chisel. But if the bone is too hard for the gouge, a half-inch trephine is brought into use, and a button removed in the usual manner. The opening must now be enlarged. For the purpose, Parkhill's new craniotomy forceps answer admirably, as do also Keen's. The opening is, by means of these forceps, rapidly extended forward until it measures at least four or five inches in length and from an inch and a half to two and a half in width, its anterior margin being as near as possible to the border of the hairy scalp; it thus exposes a considerable portion of the frontal convolutions, as well as a part of the motor area. If one is very careful, there should be no wounding of the vessels of the meninges, but if inadvertently injured, a needle, armed with fine juniper-oil catgut, must be inserted through the dura, carried under the vessel, and brought out a line or more beyond, and the gut tied—thus ligating *en masse*. The edges of the hole are now smoothed by a small rougeur, and the fragments of bone carefully washed away. The appearance of the wound is now as shown in illustration.

At this point the sutures surrounding the site of operation are removed; and bleeding vessels caught and tied. While the wound is being irrigated the flap is uncovered and washed. The whole field is now dried and covered with iodoform; the flap replaced and stitched with a continuous suture of medium size. A few strands of gut are inserted at the lower angle of the wound and pushed well up beneath the flap to insure drainage. The enveloping towels are now removed, the scalp washed and dried, the wound hidden by powdered iodoform, and dressed by using a considerable quantity of iodoform gauze next to the head, then a larger quantity of bichlorid gauze, then cotton and a bandage. As thus performed, the operation can be completed in less than thirty-five minutes.

#### AFTER TREATMENT.

The child is now put to bed and treated as if suffering from any other wound. Usually there is very little trouble after the operation. Most of the cases I have operated on have been able to sit up in bed the following day, and some have gone on in their little play in a few hours, as if nothing had happened. This first dressing is allowed to remain until the seventh or eighth day, unless some special reason exists for its earlier removal. At the end of a week, primary union will be found to have occurred, and the dressings are to be replaced by a close-fitting head-dress of bichlorid gauze, cotton and bandage, which is to remain until the time for the second operation. This will be in two or three weeks, according to the condition of the patient. The child is then chloroformed, the dressings removed, and the scalp again shaved and washed with soap and water, ether and bichlorid solution. It is not, however, necessary to do this on the day preceding the operation, as in the first instance, because the scalp is still in an aseptic condition from the first operation.

The second operation is precisely similar to the first, save that it is made on the opposite side of the head. One week after the operation, if everything has gone well, the permanent dressing may be put on and the child allowed to go out; so that the total period of stay in the hospital need not exceed four weeks, and one may be able to cut it down to three.

It will be noticed that my mode of treating these cases by a large oval opening, differs considerably from Lannelongue's operation, which has been practiced by most American surgeons, notably Keen and Wyeth, and which consists of a large, long flap made in the shape of a U, V, or T, the dura being opened only when there are evidences of pachymeningitis; but I have seen the opening close up within a few weeks in the Lannelongue operation, with return of all the bad symptoms for which the craniotomy had been made. In none of my cases has this occurred, and I believe the larger opening affords more room for improvement.

Consideration of the very important question of "What Are the Results?" with a report of cases, must be deferred until the next lecture.

(To be continued.)

**Malpighi's Memory in Japan.**—A recent number of the *Sei-I-Kwai* medical journal records a bicentenary celebration held by the Tokya Microscopical Society in honor of Marcella Malpighi, the anatomist of Bologna, who was the first to describe the minute anatomy of the kidneys and other organs in 1694.

## ORIGINAL ARTICLES.

## THE PROCESS OF FORCED DILATATION WITH IMPACTED NEBULA.

AUXILIARY TO THE MEDICAL AND SURGICAL TREATMENT  
OF THE EARS, NOSE, THROAT AND CHEST, WITH  
ILLUSTRATIONS OF PORTABLE APPARATUS. SOME  
SUGGESTION TO GENERAL PRACTITIONERS  
AS TO THE SELECTION OF MEDICINAL  
AGENTS AND AS TO MEASURES  
FOR CONTROLLING PULMO-  
NARY DISEASES.

BY GEORGE F. HAWLEY, M.D.  
CHICAGO.

Through new discoveries and improved methods for preventing diseases and restoring health, the general and special practice of medicine and surgery is gradually becoming a practical if not a positive science.

While marked progress has been made all along the lines of general, and in some lines of special practice, it is a lamentable fact that there have been but few improvements in the facilities, and none in the methods, of treating diseases of the air passages locally, for the past ten or fifteen years, until the discovery of a new process for preparing and administering impacted nebula by forced dilatation, and the invention of an instrument for accomplishing the same. With the exception of this discovery and invention, the means and measures employed at the present time in the local treatment of the air passages are identical with those of the past.

In a former paper entitled, "A New Apparatus," contributed to and published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION May 12, 1894, page 702, the construction and operation of the Standard Dilator, the process of forced dilatation and the methods of using the same in the treatment of the ears, nose, throat and chest was illustrated and fully described. Judging from the number of physicians who have asked for additional information, both in person and by letter; also from the fact that some have, on the advice of manufacturers or dealers, attempted to carry out this process by the use of nebulizing inhalers or other similar but improperly constructed apparatus, I conclude that neither the construction of the apparatus nor the principles underlying the process of forced dilatation with impacted nebula, nor the motive that prompted the writing of the paper is generally understood. Actuated solely by a desire to benefit the profession, and to add my mite to the sum total of medical science, I accepted the opportunity of being the first to call the attention of physicians to this discovery and invention through the medical press, an opportunity which I am persuaded but few of my medical brothers would have declined under similar circumstances. I was not then, am not now, and never was financially interested or benefited by the manufacturing or sale of any instrument or apparatus for physicians' use.

Manufacturers and dealers have at their own suggestion conferred upon me the empty honor of naming after me, instruments and apparatuses similar in construction to those used in my practice. That, and the gratification of having aided in pioneering their use, is all the remuneration that I ever received or would have accepted.

The purpose of this paper is to call attention to

the Hand Dilator and a recently perfected portable apparatus which constitutes a complete outfit to be used in the process of preparing and administering impacted nebula by forced dilatation. In addition to being well adapted to the scientific and expeditious treatment of the ears, nose, throat and upper air passages, it brings the lungs and deeper air passages completely under the control of the physician.

The apparatus herewith illustrated consists of a receiver of eight gallons capacity, with pump, regulating meter valve, conducting hose, and cut-off, all combined. As the complete outfit weighs less than eighteen pounds, its portability adapts it to use at the bedside of the patient in home, sanitarium or hospital. It is equally well adapted to the use of the general practitioner in the treatment of office patients.



The Hand Dilator is attached to the cut-off and held in the hand in the same manner that sprays are attached and held. It consists of a strong 2 ounce glass jar surmounted by a dome to which the nasal, the laryngeal, or pharyngeal tubes or nozzles can be adjusted or changed from one to another instantly.

The percentage of the medicament in the impacted nebula can be regulated from the minimum to the maximum strength instantly or gradually by turning a thumb-screw. This obviates the preparing or keeping solutions of different percentages of strength.

The Hand Dilator is as efficient as the Standard Dilator in the preparation and administration of any selected medicament into any air passage or cavity without liability of lacerating tissue, or causing hemorrhage.

As impacted nebula is practically dry, it can be administered into the lungs without injury or undue irritation. Into the Eustachian canals and tympanic cavities through the nares, with or without the use of a catheter; into the nose or throat without flooding the cavities with a disagreeable and disgusting excess of aqueous or oily solution, which the patient



finds it necessary to immediately eject by hawking, spitting, and blowing the nose.

Although impacted nebula is practically dry, its administration by forced dilatation will remove deposits of tenacious mucus or incrustation from the nose or throat quicker and easier than the same can be removed by liquid sprays.

For fully illustrated instruction in the methods of administering, and the physiologic and therapeutic difference between forced dilatation, inhalation, Politzerization and catheterization, see my paper published May 12, 1894. The method of using the Standard Dilator or the Hand Dilators is essentially the same.

Notwithstanding exact nicety is required in all the details of preparing and administering any selected medicament by this process and apparatus, it is nevertheless confidently expected that its adoption and use will inaugurate an era of improvement in this particular branch of practice, and lead to the discovery of other means and measures whereby cures may be effected in the upper air passages without a resort to the supplementary surgical interference so frequently found to be required during the past, while by its judicious use those afflicted with pulmonary diseases may be saved the expense and fatigue of long journeys in wandering over the earth in an effort to prolong life through climatic influence.

While the propriety of a change of climate as an expedient may for obvious reasons be questioned, the free, full and unobstructed breathing of air is acknowledged to be an absolute necessity for the preservation of health and life, for the well-known reason that it is through the respiratory function only that oxygen can enter the blood and carbon dioxide can be eliminated. The importance of oxidation in the chemic and physiologic processes by which the food stuffs are changed into molecules of bioplasm for the formation of the white blood corpuscles is well known. It is also well known that it is through the aid of the oxygen carrying hemoglobin of the blood that the molecules of bioplasm constituting the white blood corpuscles are elaborated in the processes of assimilation, through which tissue metamorphosis is brought about. Thus a partial equilibrium in supply and waste is maintained.

The heat resulting from respiratory combustion is dissipated in part through physiologic evaporation. The remainder being stored as force, in ganglionic nerve centers, to be expended as required.

Although respiration is such an important function there are but few persons who breathe enough air, none too much and many not enough.

There are persons who have no control over their respiratory apparatus. They can not expand or contract their chest or take a long, full, deep breath. They breathe but little air and as a matter of course the purer it is the better for them. Such persons can not practice lung gymnastics; they do not know how, and many of them can not be taught. Forced dilatation is their only help, for by it they can be made to breathe full and free. To the very feeble, forced dilatation affords all the benefits of lung gymnastics and outdoor exercise without fatiguing exertion. It is efficient in developing the chest of the young or middle-aged and for maintaining the lung capacity of those who are old or exhausted by mental or physical work. It affords relief to those whose respirations are impeded by atmospheric or other influences;

influenza, hay fever and asthma being extreme examples.

The prevalence of milder and more obscure forms of impeded or slightly obstructed respiration leads to the conclusion that there is some peculiar property in the air of every locality which, during certain seasons of the year, affects the air passages of many, while others are exempt. To this, or to some other equally obscure and unpreventable cause, may be traced many maladies which are primarily initiated in the air passages, and which on account of obscure and misleading indications are neglected during the early stages. The affection results in varying degrees of stenosis or occlusion of the upper or deeper air passages, or some of them. The objective and subjective symptoms being entirely different from those attending recognized and well-defined cases of coryza, influenza, hay fever or spasmodic asthma, not only in the absence of cough, excessive secretion, congestion or inflammation, but in the fact that such patients rarely complain of difficult breathing. The subjective indications being few and the objective obscure, the physician is often misled through the patients declaring that their lungs are good and that "there never was a case of consumption in their family." They simply complain of "that tired feeling" and from that alone many of them seek relief. Some of them before, others after, and not until after, swallowing the contents of several bottles of a widely advertised nostrum find their way to the family physician or general practitioner, who after a casual examination generally prescribes tonics and rest. But "that tired feeling," complicated by other evidences of decline, often continues until the patient is pronounced incurable and advised to seek relief in a change of climate. But as there is no climate or locality where all are absolutely free from obstructed or restricted respiration, there is none where mankind can be free from the resulting sub-oxidation, mal-nutrition, and all the evils which that condition implies.

The fact that there are many persons who do not breathe through both nostrils, and some who can not nor have not breathed well through either for years, may be mentioned as an example of obstructed respiration, and of which many are unconscious until their attention is called to it. This fact leads us to conclude that if the lungs of such patients were as completely under their observation as is the nose, they could be made to realize a similar condition of stenosis or occlusion in the deeper air passages.

General practitioners will, I trust, pardon me for suggesting the necessity for a thorough examination of the chest in all cases of illness. For the reason that the important part which the lung plays in the elimination of the waste products, water and carbonic acid, can not be over-estimated. A quantitative and qualitative analysis of the respiratory exhalations from any one suffering with any form or degree of illness will disclose the fact that the equilibrium of supply and waste through respiration is not maintained, due to obstructed functional activity on the part of the lungs. It therefore follows that a restoration to the normal capacity, and to functional activity, and the consequent restoration of an equilibrium in supply and waste, through respiration, is an important factor in the restoration and preservation of the health.

While the pharmacist and instrument-makers have

placed agents in the hands of physicians to control most maladies, either by therapeutic measures or surgical procedures, no agent was at hand by which diseases of the deeper air passages or those resulting from and continuing on account of obstructed respiration could be controlled, until the discovery of the process of forced dilatation with impacted nebula and the invention of the dilator.

After nearly two years' experience with a four-bottle set of the Standard Dilators, and a set of Hand Dilators, I now feel justified in attributing to their use as auxiliary to other medical and surgical means and measures, a more rapid and constant improvement in all cases treated, and the recovery of several persons in the first and second stages of pulmonary tuberculosis, others of long-standing asthma, others of impaired hearing from ankylosed ossicles, hypertrophied membranes and thickened and retracted drum-heads—recoveries that would not in all probability have occurred under the usual methods of treatment.

While it is well known that apparently miraculous recoveries do sometimes occur under all systems of treatment, and occasionally without treatment, yet where there is an almost unbroken uniformity in the improvement of a large number of persons of all ages, sexes and occupations, afflicted with almost every form of diseases of the air passages, where recoveries are frequent and failures are rare (as has been the case in my practice during the past year) am I not justified in concluding that such results are something more than a mere coincidence?

It is not the purpose of this paper to announce a cure for consumption or any other disease, but to call the attention of conservative physicians to an apparatus and process that is indispensable in the rational treatment of the upper air passages, and the only means by which pathologic conditions of the deeper air passages can be reached or controlled.

Notwithstanding the prevalence of pulmonary diseases, there are comparatively few physicians who include the chest in the limit of their specialties. This neglect of the lungs is due no doubt to the fact that inhalations have been found inefficient, while clinical experience has proved the impracticability of administering an efficient sterilizing agent or germicide, either internally or indermically.

The use of the inhalers has been abandoned by many leading special and general practitioners, for the reason that it has been found to be impossible to introduce into the deeper passages the smaller bronchia or air cells of the lungs, either a healing or a sterilizing agent by inhalation. This fact has recently been emphasized in a series of experiments on the lower animals by Dr. H. Thomas and his assistants. These experiments prove it to be impossible to introduce by inspiration the atomized medicament contained in nebulous vapor, into the unobstructed smaller passages and healthy air cells of the animals experimented upon. The Doctor (in his paper published in this JOURNAL) states that in his clinical experience with inhalations, the most rapid improvement occurs during the first ten days treatment. This coincides with the observations of others, who have also observed that if the lungs be invaded by bacilli or are involved in degenerative or destructive processes, that the improvement is frequently followed by a more rapid decline. Hence many observers have come to the conclusion that, no matter how the

inhaler may be constructed, or how perfectly the inhalant may be prepared by its use; whether hot or cold, moist or dry, or whether a volatile or a nebulous vapor, inhalation tends to promote and hasten instead of modifying and arresting degenerative or destructive processes in lung tissue.

In my opinion there no longer exists any excuse for neglecting the treatment of those afflicted with pulmonary diseases, or for continuing disappointing and discouraging experiments with inhalers or inhalations. A physician can now procure an outfit by the use of which, in the administration of properly selected medicaments by the process of forced dilatation, he will be enabled to treat diseases of the chest with a uniformity of success equal in degree or ratio of recoveries to that following operative surgery in the treatment of other desperate maladies.

To obtain satisfactory results, the technique of forced dilatation must be carried out in detail. Physicians are not apt to do this, unless they understand and appreciate the distinctive difference between inhalation, inflation and forced dilatation, and also the difference between an impacted nebula and the smoky nebulous vapor evolved from the various nebulizing inhalers.

I am not urging a distinction where there is no difference. I am trying to make you realize the distinctive difference as I do, and as do most physicians who use the dilator for administering impacted nebula by the process of forced dilatation.

Although the efficiency of this apparatus and process can not be fully demonstrated upon dogs, cats or other dumb animals, for the reason that impacted nebula can not be forced into the deeper air passages without the intelligent coöperation of the subject operated upon, nevertheless when administered to persons who passively coöperate, its physiologic action on organs and functions and its therapeutic effect on pathologic conditions may be determined by an improvement in organic action, as manifested in the rate and character of the pulse and respirations; in an equalization of circulation and temperature; in an improvement in the processes of digestion, nutrition, assimilation, secretion, excretion and elimination, all resulting from increased aeration, through which the equilibrium in supply and waste is maintained.

Armed with the dilating apparatus, the physician is enabled to expand the collapsed smaller bronchia and air cells, and to detach, dislodge and remove by explosive expulsion such deposits as have accumulated from excessive secretion or other morbid processes. It should be borne in mind that it is behind these obstructions that the bacilli find a domicile conditioned by excessive moisture and high temperature for their vigorous activity. In the earlier stages of pulmonary tuberculosis the obstructed areas are circumscribed. In these circumscribed localities the moisture is excessive and the temperature high, as moisture can not evaporate in tubes, cells or cavities in which air through respiration does not circulate. The excessive heat and moisture in these circumscribed localities can only be absorbed or dissipated through the physiologic process of respiration and evaporation.

Let all controversy be avoided as to whether the bacilli initiate the pathologic condition by an infectious invasion of previously healthy tissue, or whether the arrest of the physiologic function of respiration

and evaporation in circumscribed localities result in a condition of high temperature and excessive moisture sufficient to develop the active and destructive bacilli from germs that previously were and otherwise would have remained inert and harmless.

Every physician has either formed his own, or else he has adopted the opinions of others on this subject. Beside investigation as to the initiative cause belongs of right to the domain of hygiene and preventative medicine.

Active and energetic remedial measures should be directed against conditions as we find them. Tempting expedients should be discarded and especially so when an agent is at hand by the use of which the physician can remove the immediate cause and otherwise control present conditions, regardless of the remote or initiative cause. When a farmer discovers that the bugs are devouring his potato vines he does not stop to inquire which or what was the primary cause. It is sufficient for him to know that if he does not kill the bugs that the bugs will kill the vines. When on examination the physician finds the lungs of his patient infested by tubercular bacilli he knows that if he does not kill them they will kill the patient. He knows that the area of lung capacity as evidenced by chest expansion is reduced, that the air passages and cells are collapsed or are obstructed in circumscribed localities. He also knows, or should know, that it is behind these obstructions and beyond the reach of inhalations that the bacilli find their favorite pabulum. That it is there they feed, fatten and propagate; that it is there the excreta and ptomaine is ejected and emitted which poisons the fountains of health, prostrates and makes sickly all the central forces of life.

Owing to obstructed blood circulation in the circumscribed localities, on account of solidification, through congestion, fibroid or tubercular degeneration, it has been found to be impossible to even attenuate the bacilli, or to arrest the degenerative or destructive processes by any agent administered either internally or indermically.

The process of preparing and administering agents in the form of an impacted nebula by the dilator offers the sole means by which recovery is possible. The collapsed, stenosed or occluded bronchia and air cells being expanded, and the obstruction removed, the air through respiration comes in contact with all surfaces. The excessive heat and moisture are absorbed by physiologic evaporation. The bacilli being first sterilized through attenuation, are finally exterminated by the germicide which is conveyed and deposited by the impacted nebula.

The benefit of forced dilatation in the improvement of the general health, is as evident and satisfactory as its mechanical and therapeutic effects are locally. More air being breathed after forced dilatation, it is thus through increased oxidation that the processes of nutrition and assimilation are improved and degenerative and destructive processes arrested. Through increased oxygenation (aeration) of the blood, constructive molecules are organized and energy is stowed, to be expended in maintaining organic and functional activity. Notwithstanding the apparent simplicity of the apparatus and process, there is sufficient scope for the employment of the most profound medical knowledge and dextrous skill in the selection, preparation and administration of the medicaments to be employed in the treatment

of the various forms and stages of diseases of the air passages.

In the selection of an antiseptic germicide to be administered in the forms of an impacted nebula, preference should be given to the following. First to the chlorides: of gold; of mercury; of iron (especially in hematorrhea); of ammonium. Second, to iodine and the iodids: bin-iodid of mercury being especially valuable; and to the sulphides or sulphates. No unfavorable physiologic effects follow their use. The menstrum for each should be alcohol and glycerin equal parts, using as little water as possible to dissolve the salts.

The volatile aromatics, in gums, crystals or essential or ethereal oils: as thymol, eucalyptol, pine needles, cubeb, tar, creosote, carbolic acid, camphor, menthol, etc., are of known value, when selected and used singly or in combination in the treatment of the air passages generally. In my practice I prefer and use those prepared by the Ozone Company of New York and Chicago, as their oils contain a large per cent. of ozone. If the secretion be excessive, alcohol and glycerin should be used as a menstrum. If the membranes are dry from scanty secretion, a neutral vegetable oil is preferable, as therapol which contains 10 volumes per cent. of ozone as prepared by the same company. All menstums used in preparing solutions to be administered into the lungs and tympanic cavities especially, should be an ingredient that will speedily evaporate or else be readily absorbed by the tissue. That elegant, odorless, tasteless and neutral carbon oil known as abolin, glymole and a score of other names, should never be used as a solvent menstrum for medicaments to be administered into any of the air passages, especially not into the tympanic cavities or the lungs. The tissue will not absorb the oil and on account of greater affinity the oil retards the absorption of the medication by the tissue.

The most serious objection to the use of the oil is the fact that the entire surfaces throughout the air passages become coated over with it. The oil will not evaporate and the tissue will not absorb it, while at the same time it prevents physiologic evaporation by excluding the air from the mucous surfaces. Thus by its peculiar behavior, it tends to arrest the processes of osmosis to a greater or less degree, which results in sub-oxidation.

Its only legitimate place in medicine is as an application to denuded, cauterized, lacerated or acutely inflamed surfaces. For the reason that its peculiar properties, as above described, makes it an agent well adapted to protect such surfaces from the air, thus preventing evaporation, oxidation and incrustation. These same properties will gradually exclude it from the prescriptions of physicians, just as the use of cosmolin or vaselin has been discontinued except in those cases to which it is adapted.

While I shall take pleasure in answering questions and giving any additional information or instruction that I can to physicians who choose to inquire, either in person or by letter, regarding the professional use of the process and apparatus, I wish it understood that I can not give any further information relating to the manufacture or sale of the same, other than to say that both my standard and hand dilators were made by the Owens Brass and Copper Works, of Chicago.

Columbus Memorial Building.

ORIGINAL INVESTIGATIONS ON THE  
NATURAL HISTORY, (SYMPTOMS  
AND PATHOLOGY) OF YELLOW  
FEVER. 1854-1894.

BY JOSEPH JONES, M.D., LL.D.

NEW ORLEANS, LA.

(Concluded from page 721.)

CHAPTER XI.

EFFECTS OF PUTRID MATTERS ON THE BLOOD.

M. Gaspard appears to have been one of the first experimenters with putrid matters. On June 19, 1809, he injected into the jugular vein of a small bitch, half an ounce of fetid liquid, arising from the simultaneous putrefaction of beef meat and dog's blood. On the instant the animal made many movements of deglutition, and very soon afterward experienced dyspnea, *malaise* and depression. She lay on her side refusing all food, and soon voided first her excrements, then her urine. In an hour's time, prostration of strength, gelatinous and bloody alvine discharges often repeated, dysentery, redness of conjunctiva; afterward, chest painful, belly hard and painful when touched; gradual extinction of strength; bilious, gelatinous and bloody vomitings. Death three hours after injection. On opening the body, yet warm, the lungs were engorged with blood and of a violet or blackish hue, with many ecchymosed or petechial spots, which likewise existed in the left ventricle of the heart, in the spleen, mesenteric glands, gall bladder, and even in the subcutaneous cellular tissue. The peritoneum contained some spoonfuls of a reddish serosity, but the mucous membrane of the alimentary canal was most affected. That of the stomach was slightly inflamed; that of the intestines, above all—the color livid, with black points, and covered with a gelatinous and bloody substance, resembling the lees of wine or the washings of flesh. In addition, this inflammation was accompanied with a slight thickening of the tissues, and possessed a hemorrhagic or scorbutic appearance.

On July 14, 1821, Gaspard injected into the right jugular of a large dog, two ounces and a half of a fetid liquid that had arisen from the fermentation for two days of cabbage leaves, at a temperature of 20 degrees R. It was thick, not at all acid and was mixed with an equal quantity of water. While injecting the animal often swallowed, and before long began vomiting, which was frequently repeated, and soon fell into a state of depression. Some hours afterward, great general uneasiness, pain in chest on pressure, respiration embarrassed, difficult and plaintive, appearance of peripneumonia, then vomiting anew and great depression all day. At the expiration of nine hours he had in the night a very fetid liquid stool, black as soot, analogous to the evacuations in *melæna*, and formed of a little excrement and mucus, with a great deal of apparently putrid blood. Some time afterward the dog had another stool, but it was merely muco-sanguineous. On July 15 (second day) depression more considerable, *adynamia*, recumbent on the side, vascillating walk, pulse small and febrile, ardent and seeming inextinguishable thirst, urine natural and abundant, respirations few and weak. During the day the pulsations of the heart would return at intervals with an extraordinary strength and noise, resembling what occurs in the highest degree of aneurysm, combined with hyper-

trophy of the organ. July 16, less depression, cessation of the disordered action of the heart, but still ardent thirst, refusal of food; fever and sometimes vomiting of drink. July 17, same condition. July 18, symptoms aggravated, extreme debility, walk tottering, excessive thirst, eyes red, inflamed and bleary, nostrils swollen and filled with mucus obstructing the passage of air, mucous membrane of the mouth violet red and phlogosed. At mid-day, liquid stool of a whitish-gray color, mixed with grumous blood, of a purulent character and odor. Death during the night at the termination of the fifth day of the experiment.

Before opening the body, the skin, subcutaneous cellular tissue and muscles presented the same appearance as after death from asphyxia from want of air, and did not appear exempt from inflammation. Conjunctiva, pituitary and buccal membranes red or violet, and covered with a thick abundant mucus, lungs of a gluey feel, slightly phlogosed in some spots, but crepitant enough. The left ventricle of the heart presented many brown spots or sort of ecchymoses, penetrating even into the tissues; it was, besides, of the color of the lees of wine which contrasted singularly with the natural color which the right ventricle preserved.

The right ventricle was in part filled up with a hard albumino-fibrous concretion, with a yellowish-white hue like fat, very homogeneous, undistinguishable from the molecules of the injected liquid, weighing two and one-half grams, almost entirely free, and only adhering to the ventricle by a small attachment. This concretion with ramifications of the same color and consistency, extended into the pulmonary artery, and into the superior vena cava, and also into the azygos, axillary, and even to the right jugular. Probably it had been the cause of the violent pulsation of the heart. The esophagus and stomach were apparently healthy, but the mucous membrane of the intestines, and particularly of the duodenum, rectum, and a small portion of the small intestines was of a violet-red, colored chiefly in longitudinal wrinkles and irregular patches, which gave a parti-color to the outside of the intestines before they were cut open. Otherwise this inflammation was without thickening of the tissues, without ulcerations and much resembled ecchymoses or hemorrhage. In the duodenum were observed many kinds of open blisters, whence a large quantity of sanious blood was made to flow by pressure on the neighboring mesenteric vein. The internal membrane of the rectum was still more affected, and its mucous glands were very swollen and distinct. The intestine contained puriform matters, resembling those of the last evacuation. The other intestines contained mucus matter of a whitish-gray color, and very thick. The mesenteric glands appeared as if penetrated by blood and altogether inflamed. The gall-bladder, stained exteriorly by brown and violet spots, was filled with a black thick bile, as ropy as melted glue.

Gaspard also performed other experiments with putrid liquids, with similar results; and he demonstrated for the first time, that putrid liquids injected into the cavity of the pleura, etc., produced the same effect as injections into the veins (*Journal de Physiologie*, tome 2).

M. Magendie, fully appreciating the important facts that since medicine has existed, the pernicious influences of ponds, marshes, neglected harbors, and in



general, all places, in which animal or vegetable matters were undergoing putrefaction, are recognized; and that men and frequently animals, inhabiting the neighborhood of these infected foci, were subject to serious maladies, which authors have designated under different names, such as the plague, intermittent fever, malignant fever, dysentery, cholera morbus, typhus, yellow fever, etc.; repeated with the greatest care the experiments of M. Gaspard, with an eye to their application to medicine, and the elucidation by the experimental method of the manner in which putrid animal or vegetable matters act upon the healthy individual. Magendie affirmed that the results of M. Gaspard were perfectly exact; and in addition he observed that different kinds of flesh have not the same activity in their putrefaction. The muscles of herbivorous mammalia appear less active than those of the carnivora. Putrefied oyster water did not cause very violent effects; but the deleterious matter *par excellence*, is putrid fish water; some drops of this water injected into the veins producing in less than an hour, symptoms which have the greatest analogy with those of typhus and yellow fever. Death usually ensued in twenty-four hours, and upon opening the body all the traces of a chemic alteration of the blood were discovered. The blood remained for the most part fluid; it had transuded through the walls of the vessels into the different tissues—particularly was it found to have traversed the intestinal mucous membrane. Blood as well as mucus accumulated in the stomach and intestines, where it presented all the intermediate hues between bright red and deep black.

Such experiments seemed to sustain the view that the healthy state of the blood in which its tendency to coagulation is very strong, prevents the transudation of the liquid through the walls of the smaller vessels. Magendie established that the same putrid matter, so deleterious when injected into the veins, has no bad effect when introduced, even in a strong dose, into the stomach or large intestines of animals; and that when putrid liquids were filtered, the animal which received the filtered liquid into its veins, experienced much less intense and much more prolonged pain than that which received the unfiltered liquid. An equal quantity of the same putrid water injected into the veins, or introduced with suitable precautions, into the divisions of the bronchia, do not produce the same effects. Injections into the lungs produce less serious consequences than injections into the veins. Magendie also subjected animals to the effluvia of putrefying vegetable and animal substances; and he thus sums up the results of these and the preceding experiments:

"From the preceding facts, it is seen that putrefied liquids when they are injected into the veins cause death, or effects which have the greatest analogy with those of yellow fever and typhus; that the prolonged respiration of putrid miasms produces death also, but in a period much longer and with symptoms which differ from the diseases I have just named. What can be the cause of such difference of the mode of action in the same substances? Why this diversity in their deleterious properties? It would be so much the more important to be able to answer these questions, as therein lies the whole difficulty, relative to the epidemic diseases which have recently occupied the public mind."

Among the conjectures which may be offered, there

is one which merits particular attention. We may presume that different atmospheric conditions, and particularly temperature and moisture, ought to have a great influence upon the mode of action of putrid miasms. (*Journal de Physiologie*, tome 3; "Speculations on the Cause of Yellow Fever," by John Harrison, M.D., Professor of Physiology and Pathology in the Medical College of Louisiana, New Orleans; *Medical and Surgical Journal*, March, 1817, vol. III, No. v, pp. 568-573.) The results obtained by MM. Leuret and Hament (*Journal des Progrès des Sciences Médicales*, 1827, vol. v, pp. 1, 181), were similar to those of Gaspard and Magendie.

The more recent experiments of Dr. Andreas Högzes, of the University of Pesth, performed during the epidemic of cholera in that city in 1873, are of interest in connection with the present discussion of the effects of putrid and morbid matters on the blood.

Dr. Högzes endeavored to solve the following questions:

1. Are fresh choleraic discharges capable of exerting a deleterious influence on the organism, and in what form?

2. Does gastric and intestinal catarrh, artificially produced, increase the liability to be affected by choleraic discharges?

3. Is the air capable of carrying with it particles or choleraic evacuations, which act injuriously on the organism; and if this be the case, is there a difference between non-disinfected and disinfected discharges, simple diarrheal dejections and putrid fluids?

4. Are choleraic evacuations, when freed from elementary organisms, capable of affecting animals?

5. What parts of disinfected and of non-disinfected choleraic discharges, does a current of air carry with it? What is the further fate of these elementary forms, if they fall on a soil favorable to their development, or on one that is neutral? In what way do they modify the action of the medium?

In his experiments, Dr. Högzes used choleraic evacuations that had been discharged an hour, or an hour and a half. The animals operated on were dogs and rabbits.

Six dogs of middle size were the subjects of experiments bearing on the first and second questions. In three, catarrh of the stomach and intestines was induced by the administration of the sulphate of copper and the subcutaneous injection of a few doses of croton oil; the other three were allowed to remain healthy. As soon as the vomiting and diarrhea had ceased in the first three dogs, Dr. Högzes administered to each of two dogs (one healthy and one diseased), fresh urine, intestinal evacuations, and vomited matters, from choleraic patients. Both dogs had intestinal catarrh (frequent vomiting and diarrhea). The dog with the sound intestinal canal was well on the third or fourth day; while one of those in which gastro-intestinal catarrh had been induced, died on the second day, having had constant vomiting and fluid evacuations; and the other two were not convalescent until the fifth or sixth day, and remained weak some time afterward.

To obtain an answer to the third question, Dr. Högzes kept rabbits exposed for some time to currents of air charged, 1, with non-disinfected; 2, with disinfected choleraic evacuations; 3, with ordinary diarrheal stools; 4, with the fluid of putrid meat. The oxygen necessary for respiration was

supplied in abundance. The rabbit in each case was confined in a glass bell jar, placed in a well ventilated apartment; the bottom of this jar was airtight, and the air, charged with the evacuations or with the putrid fluid, passed in by one aperture at the top, and escaped by another. The air having been first made to pass through the fluid of which the effect was to be tested, was forced into the jar by a Bunsen's water apparatus, at the rate of 15 liters per minute. To prevent the air from escaping in its foul state through the ventilating tube, it was made to pass through cotton wool and sulphuric acid, and in this way it was possible, without danger of injuring the health of the operator to continue the experiment for any time.

Two rabbits in one of which bronchial catarrh had been induced by the inhalation of ammonia, were subjected for twenty-four hours to a stream of air charged with non-disinfected choleraic evacuation. While under the bell the animals had slight catarrh, did not eat and were depressed. In the third twenty-four hours, violent diarrhea set in, and both animals soon became cold and collapsed; the one in which bronchial catarrh had been induced, died first, and the other five hours afterward—both presenting the same symptoms. A small rabbit exposed for twenty-four hours in the same apparatus to air charged with choleraic discharges disinfected by carbolic acid, remained healthy. Another animal of similar size was kept without injury for twenty-four hours in a current of air saturated with ordinary diarrheal evacuations. A large rabbit, exposed for twenty-four hours to a stream of air, saturated with the fluid of meat that had been decomposing during five weeks, at first lay stupefied at the bottom of the apparatus, but immediately afterward rose up, and escaped without injury.

The experiments bearing on the fourth question consisted in the injection into the jugular veins of dogs and guinea pigs, in one case of choleraic discharges containing microscopic organisms, and in the other cases of the same discharges after filtration. With regard to the last question, Dr. Högzes conducted through fresh non-disinfected choleraic discharges a slow stream of previously purified air. The elementary forms brought over with the air current were received into two media—one neutral, distilled water; and one suitable for their development, Cohn's fluid. The fluids were drawn off by drops from the vessels, and examined with the microscope. Both distilled water and Cohn's fluid have no action when injected into the vessels; and the question was, whether their action would be changed by a certain amount of saturation. In a short time, a large number of elementary forms (chiefly bacteria), with which the cholera excreta were saturated, were carried over into the fluid, and in twelve hours produced a milky cloudiness in Cohn's solution. At the end of the second twenty-four hours the surface of Cohn's fluid was covered with a bluish-green shiny layer of cryptogamic matter, 2 centimeters thick, and the fluid itself assumed a peculiar smell, reminding one of decomposing fruit. The distilled water which remained quite clear, although charged with organisms, and the Cohn's fluid were injected into the veins of dogs and rabbits. The result was, that both the distilled water and Cohn's fluid produced the same symptoms as the choleraic discharges when injected into the venous system—acute gastro-intestinal catarrh, and in some of the rabbits death.

Similar researches with discharges disinfected by carbolic acid showed that the power of development in the elementary organisms was destroyed; the Cohn's fluid still remained clear at the end of twenty-four hours. On injecting the fluids into which the air had been conveyed through the disinfected excreta, the symptoms of poisoning with carbolic acid were produced; this is readily explained, when it is remembered that the current of air in the course of twenty-four hours must have carried with it a large amount of carbolic acid.

While these experiments were being carried on, the attendant, who had been exposed for some time to the emanations from the vessels containing the choleraic excreta, had a severe attack of gastro-intestinal catarrh, which recurred twice within a short period. His little daughter, who slept with him, had vomiting and diarrhea the day after he became ill. Five days after his illness, two cases of cholera (one of which ended in death) occurred in the house in which he resided, which had hitherto been free from the disease. During the microscopic examination of the choleraic discharges, Dr. Högzes had loss of appetite, a coated tongue, and a constant sensation of oppression in the epigastrium; after the researches were completed, these uncomfortable feelings disappeared.

The following are the conclusions at which Dr. Högzes has arrived:

1. Fresh choleraic discharges exert an injurious influence on animal organisms, as it seems in different degrees in different animals.

2. The principal or infallible evidence of injury after the introduction of choleraic discharges in any way, is more or less inflammation of the stomach and intestines.

3. An artificially induced gastro-intestinal catarrh renders animals more or less liable to be thus affected.

4. The same symptoms may be produced by the inspiration of a stream of air charged with particles from non-disinfected choleraic discharges, as well as by immediate action on the stomach, intestines, or venous system; while the particles in choleraic discharges disinfected by carbolic acid, appear to be quite harmless.

5. A current of air, passing through non-disinfected choleraic excretions, carries with it cryptogamic elements, which vegetate abundantly in a favorable soil; while the same growths from discharges that have been disinfected by carbolic acid are incapable of multiplication.

6. Choleraic discharges freed from organized elements are capable, by reason of their chemie composition, of producing the same pathologic changes as they do when they contain the organized forms.<sup>51</sup>

The last conclusion established by the experiments of Dr. Andreas Högzes, is of importance in establishing the fact that the propagation of cholera does not depend on the organized elements. It may, however, at the same time be true that the fungi developed and propagated in the choleraic discharges, may become the vehicles or carriers of the poison of cholera. We have regarded the fungi found in the black vomit and other fluids of yellow fever, as in no respect the cause of the disease, but at the same time it may be regarded as probable that when developed in the poisonous matter of yellow fever they may become agents for its dissemination.

<sup>51</sup> Centralblatt für die Malarinischen Wissenschaften, Nov. 1 and 8, 1873.

I have shown by a series of experiments<sup>52</sup> on the action of the poison of the American copperhead and of the American rattlesnake on living animals:

1. The primary and chief action of the poison of the American copperhead (*Trigenocephalus centertrix*) is upon the blood.

2. The poison of the copperhead is directly destructive to the colored corpuscles of the blood, altering their physical and chemical properties and relations, and rendering them unfit for the performance of their important offices in circulation, respiration and nutrition.

3. The poison of the copperhead appears to have an affinity more especially for the coloring matter of the colored blood corpuscles.

4. Under the action of the poison of the copperhead, the animal temperature is but slightly increased notwithstanding the profound changes inaugurated in the blood; and after the establishment and propagation of the pathologic changes the temperature descends.

5. The action of the heart is increased in frequency and diminished in force under the influence of the poison of the *Trigenocephalus centertrix*.

6. The profound alterations induced in the constitution of the blood by the poison of the American copperhead, give rise to passive hemorrhages into the cellular structures, and from the intestinal mucous membrane. This phenomenon recalls strongly the passive hemorrhages in certain febrile diseases, and especially yellow fever. Such experiments indicate that the black vomit of yellow fever is the result of the action of an irritant poison upon the blood, and gastric mucous membrane. We have also in these experiments an explanation of the mode in which dysentery might be induced by a poison introduced into the blood.

7. The poison of the rattlesnake (*Crotalus durissus*) acts as a local irritant upon the capillaries, and as a destructive agent in the blood and muscular structures, causing congestions and bloody effusions, and softening and disorganizing action of the muscular fibers.

8. The poison of the rattlesnake destroys by its direct effects upon the cerebro-spinal centers, and by its depressing effects upon the sympathetic ganglia, and muscular structures of the heart; and also by the changes which it induces in the composition of the blood.

If therefore a few drops of a secretion elaborated by special organs in living animals in a normal state be capable of producing profound disturbances in the blood and nerves and muscular systems; it can not be unphilosophical to refer the origin of certain diseases, as typhus fever and yellow fever, to the action of special poisons arising in the human body when subjected to certain conditions of food, climate, moisture and the foul air arising from overcrowding.

Another striking fact is that a deadly volatile poison may be generated during the fermentation or chemical and physical changes of certain vegetable constituents. Thus by a series of experiments<sup>53</sup> we have shown that the volatile poison hydrocyanic acid (prussic acid) induces profound alterations in the blood, and through this medium affects all the

organs and tissues. We have endeavored to open the vast field of the action of well-known poisons, in order to elucidate the nature of the unknown febrile poisons.<sup>54</sup>

It is surely worthy of note that the most destructive vegetable product is the direct result of fermentation and is volatile.

Such facts may be plausibly adduced to show that a deleterious agent capable of producing yellow fever might be the product of animal and vegetable matters under different ranges of temperature. The conjecture has been hazarded that the poison of this disease resembles a volatile essential oil and which in conjunction with the albumin and ammonia of the atmosphere induces the phenomenon of yellow fever. They may also be adduced to sustain the hypothesis that the poison may be engendered in the human system under certain circumstances, and may be propagated through the medium of the atmosphere and by the agency of fungi and animalculæ.

THE END.

## PRE-COLUMBIAN LEPROSY.

BY ALBERT S. ASHMEAD, M.D.

LATE FOREIGN MEDICAL DIRECTOR, TOKIO HOSPITAL, JAPAN.  
NEW YORK.

(Continued from page 723.)

Mr. Saville tells me that in the pottery of ancient Mexico there are symbolic pictures of death; human faces with blinded eyes. It is at least his opinion that this extinction of the eyes means death; for the god of death of these peoples is always represented with a stick puncturing the eyes. But nothing that can be considered as disease representations has ever been found there.

In Chiapas, Mexico, he says images have been recently found showing clubbed feet, arms in cramped positions, etc. This find is believed by archaeologists to be exceedingly valuable, but it has not been, as yet, much reported upon.

If leprosy existed in America in pre-Columbian times, and if these deformations on *huacos* pottery are intended to represent lepers, the same idea must have been conceived previously in Japan, or Eastern Asia in general, from whence the disease itself would be likely to have come. But Prof. Edward S. Morse writes me: "The pre-historic pottery of Japan has no trace of lepers either incised, in relief, or painted. Nor do the forms ever represent a natural object. In early historic times, say from 1200 to 1500 years ago, a soft reddish pottery hand-made, and a hard gray pottery, turned but not glazed, in very rare cases, showed the form of natural objects."

Mr. Tanaka, a Japanese importer, who is probably as conversant with modern Japanese pottery and art as any man living, affirms that he never saw the representation of a leper, either in pottery or in the drawings of Japan.\* The blind man is represented; he is, in fact, considered as possessed of virtues and

<sup>52</sup> Et seq. Medical and Surgical Memoirs, vol. I, pp. 272-532.

\*NOTE.—In the "Japanese Manual for Ladies," a book on etiquette published in the eighteenth century, there is a drawing of the Empress Gemmyo (A. D. 708-721) who washed a thousand lepers with her own hands and took general care of them. (She built the first leper hospital in Japan.) In this picture a tuberculated leper is represented. He has the leonine face, without, however, loss of nose. In a Japanese book called "Hakkenden," which means "Story of Eight Warriors," written early in this century, there is a representation of a leprosy beggar. He is without a nose and without hair; his red face is hypertrophied and tuberculated. His upper lip is represented much swollen and tuberculated. His toes are gone, the hands show scabs and tubercles. These are the only representations of leprosy known in Japan. I may say that the loss of nose and upper lip in Japan is frequently observed in the streets. This deformation in Japan, which is a leprosy country (there are 100,000 lepers in Japan) is considered always as syphilitic.

<sup>53</sup> British Medical Journal, Dec. 13, 1873, p. 697-698. Medical and Surgical Memoirs, Vol. I, pp. 519-529.

<sup>54</sup> Medical and Surgical Memoirs, vol. I, pp. 279-330.

powers refused to the crowd of men with regular eyes; he is the massager and acupuncturer.

Under the reign of the Empress Suinin (A. D. 29-70) the custom prevailed of burying living retainers around the body of their masters. The living beings were replaced by small images of clay, and that new custom continued until 700 A. D. In 700, cremation began; it was first practiced by a Buddhist priest. When the custom of cremation extended, the burial of retainers, or of clay images, had no longer any significance in the mind of these primitive peoples. These accompaniments were intended for a body, not for a heap of ashes. Cremation was, in Japan at least a Buddhistic, a religious institution. It was not intended and especially used for the destruction of leprous cadavers. Even now lepers are excluded from the burial rites of cremation. It is probable that even in our day there is more cremation than interment in Japan; but lepers are severely excluded from the former. We might very plausibly conclude, I think, that if leprosy came to this country from East Asia, the absence of skeletons with leprous indications is very significant; for, as I have just said, leprous bodies were not cremated, and therefore ought to be found occasionally. Even if these bodies had been as a rule cremated, would not some of them, or parts of them have escaped the incineration? If we can not find any trace of the mutilations peculiar to leprosy, we may safely conclude that leprosy did not exist at all here.

Dr. Brinton and Professor Powell assert that the civilization of America is autochthonous; that is, it did not come from East Asia, or from any other country. Let us now ask ourselves here what autochthony after all means? Can it mean, according to etymology, anything else but the origination out of certain ground, certain environments, and certain circumstances of certain conditions of life? There must be evidently diseases which originate in circumstances which are only found in the place where they originate; and these I should call autochthonous. What is, after all, the meaning of autochthony, speaking of diseases? It is natural to suppose that in every human body there are all the possibilities necessary to produce any disease. Call them germs, or what you will. Suppose that an individual in the city of New York finds himself and his possibilities placed by chance in such a condition that a disease, up to his time unknown, develops in him and that, in some manner, it is transmitted. Well, the disease would be autochthonous in New York, as yellow fever probably was in Yucatan. Now it is extremely reasonable to believe that at the same time, or at some other time, before or after, the same phenomena had occurred in many other places. If we consider this, to what does the autochthony of disease come?

Is leprosy autochthonous wherever we find it, or must we suppose that it comes in every case from inoculation?

If leprosy existed in America before Columbus, if not autochthonous, it must have come from East Asia, or indirectly from its ancient home in Africa, or else these countries were inoculated from America. I believe that the lepræ bacillus requires its own soil to thrive upon and that most individuals would resist its development as well as other disease germs are resisted. I, for my part, do not believe that the lepræ bacillus is the real factor in the production of leprosy, or that a bacillus is the

real cause of disease. I believe that there is a cause of the disease of which the bacillus is only a symptom. What the nature of that cause is I can not say, and nobody can say; modes of life, kind of food, peculiarities of climate, clothing, morals, etc. In all cases, where certain conditions belonging to these factors exist, it may be that the same kind of bacilli find their living; the microbes may have nothing to do with it, except that under these conditions alone they can live. Under certain conditions of life, certain bacilli take birth. It is not the bacillus that is the cause of the damage that ensues; it is the condition which allows it to prosper.

Professor Stillé says: "The supreme puzzle is the primary source of each specific germ. As yet no Darwin has arisen to show even the possibility of the evolution of such germs. To name them bacteria, and assign to each disease a specific bacterium, only removes the difficulty one stage backward."

If the ancient races of America came from East Asia it is reasonable to suppose that they came through Japan, Yesso, the Kurile Islands and Aleutian Islands. There are stone age, arrow head connections between Japan, Yesso, the Kurile and Aleutian Islands; there are syphilitic connections between Japan, Vancouver, Mississippi mound-builders and Mexico. There is no connection in pottery, or in modes of burial between these two civilizations. There is, however, a skull connection between the Indians of Mexico (Tarahumares), ancient Arizonians (Saladoans) and ancient Peruvians. From these facts we may suppose that there was a migration from East Asia to America.

There is no evidence from Behring's Strait down to South America, that any leprous inoculation took place through this migration. If any leprous inoculation into Peruvian populations took place, it must have been either through the Spaniards or, as Le Plongeon assumes, directly from India. It could not have come through the islands of Japan, that is preceding their occupation by the present Japanese race; for the Ainos, as long as history knows anything about them, never were afflicted with leprosy, and they are immune to-day.

We must therefore conclude that if leprosy came from India to America, it must have come by another route than that which brought syphilis.

(To be continued.)

**A Second (1) Case of Ocular Diphtheria Treated by Sero-therapy**  
By Dr. H. Coppez. (*Journ. de méd. et de chir. de Bruxelles*, November 24.) A detailed description is given of this case to emphasize the special character of the stage of repair following the injection of serum. The false membranes, says the author, disappear more or less rapidly and leave behind them healthy tissue. There is no period of suppuration or repair. The disease is cured at the outset. The disappearance of the false membranes takes place in inverse order to their appearance. "They seem to melt like a snowflake in a ray of sunlight," is the picturesque expression of Professor Coppez, or in more scientific terms, they seem to disappear by a process similar to that by which they came. It is superfluous to dwell longer on the important rôle played by sero-therapy in the treatment of ocular diphtheria. Thanks to the injections of antitoxin, we are in a fair way to check the invading progress of pseudo-membranous exudates. Better still, the last two stages of the malady may be suppressed, with all the dangers that accompany them. In short, with this new treatment, when the false membrane has once disappeared the disease itself is conquered. If treatment is begun at the proper time it will not be forty-eight hours before all the menacing symptoms have disappeared, and the physician will be gratified by the rapid and complete recovery.—DASTOR, in *Annales D'Oculistique*, January, 1895.



## ASSOCIATION NEWS.

## AMERICAN MEDICAL ASSOCIATION.

OFFICIAL REPORT OF THE PROCEEDINGS IN GENERAL SESSION,  
1895, OF THE FORTY-SIXTH ANNUAL MEETING, HELD IN  
BALTIMORE, MD., MAY 7, 8, 9, AND 10, 1895.

## MAY 7—FIRST GENERAL SESSION.

The Association convened in the main auditorium of the new Music Hall, and was called to order at 10:30 A.M., by the President, Dr. Donald Maclean, of Detroit, Mich.

Prayer was offered by the Right Rev. William Paret, M.D., Bishop of Maryland.

The President invited all ex-Presidents and Vice-Presidents to seats on the platform, and among those who complied with the invitation were Drs. N. S. Davis of Chicago; Henry O. Marcy, of Boston; W. B. Rogers, of Memphis; Jas. F. Hibberd, of Indiana.

President Maclean then introduced the Hon. F. C. Latrobe, Mayor of Baltimore, who delivered the following

## ADDRESS OF WELCOME.

*Ladies and Gentlemen:*—It is an agreeable duty, in fact, a great pleasure, for me to have the honor of extending to the members of the American Medical Association a sincere welcome to Baltimore. Although by profession a lawyer, no one has a greater or more profound respect for the sister profession of medicine than myself. Both of our callings are occasionally slandered; in fact, some have been bold and had enough to call us necessary evils. I once knew an old lady who had never been sick, who said: "If I should be taken ill send first for my lawyer, then for my doctor, and when they get through with me, go right off for my preacher."

But we members of these learned professions have the proud satisfaction of knowing that among the men who have won honor in the land and who have added to the fame of our people none are more numerous than those who came from the ranks of medicine and law.

We have looked forward, ladies and gentlemen, for some time to the pleasure of your visit. We shall be glad to show you our hospitals, our asylums, our universities, our libraries and colleges, our monuments and our parks, and last, but not least, our city, whose people are ready and anxious to extend to our visitors a kindly and cordial greeting. We especially thank you, gentlemen, for bringing such a large number of ladies with you. Some one has said and, I think, with truth, that a man is always safer in traveling when accompanied by his wife.

If I was a doctor and a patient contemplating visiting another country or great city consulted me on the subject, I am sure I could give him no better prescription. Ladies, I extend to you a double welcome. Should any of our visitors desire to see the seat of the municipal government I offer you a sincere invitation to visit the City Hall. If the ladies will come, I hope they will bring the gentlemen with them.

In the name of this city and its people, I bid you all welcome to Baltimore.

MAYOR LATROBE was followed by Dr. Samuel C. Chew, who, on behalf of the Committee of Arrangements, welcomed the Association for the local profession.

DR. CHEW was warmly received on rising to speak. He spoke in part as follows:

*Gentlemen of the American Medical Association:*—The medical profession of Baltimore tenders to you a most cordial and fraternal greeting. Eight and twenty years have passed since this city was last honored by your presence here, and the changes which in that time have taken place in the Association, and in the world around us, are a measure of the changes—happily advances in knowledge—which have occurred in medical science. Since then a whole generation of physicians has largely passed away. Another generation has come into existence, so that of those active and strenuous workers in the profession who are here to-day many had then not entered it, and some no doubt were unborn.

The old order has changed and yielded place to the new; and, if such difference exists in our Association, how different, too, were our surroundings at that time. In 1866 the population of the United States was 35,000,000; now it is nearly if

not quite, 70,000,000. Baltimore when you were last gathered here, was a city of about 250,000 souls, and now she numbers 500,000. But a more important change in its interest to our profession than mere increase of population is found in the fact that this city has become one of the chief centers of medical education in the country, and as such attracts here about one thousand medical students every year.

Again, at your former meeting here the swell of the storm of civil conflict had not yet wholly subsided; some of its sad results were in many places still manifest and flagrant, and among them was the retardation of medical progress. For, if in the midst of arms the laws are silent, so too, the voice of science is hushed or lowered. Peace is the atmosphere in which she flourishes and achieves her greatest triumphs.

DR. WILLIAM OSLER then reported on behalf of the Committee of Arrangements, and offered the program as the entire work of the meeting. He also announced the following receptions and entertainments:

## TUESDAY, MAY 7.

1. Section Dinners.
2. Reception at Dr. Robert W. Johnson's.
3. Reception at Dr. Howard A. Kelly's.
4. Reception by Dr. Julian J. Chisolm.

## WEDNESDAY, MAY 8.

Hospitals open for inspection: University of Maryland, Baltimore Medical College, College of Physicians and Surgeons, Baltimore University. Reception at Johns Hopkins Hospital, 8 to 10 P.M.

## THURSDAY, MAY 9.

Fête Champêtre at Sheppard Asylum, 5 to 7 P.M. Reception at New Music Hall, 9 to 12 P.M.

The following Clubs offered their privileges to the members of the Association during their stay in Baltimore: Athenaeum Club, University Club, and Catholic Club. To the ladies, "The Arundel Club."

PRESIDENT MACLEAN then delivered his ADDRESS, which was punctuated throughout its delivery with applause.

DR. J. MILTON DUFF, Pittsburg—I move that the thanks of the Association be tendered to the President for his able address, and that it be referred to the Committee on Publication.

Seconded and carried.

DR. A. L. GIBON, Washington, D. C.—I move that that part of the President's Address which pertains to a Bureau of Public Health be referred to the authorities at Washington who are engaged in establishing such a bureau. Seconded.

DR. QUIMBY, New Jersey—In order to make the matter a little more effective, I move, as an amendment, that the portion of the President's Address alluded to be referred to a committee of three, with Dr. Gibon as Chairman, to present it to the authorities at Washington. Seconded.

DR. GIBON—I differ with Dr. Quimby. I do not think the authority of three men would be greater, and I am satisfied to let it go as coming from the President of this Association alone, and in his own words.

DR. QUIMBY withdrew his amendment.

THE PRESIDENT then put the original motion, which was carried.

The Permanent Secretary read a communication from the Judicial Council as follows: Decision of the Judicial Council of the American Medical Association in the case of the Medical Society of the State of Pennsylvania, versus the Trustees of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

"Having examined the testimony brought before it, the Judicial Council of the American Medical Association find some objectionable advertisements have inadvertently appeared in the JOURNAL of the Association and have given the Board of Trustees and Editor of the JOURNAL official notification of the fact.

Signed, H. BROWN, President, *pro tem*.

Attest, JOHN B. ROBERTS, Secretary."

DR. FERROUSON asked if the communication was open for discussion, to which the President replied in the negative, and decided that this action was final.

DR. SOLIS-COHEN, of Philadelphia, offered the following:

*Resolved*, That the report of the Board of Trustees be made the special order for to-morrow, Wednesday, immediately after the report of the Committee of Arrangements, and that it then be referred without discussion to a special committee of three, who shall report on Thursday morning in the place now assigned to the report of the Trustees. Seconded.

DR. E. F. INGALS, of Chicago—I have no objection to that resolution, except this, that the report will not be ready to be made to-morrow.

DR. SOLIS-COHEN—I have introduced that resolution at the request of a number of members of the Association, not only in Pennsylvania but in various sections of the Union. They consider that the conduct of the JOURNAL of the Association is one of the most important subjects which can come before this meeting. They wish it discussed calmly, deliberately, at a certain time, and with accurate data before them.

DR. JOHN B. HAMILTON, of Chicago—Mr. President, I rise to a point of order.

THE PRESIDENT—Please state your point of order.

DR. HAMILTON—The gentleman is not speaking to the question, but is discussing the action of the Board.

DR. SOLIS-COHEN—I am speaking to the resolution. The object of this committee is to digest the report, to consider the criticisms that have been offered publicly, and to further consider what the Trustees have to say in relation thereto calmly, deliberately, without prejudice, and then report to the Association at a time when it can again be calmly discussed by the Association with all the necessary data before it. It is to prevent hasty judgment, favorable or unfavorable, that this resolution is offered. It is offered as a means of peace, as a means of carrying out the will of the Association, as a means of elevating the JOURNAL of the Association to the proud position that it ought to occupy as the leader and not the follower of the medical press of the United States. (Applause.) Therefore we ask that this resolution be adopted.

DR. GRAHAM, of Chicago, also stated, as a member of the Board of Trustees, that the Board would not be able to report at the time mentioned.

DR. J. COCHRAN, of Alabama—I move that the resolution which has been presented be laid upon the table. Seconded.

DR. HAMILTON—I rise to a point of order. The Board of Trustees being a standing Board, authorized by the Constitution of the Association, its report can not be referred to a special committee, except by unanimous consent.

THE PRESIDENT—The point is well taken.

DR. FERGUSON, of Troy, N. Y.—I rise to a question of information. I understand that the resolution offered by Dr. Cohen does not call for a reading of the report of the Board of Trustees, but that it is to be presented to a committee, and then the whole matter goes over, so that the action of the committee can be simultaneous with the actual reading of the report. It is well for the Association to understand this. If there is to be a committee appointed, and that committee is to act upon the report, it is as well that it should be appointed, so that during the preparation of the report they may be taken into the meeting of the Board of Trustees, and then we shall not have to wait until the eleventh or twelfth hour for their action.

THE PRESIDENT then put the motion to table Dr. Cohen's resolution, which was carried.

DR. E. F. INGALS—In order that every member may be satisfied, I would move that a committee be appointed at this time to consult with the Board of Trustees and to make such suggestions as they deem necessary, if there are no objections.

DR. COHEN—That is perfectly satisfactory to us, and I therefore second the motion.

DR. COCHRAN—I desire to say a few words with regard to the resolution. To my mind this is a very important question. It is a proposition to appoint a committee to sit in judgment upon our Board of Trustees. It would seem as if you can not trust the Board; that the Board of Trustees are a lot of bad boys; that they are not fit for the positions they occupy; that therefore you want to appoint a committee to make them behave themselves. I feel that this is dishonoring to the Board of Trustees. (Applause.) If I were a member of the Board and such a resolution was passed, I would immediately resign. It is all child's play to be appointing masters over them. Who is this Board of Trustees? I am going to read the names of men you all know. They are men you respect; they are men who have the confidence of this Association and of the medical profession, as well as of the people of this country. They are not school boys; they are not fellows with shady characters, but men of great reputation. One of them is Alonzo Garcelon. Another is Perry H. Millard. (Applause.) Another is J. W. Graham. (Applause.) Others are E. E. Montgomery, E. Fletcher Ingals, John E. Woodbridge, J. T. Priestley, Joseph Eastman, and David W. Graham. (Loud applause.) Now, you ask to have a committee appointed to supervise the work of these men. I say it is dishonoring to them, and they ought not to submit to it, and as an Association we ought not to put this indignity upon them. I believe in being virtuous; I believe in the ten

commandments, in the Golden Rule, and all that, but there is such a thing as being too virtuous. (Laughter.) I want to say right here, that advertisements of the character that appear in the JOURNAL of the Association appear in every medical periodical that is published in the United States of America—every single one, I believe, certainly the majority of them. These periodicals are all conducted by honorable men, and they are at least a fair sample of the profession, and yet you want to make rules and impose regulations upon the JOURNAL that you do not require anybody else to submit to. (Applause.) There is another point with regard to the Board of Trustees that you might bear in mind, and it is this, that the American Medical Association is not a chartered body. It can not sue and be sued. The Board of Trustees are responsible for the expenses incurred in the publication of the JOURNAL. I have mentioned the names of the gentlemen composing the Board, and I hope this motion will be laid at rest by one vote. I therefore move, Mr. President, that it be laid upon the table. Seconded.

The reading of the resolution was called for, and it was read by the Secretary.

THE PRESIDENT put the motion to table and declared it carried, when Dr. Cohen rose and called for a division. There were 138 votes in favor of tabling the motion and 108 against it. The President then declared the motion carried.

The following was offered by Dr. P. H. Millard:

WHEREAS, Membership in the medical corps of the Navy of the United States from having been, through its high professional attainments, once eagerly sought by graduates of medical colleges, has ceased to be attractive to them, so that it is no longer possible to fill its vacancies; and

WHEREAS, It is believed that this is due to the inferior rank given to entrants to the corps and their assignment, when at sea, to quarters in the steerage, with undergraduates of the Naval Academy and civilian paymaster's clerks, while the young medical officer of the Army begins his career a grade higher and in the commissioned officers' mess; and

WHEREAS, The professional requirements and qualifications, the professional duties and obligations of the medical officers of the Army and Navy are identical; therefore be it

Resolved, That the attention of the Senate and House of Representatives of the United States be invited by the American Medical Association to this inequality, and that the Naval Committees of the two Houses be urged to inaugurate such legislation as shall confer upon the officers of the medical corps of the Navy the same status, pay and emoluments as are now accorded to the medical officers of the Army.

Resolved, That this resolution be printed and copies of it certified by the President and Secretary of the Association, shall be sent to the President of the United States, the Secretary of the Navy and to every member of the LIVth Congress.

DR. X. C. SCOTT, of Ohio—I move that the resolution be adopted as the sense of the Association. Seconded and carried.

The following was presented by the Business Committee:

"The Business Committee requests the Association to direct the officers of the Sections, at their afternoon sessions of Tuesday, to appoint members to serve as substitutes on the Business Committee in place of those who are absent during this meeting of the Association.

"The Business Committee also requests the Association to make this order such as will operate at all future meetings of the Association, or, if necessary, to amend the By-Law relating to the Business Committee to this effect."

DR. JOHN M. DUFF, of Pittsburgh—I move that the request of the committee be granted. Seconded and carried.

A telegram was received from Dr. Rand, of Oregon, asking that the Section on Dermatology and so much of the work as pertains to genito-urinary diseases be consolidated.

DR. HENRY O. MARCY, of Boston—I move that this consolidation be made. Seconded and carried.

DR. LEARTUS CONNOR, of Detroit—In order to act intelligently on a definite, distinct and difficult matter, it is necessary to acquire certain information. The information we desire to obtain is this: What proportion of the members of the American Medical Association prescribe proprietary medicines, and what proportion do not? If we can settle this by collective investigations, then we shall know where we stand, and we can definitely understand what the Trustees ought to do in the matter of advertising. If the majority of the medical profession of this Association do not prescribe proprietary medicines at any time, then the Trustees ought not to admit any advertisements respecting them into the JOURNAL; but if they do prescribe them, then the majority ought to rule and the question be stopped. Therefore, I move that a committee of three be appointed who shall take means to ascertain during the coming year the proportion of members of the Association who prescribe proprietary medicines.

DR. A. L. GIBON—If such a committee is appointed, I hope Dr. Connor will be appointed its chairman. The resolution amounts to this, that one-third of us are either ethically

pure, or that two-thirds of us are practically empirics, whatever we may be theoretically.

DR. EDWARD JACKSON, of Philadelphia—If I rightly understand the matter, it is Dr. Connor's intention to settle the question which has been raised in the Association, and I would move, as an amendment, that we say "secret proprietary remedies." The question at issue is not with reference to proprietary remedies in general. Seconded.

DR. E. D. FERGUSON, of Troy—I do not think it is possible to poll the members of this Association to ascertain just exactly what their conduct is in that respect. There is a broad distinction here which has not been made by Dr. Connor. The fact that a new remedy has been discovered, and that some one outside of the profession has made it proprietary, is not by any means a logical or right interpretation of our Code of Ethics. The questions of proprietary and secret preparations are two very important ones, and we should keep clearly in mind as to whether we prescribe phenacetin, a simple, definite chemic compound, or antikamnia, which I have never done, nor have I prescribed a secret remedy of any kind. Inasmuch, therefore, as this resolution does not in my judgment carry with it a desire to get at the truth, but that it tends to create confusion; that it wishes to bring into the arena the discussion of points that do not properly belong here, I move that the whole thing be laid upon the table. Seconded and carried.

After the various State delegations had been instructed to meet immediately after the adjournment to select members of the Nominating Committee, the Association, on motion, adjourned until Wednesday, 10 A.M.

#### MAY 8—SECOND GENERAL SESSION.

THE PRESIDENT called the Association to order at 10:30 A.M. The minutes of the preceding session were read and approved.

The Permanent Secretary read the following:

Upon the request of the Section of Materia Medica and Pharmacy, the General Business Committee has directed me to inform you that there are in attendance at the meeting of the Association, delegates from the American Pharmaceutical Association, with the request that you extend such courtesies to said delegation as you may deem proper.

Signed, L. D. BULKLEY, Secretary.

DR. HENRY D. HOLTON, of Vermont—I move that the delegates of the American Pharmaceutical Association be invited to take seats on the floor and given the courtesies of the Association. Carried.

DR. OSLER, for the Committee of Arrangements, announced several invitations.

The Permanent Secretary read the list of the Committee on Nominations, as reported from the several State delegations:

#### COMMITTEE ON NOMINATIONS.

Alabama, J. C. Lefrange.	Missouri, I. N. Love.
Arkansas, L. P. Gibson.	Montana, G. W. King.
California, H. B. Ellis.	Nebraska, M. L. Hildreth.
Colorado, J. W. Graham.	New Jersey, I. N. Quimby.
Connecticut, W. S. Watson.	New York, E. D. Ferguson.
Delaware, R. G. Ellegood.	North Carolina, C. J. O'Hagan.
District of Columbia, C. H. A. Kleinschmidt.	Ohio, A. B. Walker.
Georgia, F. Westmoreland.	Oregon, H. R. Holmes.
Illinois, John B. Hamilton.	Pennsylvania, W. M. Welch.
Indiana, J. L. Thompson.	Rhode Island, W. R. White.
Iowa, J. T. Priestley.	South Carolina, T. J. McKie.
Kansas, M. B. Ward.	Tennessee, J. C. Reeve.
Kentucky, T. B. Satterwhite.	Texas, S. E. Hudson.
Maine, T. W. Foster.	Vermont, D. C. Hawley.
Massachusetts, A. H. Tuttle.	Wisconsin, W. H. Washburn.
Maryland, G. H. Rohé.	U. S. Navy, T. C. Walton.
Michigan, D. Laferte.	U. S. Marine-Hospital Service, G. W. Stoner.
Minnesota, P. H. Millard.	

DR. GIBON, Chairman of the Rush Monument Committee, read his report, as follows:

#### REPORT OF CHAIRMAN OF RUSH MONUMENT COMMITTEE.

The committee to which has been intrusted the collection of a fund for the erection of a monument to the memory of Doctor Benjamin Rush, in the City of Washington, on the part of the members of the medical profession of this country, as an evidence of their appreciation of the eminent services of this distinguished patriot-physician of the Revolution, begs to report that this fund now amounts to \$3,091.39, of which \$3,000 are invested in bonds and mortgages bearing 5 per cent. annual interest. Your committee regretfully admits that this is but a sorry showing beside the success of the American Surgical Association in collecting all the funds they required for the erection of their projected statue to Dr. Samuel D. Gross, of Philadelphia, and can not but experience a sense of mortification that an association of such limited membership as the latter should have accomplished so much in so short a time, while the entire body of physicians in America, as represented by the American Medical Association, has done so little for this

enterprise, upon which they entered with enthusiasm eleven years ago.

It is almost an ungracious reflection upon the intelligence of the members of this Association to repeat in detail the reasons why a statue should be erected to Benjamin Rush. The most eminent of the living members of our profession have eulogized him as "the greatest physician this country has ever produced," as "the founder of scientific medicine in America"—as "one of the most notable men of his time, whose views were half a century ahead of the times." The great medical authorities of Europe have given him unstinted praise as the American Fothergill, the American Sydenham, the American Hippocrates—best of all, as the American Rush. It "being unjust," says this eulogist, "to compare him with any other." Go to the Department of State at Washington and ask to see the Declaration of Independence, which converted thirteen British colonies into thirteen sovereign American States, and you will read the name of Benjamin Rush written upon it one hundred and nineteen years ago, that of the only practitioner of medicine who signed that immortal document, and for that act alone we, practitioners of medicine, ought to commemorate him by this monument. Or, read the proceedings of that convention which framed the Constitution that bound these thirteen sovereign American States into this United States of America, and again you will see the handwriting of Benjamin Rush, of Pennsylvania. The history of the United States records this man as one of the most active, fearless and pronounced of its rebel founders. In committees, in conventions, in the Continental Congress, to which he was elected when timid men fell out, Dr. Rush was conspicuously present and his eloquent voice was heard in a cause which meant the freedom of his country or his own death by the halter. In the early history of our profession in America the name of Rush is so interwoven with the warp of events that it is an ever prominent figure in the fabric. He was a civilian practitioner, hospital physician and military surgeon; he was the standard authority among alienists, at home and abroad, down to our very day; he was an advanced sanitarian before hygiene was admitted to be a legitimate branch of medicine; he was a thoughtful epidemiologist in his youth, when other youths had not yet quit their rudiments. Eloquent as a lecturer, unrivaled as a teacher, prolific as a writer, a professor at 24 in that great school which he did so much to make great, he died, practicing his profession, at 68 from typhus pneumonia, while fearlessly encountering, studying and combating the frightful pestilence of 1813. Many of you have liberally contributed to monuments to generals, slain upon the battle-field, but was there ever a soldier who faced a deadlier foe than this, with greater courage than his, or died more bravely, honorably and gloriously than he died, trying to save other men's lives, instead of seeking their slaughter.

Where in the long line of our professional worthies can you find one more worthy of being portrayed to posterity as the representative physician of America? He studied medicine as thoroughly as it could be studied at that day, giving seven years to it after receiving his degree of Bachelor of Arts; he taught medicine to more than two thousand private pupils; he was a part of the social life of the community in which he was established, and by which he was regarded as a wise counselor, intrepid and undaunted in public assemblies during the critical birth-throes of the Republic, and as brave a soldier as ever honored the uniform he wore. Whether in his boyhood, his adult manhood, or his always virile old age, through his whole career and in the circumstances of his death, the profession of medicine will find only something honorable and something to honor. He, and he alone, impersonates the principles this monument is intended to weld in imperishable bronze. Fortunately, sadly, in his splendid portrait, painted soon after Rush's death, the original of which is one of the most treasured possessions of the Pennsylvania Hospital, has preserved for us the benevolent features and dignified form of this great, good doctor.

Your committee does not seek to detract in any measure from the high estimate of that grand surgeon—"the father of American surgery" he has been aptly termed—whose projected statue is an accomplished fact, and the Chairman of this Committee has, least of all, the thought of minimizing in any degree one whose personal relations with him were of a peculiarly affectionate character, but, according him all praise, and rejoicing that he is to be so commemorated, your committee reminds you that he was of our own day, while Benjamin Rush was one of the fathers of the Republic, whom Gross himself regarded with reverential and respectful homage.

Were your committee less earnest and enthusiastic in the belief that the monument to be erected to this greatest of American doctors should be one befitting a body of professional men, now numbering about one hundred and ten thousand, it would advise that the \$3,000 in its hands be expended for a simple bust to stand upon a plain granite pedestal, but it is unwilling by doing so to make ineffaceable record of the fact that this great army of one hundred thousand members of the noblest of the learned professions was unable or unwilling to contribute more than an average of less than three cents apiece to honor a man of whose like but one in a century appears in the history of a nation, and especially does it shrink from this conclusion of its work since the successful completion of the undertaking of the young association, which numbers but one in every thousand of the medical fraternity of the country, and which was only organized four years before this body unanimously and enthusiastically

"Resolved, that this Association undertake to erect a statue to Dr. Benjamin Rush, in the City of Washington, by the members of the profession of medicine in the United States."

It is to the infinite credit of the members of the American Surgical Association and their supporters that they have thus honored one who deserved all honor from his colleagues, pupils, friends and admirers; it will be to our infinite discredit if we do less. As Chairman of the Rush Monument Committee, I can and do most heartily congratulate my old and highly esteemed friend, Professor Mastin, of Mobile, the Chairman of the Gross Monument Committee, and I hope to be able to accept the cordial invitation he has already tendered me to witness the unveiling of a work, which has been with him and his associates, a veritable labor of love. There need be no envy of their success, on our part, but only increased incentive for us to do what has become with every year that has passed, a more solemn duty for us, and an increasing labor of love.

It is quite a different matter than fraternal emulation, when it is announced that a monument to Hahnemann is soon to be erected at the National Capital, and if the beautiful artistic design for that monument which I have seen, shall be adopted and executed, more than ever will it be incumbent upon the physicians of America to place no inferior memorial of their own great archrival beside that of a foreign theorist, whose vagarious travesties of medical truth have at most served to enrich a few pseudo-physicians, who have been willing either ignorantly, unconsciously, or deliberately to mountebank medicine for the gain it has brought them. With such a rival in the field, it behooves us to be up and doing, and we come now to ask your very serious, thoughtful consideration of the ways and means of doing. The spasmodic contribution of a few dollars by a few individuals, under the influence of

personal appeals, at these annual meetings is not enough. A few days ago I completed forty years' service as a commissioned officer in the Navy, and in a few months the legal limitations of age will retire me from active service, and I can never again appear before you as the official representative of a corps with which I have been identified for nearly half a century; nevertheless, I am willing to make the erection of this statue the earnest effort of my future, as it has been my past, but I beg of you now, if you believe this work can be more speedily and satisfactorily accomplished in other hands, to relieve me of the charge, since if I am to continue this work, it must be done with no longer delay, for at three score and two, no man can count upon years, or months, or days, ere his name shall be called on the muster-roll of the dead. Already since the inauguration of this project, Austin Flint, your honored President, who appointed the original committee of seven, and three of these seven, Henry H. Smith, of Philadelphia, Robert A. Kinlock, of Charleston, and John C. Murphy, of St. Paul, have gone beyond the possibility of witnessing its completion, as have Lewis P. Bush, of Wilmington, Del., Surgeon M. K. Taylor, U. S. Army, of Fort Sill, Ind. Ter., and I fear one or two others of their successors from whom I have not heard.

I, therefore, submit to you to decide at this time, and there is no more important subject for your consideration at this meeting, what you, members of the American Medical Association, and you, delegates, who are here representing National, State, county and municipal organizations all over this country, are willing to do as active coadjutors in this effort to erect a monument to Dr. Benjamin Rush, as illustrative of all that is great and good in medicine, and typifying at the Capital of the Nation the part that our noble profession has had in the foundation of this great Republic.

Your committee should be reorganized and enlarged by a representative from every National, State, Territorial and district organization, these to act severally as chairmen of sub-committees, composed of members from each county, municipal and local society in their respective departments, States, Territories and districts. An efficient working general committee must be composed only of members willing to discharge their onerous duties. The experiment of issuing a coin-card to individual physicians, with a printed appeal for the inclosure of a silver half-dollar, and a prepaid return envelope, has already been practiced with unsatisfactory result. Perhaps personal letters to every medical practitioner in the Section of the several members of the committee, inclosing an appeal for contribution, and a prepaid envelope addressed to the secretary of the committee, may bear better fruit, but the immediate expense of printing and distribution will have to be borne by the Association upon vouchers certified by the chairman and secretary of the committee, the sums thus advanced to be subsequently refunded annually from the amounts thus collected.

After the reading of the report, Drs. Henry D. Holton, W. H. Daly and John A. Wyeth made eloquent appeals for subscriptions looking toward the erection of the monument, and a number of members subscribed various sums.

DR. HOLTON then moved that the report be accepted, and that the thanks of the Association be tendered to the Committee for its work. Seconded.

DR. I. N. QUIMBY, of New Jersey, moved, as an amendment, which was accepted, that the report be published in the JOURNAL. Carried.

DR. J. W. HOFF moved that each delegate to the Association be appointed a committee to collect funds for the Rush Monument from their fellow practitioners and transfer the amounts to the Treasurer of the Committee on Rush Monument at as early a day as practicable. Seconded and carried.

The President then called for the reading of the Report of the Permanent Secretary. The report was read, and is as follows:

#### REPORT OF THE PERMANENT SECRETARY.

*Gentlemen:*—In obedience to the instructions adopted at your last meeting, the inclosed circular was sent to the several State medical societies, and also to each county or district society known to be in affiliation with these. As yet, I have to receive replies from a number, but I have been able to obtain sufficient data to report quite fully on that part relating to the first resolution. There appears to be a general awakening in nearly every State, and several have set on foot earnest efforts to increase not only the membership of the State body, but to produce an improvement in that line in the respective local societies. Notably I may mention Pennsylvania, which has appointed a committee to attend to this matter, and already two societies have been revived and made efficient, and many others have much increased their membership. The interests of the American Medical Association have also been kept in sight, and all who were not connected with it have been urged to join.

In the matter of arranging the dates of meeting so as not to interfere with the meetings of this Association, nothing has yet been done, though I have addressed a second communication in certain instances urging attention to this and to the subject of "a uniform standard of professional requirement for admission to the practice of medicine and to aid as far as possible, in advancing the scientific status of the same by the appointment of State Examining Boards, independent of the teaching faculties of the medical colleges." I hope next year to report that action has been taken at least by some on this very important matter.

The several State medical societies through their secretaries have furnished me the following information:

Alabama: An auxiliary society in every county in the State, 66. Generally the best men in the county are mem-

bers. Membership in the county society constitutes membership in the State association. In all, 1,067 members.

Illinois: Membership 695.

Idaho: Membership 35.

Iowa: Membership, 600. Fayette County, 34; Cherokee County, 22; Clinton County, 34; Washington County, 22; Southwest Iowa, 58; Harrison County, 7; Dubuque Medical, 30; Cedar Valley Medical, 139; Council Bluffs Medical, 19; Botna Valley Medical, 31; Wapello County, 26; Story County, 17; Medical Association N. W. Iowa, 33; Big 4 ("Four"), 41; Warren, 15; North Iowa Medical, 30; H. and S. Medical, 9; Iowa Central, 30; Lyon County, 13; Central District, 49; Jackson County, 14.

Kentucky: Membership 455.

Louisiana: Membership 386.

Maryland: Membership 456.

Massachusetts: 2,000. Barnstable District Medical, 25; Berkshire, 50; Bristol North, 40; Bristol South, 60; Essex North, 80; Essex South, 120; Franklin, 25; Hampden, 90; Hampshire, 40; Middlesex East, 40; Middlesex North, 90; Middlesex South, 245; Norfolk, 210; Norfolk South, 25; Plymouth, 50; Suffolk, 470; Worcester, 130; Worcester North, 40.

New Hampshire: Membership 290.

New York: (State Medical Association). King's County, 100.

North Dakota: Membership 200. Cass County, 25.

Pennsylvania: Membership, 1,300. Allegheny County, 200; Armstrong, 21; Beaver, 30; Berks, 50; Blair, 52; Bradford, 21; Bucks, 41; Butler, 33; Cambria, 34; Carbon, 19; Centre, 23; Chester, 31; Clarion, 24; Clearfield, 23; Clinton, 24; Columbia, 20; Crawford, 22; Cumberland, 23; Dauphin, 43; Delaware, 36; Elk, 16; Erie, 30; Fayette, 44; Franklin, 31; Greene, 13; Huntingdon, 18; Indiana, 17; Jefferson, 35; Lackawanna, 49; Lancaster, 92; Lawrence, 16; Lebanon, 13; Lehigh, 34; Luzerne, 73; Lycoming, 57; McKean, 11; Mercer, 28; Mifflin, 16; Montgomery, 56; Montour, 15; Northampton, 51; Northumberland, 31; Perry, 22; Philadelphia, 639; Schuylkill, 58; Somerset, 24; Susquehanna, 30; Venango, 32; Warren, 26; Wayne, 18; Westmoreland, 67; Work, 31; Washington, 40.

Rhode Island: Membership 248.

Vermont: Membership 192.

Wisconsin: Membership 400.

District of Columbia: Membership 370.

Arizona: Membership 40; Mariposa County, 20; Yavapai County, 10.

In addition to the replies received from the State societies, a large number of county or district societies have sent me very full reports. Several of these appear to have taken hold of this subject with enthusiasm, and are determined to enroll in their ranks every eligible member of the profession practicing in their bounds.

The following States have the county or district societies in affiliation:

Alabama, full list of societies; Arkansas, only partial list; California, 20 counties; Colorado, 9 counties; Connecticut, 8 counties; Illinois, 50 local societies; Indiana, 70 counties; Iowa, 21 county and district; Kansas, 1 district; Kentucky, no list; Maryland, 3 districts; Massachusetts, 18 districts; Michigan, 20 districts; Minnesota, 3 counties; Montana, 1 district; Nebraska, 15 districts; New Jersey, 21 counties; New York, 2 counties; Ohio, 54 districts; Pennsylvania, 54 counties; this State has 2,500 members in affiliation; South Carolina, 6 counties. Of none of these have I been able to secure anything certain; Tennessee, no information, though I am assured that a number of district societies are in affiliation; Texas, 30 districts are reported, but only a few have replied to my inquiry; Utah, no State body, 2 district societies; West Virginia, 1 society.

The following States have only State medical societies. Any local societies that may exist are not in any way connected with the State society:

Delaware, Florida, Georgia, Idaho, Louisiana, Maine, Mississippi, Missouri, Nevada, New Hampshire, New Mexico, North Carolina, Oregon, Rhode Island, South Dakota, Vermont, Virginia, Washington, Wisconsin.

In addition, the Territories of Arizona, Indian and Oklahoma have Territorial societies. Medical Association of the District of Columbia.

Should a future report of this nature be demanded, I hope to be able to give the membership in numbers of each State body, and with it the number of eligible physicians in each State.

Respectfully, W. B. ATKINSON, M.D.

On motion of Dr. Quimby, the report was accepted.

THE PRESIDENT—We will now listen to the report of the Treasurer.



The Treasurer, Dr. Henry P. Newman, of Chicago, then read his report as follows:

# TREASURER'S REPORT.

In submitting my first annual report as the Treasurer of the American Medical Association, I desire to offer a word of explanation in regard to some matters which have, perhaps, been less satisfactory than could be desired, and a word of suggestion as to the furtherance of our mutual interests.

At the time of my election, last June, the business pertaining to this office came at once into my hands, while I did not receive the books of the former incumbent until two months afterward. This delay created so much confusion in matters of record and book-keeping that it was found impossible to reduce the office work to a system immediately. And when the books were received, the task of comparison and revision, augmented by the ever increasing current work, became very onerous and required careful personal attention supplemented by the aid of a clerical expert to bring about a smooth adjustment of our running gear.

It is now generally known that the office of the Treasurer has been moved to Chicago and there should be no more cause to complain of the carelessness of members continuing to send in their dues to Philadelphia, causing the former Treasurer unnecessary labor and annoyance, and more or less confusion in their individual accounts.

The clerical difficulties arising out of these conditions are lessening with the passing of the year, and with the adoption of a new method and the cooperation of the members will soon be impossible altogether.

Having made the financial interest of the Association a careful study since my incumbency and endeavored to reduce the business of the office to as practical, accurate and economical a basis as is possible, I have these suggestions to make with the view of simplifying our methods, and at the same time attaining the greatest possible efficiency.

In the first place, I would strongly urge upon the Association the expediency and the necessity of changing the fiscal year, which now runs from June to May, or May to June, shifting according as the meeting is held in the North or South, to coincide with the calendar year, subscriptions running in future from January to December inclusive.

Many members who have paid toward the close of the past year, (in March or April), their subscriptions being past due, make the quite natural mistake of supposing that they are paying for 1895-96.

This necessitates much correspondence and some misunderstanding on the part of individuals, and I feel sure that a change of the fiscal year would result in nothing but benefit to the Association.

The next suggestion has in view the abrogation of the so-called "three-year rule," by which members are kept in good standing two years after their subscriptions have expired. This is no doubt with generous and kindly intention, but it is manifestly unfair to those who pay annually and whose contributions support the institution with all its benefits and privileges.

There are always in any body of men the few who would be inclined to take advantage of such lenience, and in the minds of such there seems to be an impression that the dues of this Association are payable only once in three years.

In conclusion, I would congratulate the Association upon the excellent financial showing of the past year, the receipts being for the eleven months proportionately greater than those of any other year, notwithstanding the small meeting at San Francisco.

This surplus has been, I believe, judiciously expended in the better equipment of our representative JOURNAL which is fast becoming one of the leading publications of the medical world, and to the circulation of which, and to the efforts of its able Editor, the growing success of the Association is largely due.

Respectfully submitted.

DR. H. P. NEWMAN, Treasurer, in account with the American Medical Association.

1894.	Dr.	
Aug. 11.	To cash, Dr. R. H. Plummer, from delegates and members at San Francisco meeting . . . . .	\$ 2,134.91
" 21.	To cash, Dr. R. J. Dunglison, former treasurer . . . . .	6,565.78
1895.		
Apr. 30.	To cash, Journal A. M. A., advertising contracts, subscription fees, etc., etc., to date . . . . .	15,425.74
" 30.	To cash, Journal A. M. A., insurance for damage to Journal office by fire . . . . .	579.00
" 30.	To cash, dues paid by members to date . . . . .	10,560.67
Total . . . . .		\$35,266.10

1894.	Cr.	
July 10.	By cash, Dr. Perry H. Millard, Trustee, expenses of attendance at annual meeting, San Francisco . . . . .	\$ 110.00
" 24.	By cash, C. F. Johnson, stenographic work at San Francisco meeting . . . . .	250.20
" 25.	By cash, Dr. E. E. Montgomery, Trustee, expenses of attendance at annual meeting, San Francisco . . . . .	170.25
" 27.	By cash, Wm. Whitford, stenographic work for Journal A. M. A. . . . .	15.50
" 28.	By cash, Casey & Sons, desk for Treasurer's office . . . . .	40.00
Aug. 20.	By cash, dies, stamps, etc . . . . .	5.95
" 21.	By cash, book for membership roll . . . . .	9.00
" 28.	By cash, Dr. E. F. Ingals, Trustee, expenses of attendance at annual meeting, San Francisco . . . . .	55.00
Sept. 5.	By cash, Western News Co., letter press, etc . . . . .	10.42
Oct. 30.	By cash, postage to date . . . . .	110.00
Nov. 27.	By cash, Dr. C. G. Conegys, expenses on Committee of Secretary of Public Health . . . . .	45.20
" 27.	By cash, Dr. E. F. Ingals, book-keeping expenses . . . . .	3.50
" 28.	By cash, Dr. A. Garcelon, Trustee, expenses of attendance at Trustees' meeting, Chicago . . . . .	119.00
Dec. 12.	By cash, Treasurer, clerk hire to date . . . . .	125.00
" 31.	By cash, Eagle Stamp Works, stamp and numbering machine . . . . .	9.85
1895.		
Mar. 1.	By cash, Western News Co., letter press desk . . . . .	6.01
" 4.	By cash, Dr. I. E. Atkinson, advance payment on rent of hall at Baltimore for May meeting . . . . .	50.00
" 5.	By cash, Dr. J. W. Truworthy, Los Angeles, Cal., dues in excess refunded . . . . .	5.00
" 30.	By cash, Dr. Wm. B. Atkinson, Secretary, expense account . . . . .	195.44
" 30.	By cash, Dr. H. P. Newman, Treasurer, sundries to date . . . . .	19.50
Apr. 2.	By cash, postage . . . . .	50.00
" 30.	By cash, Treasurer, clerk hire . . . . .	135.00
" 30.	By cash, expense account of Journal A. M. A. to date . . . . .	29,344.97
" 30.	By cash, balance on hand . . . . .	4,381.28
Total . . . . .		\$35,266.10

Approved by the Auditing Committee.

On motion, the report was accepted.

The Business Committee presented the following:

To the American Medical Association:—Recognizing that one of the main functions of the General Business Committee, as defined in the By-Law creating it, is "to promote the welfare of the Sections," your Committee took under consideration the proposed amendment to Article 11 of the By-Laws, relating to the creation of a Section on Orthopedic Surgery.

After a full and careful consideration of the matter the following resolution was adopted:

Resolved, "That in the opinion of the General Business Committee, the organization of a Section devoted to Orthopedics is not expedient."

Signed, L. D. BULKLEY, Secretary.

On motion the report was adopted.

The Permanent Secretary read the following:

## COMMUNICATION FROM THE SECTION ON STATE MEDICINE.

BALTIMORE, MD., May 7, 1895.

To the President and Members of the American Medical Association:—The following suggestion embodied in the address of the Chairman, Dr. Liston H. Montgomery, read before this Section this afternoon, was upon motion unanimously adopted, and referred to the General Session of the Association with the request that it be read there, and that similar action be taken regarding the appropriation as follows:

"Permit me to suggest that we advise and recommend to the Association in General Session, ere its final adjournment, that the perpetuity of the Special Committee appointed by the American Medical Association, be continued, to memorialize Congress to establish another branch of the Federal Government, to be known as the Department of Public Health with a Medical Secretary of same. That this committee be clothed with additional substantial authority and with the request also from this Section that sufficient financial aid from the Treasury of the Association be appropriated, which should not be less than \$1,000 for the ensuing two years to defray the necessary expenses of the said committee."

Very respectfully submitted,  
CHAS. H. SHEPARD, M.D., Secretary.

It was moved and seconded that the report be referred to the Business Committee.

DR. JOHN B. HAMILTON—Mr. President, I move to amend that motion, that so much of the resolution as refers to an appropriation be referred to the Board of Trustees. Seconded.

DR. CONNOR—I think this matter ought to be referred to the Business Committee for consideration in a deliberate manner; then the Association can better understand what to do with it.

DR. DUDLEY S. REYNOLDS, of Kentucky—I move as a substitute, that the report or suggestion contained in the address of the Chairman on State Medicine be referred back to the Section to formulate something more definite for our consideration. Seconded.

DR. LISTON H. MONTGOMERY, of Chicago—I move that the substitute be laid upon the table. Seconded and carried.

The original motion of Dr. Hamilton was then put by the President and carried.

On motion of Dr. E. F. Wilson, of Ohio, it was unanimously

*Resolved*, That this Association most respectfully appeals to the colleges of the country to at once carry into execution the provisions of the four years curricula of study. Be it further

*Resolved*, That we deplore the efforts being made to amend the rules governing the curricula of study in the Association of American Medical Colleges looking to the defeat of the present requirements governing the granting of degrees.

DR. WM. E. QUINE, of Chicago, then delivered the "Address in Medicine."

On motion of Dr. E. S. Talbot, of Chicago, the following were elected members by invitation: Drs. S. A. Hopkins, Boston, Mass.; J. G. Humsen, Baltimore, Md.; W. A. Miles, W. S. Twilley, Jos. Roach and W. J. Waters, of Baltimore.

An invitation was read from the Mississippi Valley Medical Association to attend their session at Detroit, Michigan, in September 3-6, 1895.

On motion, the Association adjourned until Thursday morning, 10 o'clock.

#### MAY 9—THIRD GENERAL SESSION.

The Association was called to order by the President at 10:30 A.M.

MR. THOMPSON, Chairman of the American Pharmaceutical Association, was invited to a seat on the platform.

The Permanent Secretary read the following from the Judicial Council:

BALTIMORE, May 9, 1895.

#### DECISIONS OF JUDICIAL COUNCIL.

The protest of members of the Allegheny County Medical Society of Pennsylvania against the registration of a former member of that society and the appeal of said member against the decision of the Allegheny County Medical Society is referred to the Medical Society of the State of Pennsylvania for adjudication, with privilege of appeal to the Judicial Council of the American Medical Association after said adjudication.

The protest against registration of members of the Cleveland Medical Society is referred to the Ohio State Medical Society for adjudication; the applications for registration are to remain suspended until the case has been adjudicated by the Ohio State Medical Society, and if any member of the Cleveland Medical Society has already been allowed to register his money is to be refunded.

The charges and protest against a physician of St. Louis are not in proper form to come before the Association.

JOHN B. ROBERTS, Secretary of Judicial Council.

The Permanent Secretary began to read the minutes of Wednesday, when Dr. Holton arose and moved that further reading of them be dispensed with. Carried.

DR. E. E. MONTGOMERY, of Philadelphia, read the report of the Board of Trustees.

#### REPORT OF THE BOARD OF TRUSTEES.

BALTIMORE, May 8, 1895.

Mr. President:—The Trustees in presenting their Annual Report, have the honor to direct your attention to the fact that it covers but eleven months, as the meeting of last year was in June.

The receipts from all sources have been . . . . . \$36,245.90  
The expenditures were . . . . . 30,584.82

Leaving a balance on hand of . . . . . 5,361.08

The receipts of the JOURNAL have been:

From advertising . . . . . \$12,545.91  
From subscriptions . . . . . 1,569.75  
From reprints . . . . . 1,674.67  
From cash sales . . . . . 203.21  
From Ins. paid on account of fire . . . . . 579.00

\$16,572.54

Expenditures—By cash, H. P. Newman . . . . . \$16,009.04  
" " Deposit in bank . . . . . 452.77  
" " Expense . . . . . 88.23  
Balance in Office . . . . . 22.50

\$16,572.54

Expenditures by Treasurer . . . . . 29,344.97  
Cost of the JOURNAL to the Association . . . . . 12,772.43

Of this amount \$6,291.24 was expended for new machinery. The JOURNAL now possesses a plant worth about \$10,000.

The Trustees consider the success of the JOURNAL during the monetary depression of the past two years as a subject upon which you should be congratulated. The JOURNAL contains more reading matter than any similar publication in this country.

The favorable outlook for the future, has led the Trustees

to institute measures for the immediate improvement of the JOURNAL through more frequent illustrations and the extension of its editorial scope. The Trustees confidently assert that none of its contemporaries present advertising pages that are as free from objectionable material.

During the year no advertisements of secret remedies have been accepted that were not accompanied by a formula, but to still further comply with what appears to be the desire of a large number of those interested in the highest success of the JOURNAL, the Editor, with the termination of present contracts, has been instructed to accept no advertisements of medicinal preparations, the proprietors of which do not give a formula containing the official or chemie name and quantity of each composing ingredient to be inserted as a part of the advertisement.

The work of the office was greatly discommoded by a fire March 31, the money loss from which has been fully covered by insurance.

The Trustees respectfully recommend that the fiscal year of the Treasurer and the JOURNAL be made to correspond with the calendar year, believing the adoption of such plan will greatly simplify the keeping of the accounts and better enable them to make yearly comparisons. Now, the fiscal year varies from eleven to thirteen months in different years.

In conclusion, the Trustees desire to express their appreciation of the untiring and loyal devotion of the Editor; of the earnest coöperation of the various employees who uncomplainingly have borne the discomforts incident to moving the office, and resulting from the fire which recently occurred in the JOURNAL office. Respectfully submitted,

ALONZO GARCELON, JOHN W. GRAHAM,  
E. FLETCHER INGALS, PERRY H. MILLARD,  
JOSEPH EASTMAN, JOHN ELIOT WOODBRIDGE,  
DAVID W. GRAHAM, E. E. MONTGOMERY.

The report elicited considerable applause during its reading.

THE PRESIDENT—You have heard the report of the Board of Trustees; what will you do with it? Before taking action upon it I have a suggestion to make: This report is a very important one and may require some little time to discuss. We have here this morning the prospects of an excellent address on surgery by Dr. Wheaton, and I fear that if we enter into a discussion of this report many of the members will become tired and leave the hall before the Doctor has a chance to read his address. I know from personal experience that when a man takes the trouble and pains to prepare an address, he likes to have a good audience to listen to him, and I would therefore suggest, with the consent of the Association, that we now hear Dr. Wheaton's address and discuss the report of the Trustees immediately afterward.

DR. SOLIS-COHEN—Mr. President, I object. I do not desire at this time to interfere with, but to facilitate the business of the Association. The Association is to be congratulated, as well as the Trustees, that it can at last stand upon an honest platform. The report deserves our hearty approval. Their work should be emulated. (Applause.) Now we can go forward, when the time arrives, and demand that every other American medical journal shall make its pages clean from the shame of patent medicines, and unless they do this they should not receive the support and subscriptions of the members of the American Medical Association. (Applause.) On behalf of the Pennsylvania delegation, as commissioned by them officially, and unofficially on behalf of the hundreds of members who came to me, as well as of various medical societies, to express their desire that we go forward to cleanse the JOURNAL, I move the approval of the report of the Board of Trustees. (Applause.) Seconded and unanimously carried.

DR. C. A. WHEATON, of Minnesota, then delivered the "Address on Surgery."

On motion, a vote of thanks was extended to Dr. Wheaton for his able address.

DR. W. C. SPALDING, of New York City, offered the following:

Mr. President and Members of the Association:—With the object of increasing the bond of fellowship that already exists in this honorable body, increasing its scientific advancement, and as an incentive to larger membership, the reader has been thinking seriously as to what course we might take in order to make our organization more widespread, more attractive and better attended at our annual meetings.

It has occurred to me that if this honorable body would give its attention to the question of increase and growth, that we can very greatly add to our numbers and, at the

same time, by adopting a comparatively slight increase in our dues put ourselves in such a position that in a few years we may have a local habitation as well as a name, among scientific bodies.

I would like to call the attention of the Association to a plan to which I have given considerable thought, thinking that if carried out it would surely add to our prestige as a body, our good fellowship as a fraternity, our opportunity for clinical and other scientific demonstration.

This plan is to increase the annual dues of each member \$1, which is to go to a purchasing and building fund to be kept until it has reached an amount large enough to purchase the site, as may be agreed upon by this body, when it shall have reached a sufficient amount for a payment upon or a complete purchase of such location as this body by its vote shall determine. What we desire is a fine National hall of our own, to which we may gather annually, with the feeling upon the part of each member that it is ours and is our home to which we shall all gather yearly, and perhaps as the years roll by we may consider the advisability of establishing in connection with it a place of comfort and rest for those of our profession who in giving to others have robbed themselves of the fruits that should have blest their old age, those whose faculties have been dimmed through hard pursuit of relief to suffering humanity, and those who by disease and accident have been disabled from further pursuing their chosen profession, but who in all honorable means have endeavored to advance the cause of scientific healing of their fellow men.

DR. B. B. GODFREY, of Michigan, in accordance with the above, offered the following:

In reference to the foregoing resolution I make the following motion:

That the members of the Association raise their annual assessment \$1, for the purpose of creating a building fund; that the President be hereby empowered to appoint a committee consisting of one permanent member from each State and territory represented in this Association, whose duty shall be to solicit subscriptions to this fund, and act as an advisory board to the trustees of this Association, in reference to the investment of the fund as it shall accumulate. That the President shall appoint the committee in the following manner: as nearly as possible one-third for one year, one-third for two years and one-third for three years, and at the expiration of their terms their successors be appointed for three years. This committee shall report at each annual meeting of the Association the amount of the subscriptions received in their respective territory.

DR. X. C. SCOTT, of Ohio—I move that the matter to which we have just listened be laid over until next year, inasmuch as it is virtually changing the By-Laws of the Association. Seconded.

DR. P. H. MILLARD, of Minnesota—I move, as a substitute, that the whole matter be indefinitely postponed. This Association is the representative body of the profession of America. We have entirely too many associations at the present time and to raise funds for the purpose outlined is not practicable. It is the duty of this Association to father its JOURNAL, to build it up. It is the greatest journal of the Western continent to-day. (Applause.) Its Trustees have been making a struggle financially to put both the JOURNAL and the Association upon their feet, and we desire adequate financial support. The moment we divert funds for the purpose named it will be a sad day so far as the future usefulness of the JOURNAL is concerned. (Applause.)

DR. JOHN B. ROBERTS, of Philadelphia—I move to amend Dr. Millard's resolution, that it be referred to the Business Committee. Seconded and carried.

DR. A. KOENIG, of Pittsburgh—The Board of Trustees having cleansed the JOURNAL of secret advertisements, I rise to move a vote of confidence in the Trustees for their action in now eliminating objectionable advertisements from the pages of the JOURNAL. Long may they live. (Applause.) Seconded.

DR. JOHN B. HAMILTON, of Chicago—I think it is unfair to allow the statement that has just been made to go on record without a little correction and explanation. The question decided on Monday was not a question of approval or disapproval of the Trustees, but whether they should be forced to make a report or not, and whether a committee should be appointed over them, and it is hardly fair to imply that the Association one day approves an act of the Board of Trustees, and then on the next day approves another act of a different kind. The vote of confidence was passed on Monday and again to-day when its report was adopted. I therefore make a motion to reconsider. Seconded.

THE PRESIDENT—If the Association has already voted its good will and confidence in the Board of Trustees, it seems to me it is all that is necessary.

DR. KOENIG—The Association can scarcely go on record as not approving the action of the Board of Trustees.

DR. JEROME COCHRAN, of Alabama—I rise to a question of personal privilege in regard to this matter. The gentleman, who offered the last motion, seems to have had my speech in mind when he made it. When I spoke on a previous occasion, it was not my object to eulogize the action of the Board of Trustees in eliminating the advertisements of private remedies, but to vindicate the Trustees themselves; to have this Association assert that they had placed the matter in the hands of the Trustees; that they were willing to trust the Board of Trustees; that they did not require to have guardians appointed for their guidance in this matter. That was the object of the speech I made. (Applause.)

DR. KOENIG—Three years ago in Detroit the Board of Trustees were requested to exclude objectionable advertisements from the pages of the JOURNAL. They did not do it. Now they have done it. The other day a statement was made that no other journal in the country excluded these advertisements. I know to the contrary, and the journals live, and why should not the JOURNAL be an ideal one, representing the best element of the profession of this country, by excluding quack advertisements from its pages. We do not need their filthy money. We do not want it. (Loud applause.)

On motion of Dr. Cohen, the motion to reconsider was tabled without objection.

DR. E. D. FERGUSON, of Troy, N. Y.—I rise to request a ruling from the Chair on matters that may come before the Association under the head of Miscellaneous Business. It is with reference to amendments to the Constitution and By-Laws, as printed on pages 8 and 9 of the program. (The following are the amendments referred to):

#### AMENDMENTS TO THE CONSTITUTION AND BY-LAWS.

(Offered in previous years and laid over from 1893 and 1894.)

Offered by DR. C. A. L. REED:

Amend Article I, Section 1, of the Regulations, by inserting after the words United States, the words "The Dominion of Canada, Labrador and Newfoundland," and that such other changes be made in the phraseology of the Regulations and By-Laws as to make the same conform to this contemplated enlarged jurisdiction of the Association.

By DR. I. N. QUIMBY:

"That Thursday morning's General Session be omitted, and the time be devoted to Sectional work."

By DRS. JOHN MORRIS and J. G. KIERNAN:

Amend Section 7 of the Constitution entitled, "The General Business Committee," as follows: "It shall be the future duty of the General Business Committee to make and present the nominations for the officers of the Association and its Standing Committees, and recommend the time and place for the meeting of the Association."

"The General Business Committee of the Association shall perform all duties hitherto performed by the Committee on Nominations, which is hereby abolished. All sections of the Constitution and By-Laws, or parts thereof, inconsistent with the amendment are hereby repealed."

By DR. F. F. DOW:

Amend By-Law No. XI, relating to the Judicial Council. The second clause of paragraph 3 shall be amended to read as follows: "The decisions of said Council on all matters referred to it by the Association shall be reported at the earliest practicable moment, and shall be final unless revised by the Association."

By DR. A. B. HOSMER:

"WHEREAS, The constantly increasing number of papers on general surgical subjects presented each year at the Surgical Section of this Association, the reading and even restricted discussion of which prohibit the introduction of any considerable number of papers on strictly orthopedic subjects, which might not prove of universal interest to the general surgeon; and

"WHEREAS, There are already a sufficient and rapidly increasing number of members of the Surgical Section of this Association especially interested in this branch of surgery to warrant it; therefore be it

"Resolved, To amend Article II, of the By-Laws, by the addition under the heading Sections, and after 12, Physiology and Dietetics, the following: 13, Orthopedic Surgery."

By DR. F. F. DOW:

Amendment to the Constitution, to be known as Article VIII, entitled "The Code of Ethics:"

"The relations of the physician to the patient, to the public, and to the profession require that he shall be of good moral character, and in his personal and professional conduct without reproach; that he shall avoid pretense and notoriety; that he shall properly qualify himself for professional duty by broad and liberal studies in letters, sciences and arts; that he shall employ reasonable and reputable methods of practice; that he shall respect the laws of the State; that he shall encourage efficient means for the enlightenment of public opinion regarding the responsibilities of medical men and the relation of the citizen to public health, for the cultivation of medical education, for the promotion of the interests, usefulness, and honor of the profession, for the emulation, concerted action, and friendly intercourse among those engaged in it.

"Substituting the Roman numerals IX for VIII.

"All Articles, By-Laws, and Codes inconsistent with this amendment are hereby repealed."

By DR. J. H. RAUCH:

"That on and after July 1, 1897, no one will be admitted to membership in the American Medical Association who has not studied medicine for four years, and attended four annual courses of lectures of at least six months' duration."

By DR. J. T. PRIESTLEY:

"The entire report on Constitution, etc., as offered in the report of Dr. Holton at San Francisco."

DR. FERGUSON (resuming)—Before I ask the decision of the Chair in reference to this matter, I desire to make one or two statements concerning the amendments and their history at the San Francisco meeting last year. All of the amendments herewith were before the meeting at that place, and by reference to the heading we will find some of them have been laid over since 1893. The amendments were considered at San Francisco, were handled in the various parliamentary ways customary in such matters, and after they had been thoroughly considered and had been acted upon negatively, a final motion was made that all of the amendments to the Constitution and By-Laws and Code of Ethics be indefinitely postponed. Whether any one of these had been up or not at that meeting, the resolution to that effect was broad enough to cover all. Some of the resolutions are entirely impracticable, particularly the one introduced by Dr. Rauch, which would prohibit a large majority of the profession from membership in the Association; that if they should happen to fall out of membership, it would prevent them from ever getting back into it again. In order to simplify matters, I ask for your ruling, sir, as to whether all of these amendments to the Constitution and By-Laws down to the last one (Dr. Priestley's) are not properly before the Association.

THE PRESIDENT—My opinion is that they are not proper subjects for consideration here in the present state of affairs. The course of the Association with regard to them before made it, if not absolutely unparliamentary, at all events, so entirely unwise that it seems to me best to take that course in the matter, and I therefore rule (with the exception of Dr. Priestley's amendment) that they are not proper subjects for discussion at the present time.

DR. COCHRAN—On what different basis does the last amendment stand?

DR. FERGUSON—I am going to explain that. The last amendment, Mr. President, is rather peculiar. It is an amendment to the Constitution, etc., which is extremely indefinite. I know the members of the Association—most of them at least—will recall the whole subject for the last three or four years of our history. It has been incubating since that time. At the San Francisco meeting a large majority of the members voted for indefinite postponement; but we were told from the floor that it was like Banquo's ghost, it would come up and come up, again and again. It would not down. (Laughter.) Some one in the audience at the San Francisco meeting held up his hand, was recognized by the President, and called the attention of the Chair to an amendment to the Constitution. I endeavored to find out what that amendment was. I felt that we ought to know. Some of my neighbors informed me that it was a simple matter; that it had no significance whatever. I went home with that feeling. I read the printed proceedings of the meeting in the JOURNAL, and I had no more light on the subject. Finally, I wrote to the Secretary, and some months after the meeting I found out that the amendment to the Constitution had been but a small slip of paper sent in as the entire report of the committee of which Dr. Holton was Chairman. (Laughter.) Many of you will doubtless recall that that report, as presented at the San Francisco meeting, was not exactly the report as printed in the JOURNAL.

DR. DUDLEY S. REYNOLDS, of Louisville, Ky.—Mr. President, I rise to a point of order.

THE PRESIDENT—The gentleman will please state his point of order.

DR. REYNOLDS—Your entire ruling, sir, is that these amendments are not properly before this meeting, and I hold, sir, that matters not properly before the meeting are not debatable.

THE PRESIDENT—The point is well taken.

DR. REYNOLDS—I now move you, sir, that the amendment offered by Dr. Priestley be indefinitely postponed. Seconded and carried.

DR. COCHRAN—There is another amendment to the Constitution which is not on the program. It belongs to the class of new amendments, and was offered by Dr. Quimby, its object being to strike from the Code of Ethics the clause prohibiting the patenting of surgical instruments. I forget the number of the Section. I move that that amendment be taken up for consideration. Seconded.

DR. N. S. DAVIS, of Chicago—Mr. President, it is certainly with a great deal of reluctance that I ask to be heard for a few moments at this time, not that I regard the subject under consideration of more importance than those that have come before the meeting, but I want to speak a word

or two in regard to what I deem fundamental and essential to the perpetuation, the character, and honor of this Association (applause), which should represent by delegation the profession of this broad country as it was originally designed—a true, representative organization, having in view two grand objects: the promotion of fraternal feeling and social intercourse, and the science and art of medicine. (Loud applause.) These objects and no other advance the science and art of medicine. They carry with them the education of the profession, social intercourse, the mingling and fraternal feeling from all parts of our country, contributing immensely to the status and influence of the profession. Now, in looking over the Transactions and following these meetings from the first convention down to this, with only very few exceptions, almost every year somebody has taken it upon himself to alter our Constitution and By-Laws. He is continually picking up something to find fault with. (Applause.) Now, for heaven's sake we have got a Constitution and By-Laws that provide for a representative body. We have an open door that allows every physician in good standing in his local medical society to become a member—a door broad enough to receive the unanimous indorsement and support of the English-speaking people of the globe. (Applause.) Our Association is founded on the same principle as that of the British Medical Association. No man, who has discovered anything of value as a remedial agent, is allowed to keep it secret. If it is a medicine calculated to do good to humanity, he has to make it known freely to his professional brethren and to the world. (Applause.) Again, if any man devises an instrument that is useful for surgical or other purposes, it is his business to let his brethren know about it. There should be no secrets. (Applause.) It is the province of the physician to alleviate human suffering. I have arisen, Mr. President, to move that all of the amendments to the Constitution and By-Laws referred to be indefinitely postponed. Seconded and carried by a large majority.

Here Dr. J. T. PRIESTLEY arose and offered a new amendment containing some of the same amendments which had been previously disposed of by the Association.

DR. X. C. SCOTT—I rise to a point of order in reference to the amendment just presented. By previous action of the Association all amendments to the Constitution and By-Laws have been indefinitely postponed, and hence no one of those amendments can be re-introduced at this meeting. That sir, is my point of order.

THE PRESIDENT—My ruling is that inasmuch as action has already been taken in regard to the various amendments, they can not be re-introduced at this meeting.

DR. JOHN B. ROBERTS—There is a point here that most of the members do not understand. It is the privilege of every member of the Association, the youngest as well as the oldest, to introduce at any time an amendment to the Constitution, and I, sir, appeal from the decision of the Chair. If I understand the matter correctly, the decision of the Chair is that these amendments can not be brought forward at this time. I will ask the President to state his reasons for such a ruling, and then I will present mine, and then we can vote upon whether the opinion of the Chair shall be sustained.

DR. N. S. DAVIS—I wish to call attention to what seems to me an important point in regard to offering amendments. The habit has grown up of late which seems to imply that anybody has a right to propose an amendment to the Constitution and By-Laws. These amendments are given to the officers, and are then laid over. Nobody knows what they are. Now, my own idea is that no one has a right to propose an amendment to the Constitution, unless that amendment is written out clearly, plainly stating the sections he proposes to amend, and after it is proposed it should be stated from the Chair definitely, who shall ask for a vote to either accept it or to lay it on the table.

DR. W. H. DALY, of Pittsburgh—I concur with Dr. Davis that it is not right for amendments to be laid over to incubate for a year without knowing what they are. The proper way, it seems to me, is to read them and then lay them over.

THE PRESIDENT—I have no objections to the amendments, but when you have voted to indefinitely postpone them, and then move to re-consider the subject, it strikes me as a rather peculiar way of treating the matter.

DR. N. S. DAVIS—The only way in which subjects of the same character can be re-introduced at this meeting, after having voted for indefinite postponement, is to move a reconsideration of the vote of postponement, and then we will get that before us.



DR. JAMES F. HIBBERD, of Indiana—My understanding about the parliamentary rule in regard to this matter is this, that if the matter be a series of resolutions and they are laid over, you can take some part or distinct proposition and consider it, but I do not propose to consider what has been indefinitely postponed. I merely desire to state my recollection of the parliamentary law, which, I believe, is just as I have given it.

DR. A. L. GIBON—It is a rule in mathematics that the greater includes the less.

DR. HIBBERD—That may be where you come from. (Laughter.)

DR. I. N. QUIMBY—Any subject that has been indefinitely postponed during this session, or any amendment germane to it, can not be re-introduced at this time.

THE PRESIDENT—I adhere to my original ruling. Dr. Roberts appeals from the decision of the Chair. I will put the motion of appeal.

A MEMBER—I move that the motion to appeal from the decision of the Chair be laid upon the table.

DR. ROBERTS—You can not lay a motion to appeal on the table. If some gentleman here has seen fit to offer an amendment to the Constitution, I claim that he has a right to be heard, a right to have it read, and then laid over. No President has a right to shut off any member. We can protect him by appealing from the decision of the Chair. The Chair must then state his reasons, and the gentleman who offers the amendment or amendments must also state his objections to the ruling of the Chair. The Chair must then state to the Association, "Shall the Chair be sustained?" It is certainly an unjustifiable proceeding to shut off any man from introducing an amendment to the Constitution which is to lie over. He has a right to have it read, to have it spread upon the minutes, and no President has authority to shut him off. (Applause.)

PRESIDENT MACLEAN then put the motion of appeal, and the Chair was sustained.

THE PRESIDENT—I endeavor to give the members of the Association every possible privilege, and I shall do my best to protect them. If any amendments are to be introduced, they shall be read from the stage and laid over, and voted on at the next meeting. But, gentlemen, I do object to resolutions or amendments being quietly introduced and then laid over as a trap for my successor. (Applause, and cries of That's right!)

The Section on Obstetrics and Diseases of Women reported the following named officers for the ensuing year: Chairman, J. Tabor Johnson, Washington, D.C.; Secretary, Renben Peterson, Grand Rapids, Mich.

The Section on Physiology and Dietetics reported the following named officers for the ensuing year: Chairman, H. Bert Ellis, of Los Angeles, Cal.; Secretary, Henry Salzer, Baltimore, Secretary.

The Section on Dermatology and Syphilography reported the following named officers for the ensuing year: Chairman, L. Duncan Bulkley, New York City; Secretary, T. C. Gilchrist, Baltimore, Md.; Executive Committee, L. A. Duhring, Philadelphia, Pa.; A. H. Ohmann-Dumesnil, St. Louis, Mo.; A. E. Regensberger, San Francisco, Cal.

The Section on State Medicine reported the following named officers for the ensuing year: Chairman, Charles H. Shepard, Brooklyn, N.Y.; Secretary, Elmer Lee, Chicago, Ill.; Executive Committee: for one year, C. A. Lindsley, New Haven, Conn.; for two years, G. W. Stoner, U. S. M.-H., Baltimore, Md.; three years, L. H. Montgomery, Chicago, Ill.

The Section on Neurology and Medical Jurisprudence reported the following named officers for the ensuing year: Chairman, T. D. Crothers, Hartford, Conn.; Secretary, W. J. Herdman, Ann Arbor, Mich.; Executive Committee, Daniel R. Brower, Chicago, Ill.; W. N. Sudduth, Minneapolis, Minn.; W. S. Watson, Fishkill, N. Y.

The Section on Dental and Oral Surgery reported the following officers for the ensuing year: Chairman, R. R. Andrews, Cambridge, Mass.; Secretary, Eugene S. Talbot, Chicago, Ill.; Executive Committee, M. E. Fletcher, Cincinnati, Ohio; Eugene S. Talbot, Chicago, Ill.; A. E. Baldwin, Chicago, Ill.

DR. JEROME COCHRAN, Chairman of the Committee on Secretary of Public Health, reported as follows:

To the President of the American Medical Association:—After the elaborate report made by this Committee at San Francisco last year, our report for the present year need not be very extensive, and we beg to report briefly as follows:

1. Our facilities for doing the important work intrusted to us have been strictly limited by want of funds, the Association having failed to adopt the resolution offered last year

for an appropriation not to exceed four hundred (\$400) dollars to defray the necessary expenses of the committee, so that such expenses as we have incurred have been paid out of our own pockets.

2. In November we addressed a communication to the officers of State and other medical societies and associations urging them to appeal to the members of their respective organizations to write to their members of Congress in both Houses, requesting them to give their support and their votes in aid of the passage of our bill. To this communication we received very few responses. But it was published in a considerable number of medical and sanitary periodicals, and doubtless accomplished some good. A considerable number of medical and sanitary periodicals also published editorial articles in advocacy of the proposed legislation, and these articles have attracted more or less favorable attention among the members of the profession, and have led some of them to appeal to their members of Congress; but not to such general concert of action by the whole body of the profession as we have desired.

3. In December, some members of the committee visited Washington City for the purpose of ascertaining just what could be done toward pushing our enterprise to a successful result. We found a good many members of Congress who promised us their cooperation whenever a favorable time could be found for the consideration of our bill; but all agreed that it would be impossible to accomplish anything during the continuance of the LIII Congress.

4. It is evident from this brief review of the situation, that to secure the passage of our bill to create a Department and Secretary of Public Health, much vigorous work will be required, and in order that this work may be done it will be necessary for the Association to place at the disposal of the committee an adequate amount of money for current expenses. We will have to do a considerable amount of printing. We will have to enlist the active assistance and cooperation of all the State and municipal medical societies. We will have to keep up a very extended correspondence. We will have to enlist the active assistance of the medical and sanitary periodicals of the country. Sometimes, for perhaps months at a time, we will need the services of a competent clerk. It is for the Association to say whether it is prepared for an effort of this magnitude.

To this end we had prepared a resolution recommending an appropriation, but as this object has been accomplished by the action of the Association on the recommendation of the Section on State Medicine, it is not necessary to offer this resolution.

All of which is respectfully submitted.

(Signed by the Committee.)

On motion, the report was received.

DR. J. M. KELLER, of Arkansas—Is there any By-Law as to when the report of the Committee on Nominations shall be made?

THE PRESIDENT—Not to my knowledge.

DR. KELLER—I desire to offer the following resolution:

*Resolved*, That the report of the Nominating Committee shall be made on Thursday morning. I do it for the reason that if we wait until Friday, two-thirds of the delegates will have gone to their homes, and when the report is brought in there are only a few men to vote on it—at least, only a handful of men. Seconded.

DR. DALY—I move that the resolution be referred to the Business Committee.

DR. DAVIS—This proposition is not an alteration of the By-Laws, but simply a resolution as to whether the Committee on Nominations shall report at a definite time each year, and I see no objection to it.

A MEMBER—I would suggest that the mover of the resolution be a little more specific as to time—say after the reading and adoption of the minutes on Thursday morning.

DR. HOLTON—This resolution, if adopted, will cut down our meeting to three days instead of four. (Cries of No! No!) The experience of those gentlemen who have been appointed on the Nominating Committee in the past has been that the committee is usually not able to report on Thursday, and the only way to keep members here is to keep them in suspense, to know whether they have got any office or not.

DR. L. D. BULKLEY—Mr. President, I rise to a point of order. All new matter should be referred to the Business Committee, and their action is to be revised or concurred in by the Association. The Business Committee meets daily to consider matters that come before it. If this resolution is referred to the Business Committee, we can report to-morrow morning.

DR. KELLER—I hope in the future the Nominating Com-

mittee will make its report when most of the delegates are present, and not wait until Friday when a large number have gone to their homes.

DR. QUIMBY—This is a resolution that justly and legitimately belongs to the Business Committee. It is simple in its nature; therefore it is not necessary to go through the red tape to send it to the Business Committee, the Judicial Council, or any other place. The Nominating Committee could have reported this morning.

DR. REYNOLDS—I hope, sir, that you will not rule that the Nominating Committee can not report when it has already completed its deliberations and is ready to do so. I know by precedent, sir, that in former years this committee has made its reports on Thursday morning. We have no law prescribing just what day the committee shall report. I hope, therefore, as the committee is ready to report, that there will be no objections to hearing the report now. (Applause.)

DR. HIBBERD—I move the Committee on Nominations be instructed to report "instantly." Seconded.

DR. BULKLEY—I insist, Mr. President, that this matter should come before the Business Committee as prescribed in our By-Laws.

DR. REYNOLDS—This resolution provides for the future conduct of the Nominating Committee, and Dr. Hibberd's motion is the one I insist upon. We want the committee to report now.

DR. E. JACKSON, of Pennsylvania, asked if the whole thing was not out of order and demanded the ruling of the Chair.

THE PRESIDENT—It is not compulsory that this matter be referred to the Business Committee.

Again, Dr. Bulkley rose to a point of order.

So many motions had been offered that Dr. Cohen asked what was in order, to which the President replied, Dr. Hibberd's motion.

DR. COCHRAN—I think I can offer a solution of the whole trouble. Let the resolution of Dr. Keller with regard to the future action come under the rules of the Business Committee, but that does not preclude the report of the Committee on Nominations being made at this time.

DR. KELLER—I am satisfied to have that done.

The Committee was then asked to report, but the Chairman not being present, no further action was taken.

A report from Dr. J. M. Toner, of Washington, D. C., as Chairman of the Jenner Vaccination Centennial, offering his resignation was read, as follows:

WASHINGTON, D. C., May 8, 1895.

To the President of the American Medical Association:

Dear Doctor:—Owing to continued poor health which renders me incapable of attending efficiently to the duties devolving upon the chairman of the committee of this body, authorized to provide a suitable program of exercises, occupying one day of the session of the meeting of the Association resolved to be held in Washington City in 1896, so as to appropriately celebrate the centennial of Dr. Jenner's discovery, vaccination, I must therefore ask to be excused from this service.

I request this in the interest of this, the most important discovery ever made in medicine, and believing that some more capable chairman will be able to make a brilliant success of this undertaking under the auspices of the American Medical Association, I herewith tender my resignation as chairman of the committee and request that some one else be named for the place. The committee as originally constituted was composed of Drs. J. M. Toner, N. S. Davis, T. F. Wood, J. F. Hibberd and H. D. Didama. The decease of Dr. Wood left a vacancy which I was authorized to fill, which I have done by naming Dr. J. S. Billings.

Trusting that the project of providing for the centennial celebration may be carried forward with success, I remain, dear sir, Your most obedient and humble servant,

J. M. TONER, M.D.

DR. N. S. DAVIS—Dr. Toner, as chairman, has given the subject a great deal of attention while his health permitted, and I think it would be well to wait until we hear the report of the Nominating Committee to see whether Washington will be selected as the place of meeting in 1896, as originally agreed upon.

DR. COHEN—If there is any member of the Nominating Committee present, I move that he be privileged to report in part or in full to the Association. (Cries of No! No!)

On motion of Dr. Millard, the Committee on Nominations was requested to report as to the place of meeting.

DR. J. E. REEVES, of Tennessee, announced that Atlanta, Ga., had been agreed upon.

DR. MILLARD then moved that the meeting of 1896 be held in Washington, D. C. Seconded.

DR. KELLER made a speech in behalf of Hot Springs as the next place of meeting; Dr. Gaston one in favor of Atlanta, and Dr. Howe, of New York, urged the selection of Niagara Falls.

After some discussion, participated in by Drs. Gihon and Keller, on motion of Dr. N. S. Davis the whole matter was laid upon the table till the report of the Nominating Committee was made in full.

THE PRESIDENT—Some action should be taken with regard to the communication of Dr. Toner in which he tenders his resignation.

On motion, the resignation was accepted, and the committee empowered to fill the vacancy.

On motion, the Association adjourned.

MAY 10—FOURTH GENERAL SESSION.

The hour for the opening of the session having passed, on motion of Dr. Taneyhill, Maryland, ex-President Dr. N. S. Davis was called to the Chair. The President and Vice-Presidents were all temporarily absent.

The Permanent Secretary began to read the minutes, when, on motion, their further reading was dispensed with.

PRESIDENT MACLEAN now entered and assumed his duties.

DR. HENRY D. HOLTON, of Brattleboro, Vt., read the "Address in State Medicine."

On motion of Dr. JOHN B. HAMILTON, the thanks of the Association were tendered to Dr. Holton for his able address.

DR. JOHN B. HAMILTON offered the following, which was adopted:

*Resolved*, That hereafter, the Permanent Secretary and the Treasurer shall proceed to the place of meeting one day in advance of the opening session, for the purpose of directing and facilitating registration of members and applicants for membership.

DR. OSLER, of Baltimore, offered the following resolution, which was unanimously adopted:

WHEREAS, This Association learns with profound regret that the "Index Medicus" will cease to appear with the current issue, unless very substantial support is immediately given; and

WHEREAS, We recognize the value to our profession of this most complete bibliography and the loss the profession would sustain if it were discontinued; therefore be it

*Resolved*, That this Association urge its members to individually support this publication with a view to its continuance until such time as more permanent provision can be made.

The Committee on Section on Benevolence reported as follows:

Report of the Committee on a proposed American Medical Benevolent Fund, to be raised by a Section of the Association for the benefit of the Widows and Orphans of Deceased Physicians.

Brief reference may be made to undertakings of the kind in the United States and Great Britain whose aim it is to afford prompt and sure pecuniary help to distressed qualified physicians and their families, especially widows and orphans:

British Medical Benevolent Fund. The President of this Association, founded in 1836, is Sir James Paget, F.R.S. A late report furnished by the courtesy of W. H. Broadbent, M.D., Bart., shows that the whole of the money subscribed is available for the objects of the charity for which the British Medical Benevolent Fund is raised—many of them of utter destitution, and the relief given is not unfrequently all that stands between the recipient and the humiliation of accepting parochial relief. The timely aid thus given has enabled the needy ones to look around and find means for the support of themselves and children. Her Majesty Queen Victoria, the British Medical Association, and the Faculty of Physicians and Surgeons contribute to this fund.

The first Medical Benefit Society in America for the relief of destitute physicians or their families was organized in Boston in 1854. The money distributed to beneficiaries amounts to \$9,340, according to Treasurer Dr. Francis Minot's report for 1891.

Next was founded the American Mutual Medical Aid Association of Kentucky, in which an admission fee of \$10, and annual fee of \$2, secures to the family of a deceased member of the society \$2,500, or to one sick, \$5 per week.

In 1875 was founded the New York Physicians' Mutual Aid Society, membership 350. Dr. Blumenthal, a late President of this society, says of the work: "The grief and sorrow assuaged by their benefactions no figures or words can express." Its most faithful supporters are bachelors of the medical profession.

In 1878 was formed the Mutual Aid Society of the Philadelphia County Medical Society. Dr. Benjamin Lee, a late President, says of this society: "It seeks to remove the

reproach from the profession that they alone of all callings and crafts make no systematic provision for the relief of brethren in distress and for their destitute widows and orphans left dependent on the cold charities of the world."

The Medical Aid Society of the State Medical Society of Virginia levies an assessment of \$1 on the occasion of the death of a member, to be paid over to the family of a deceased physician.

These societies hold annual meetings, and require the applicant for aid to give name, date of graduation, college, means of support and cause of pecuniary distress, and in case of death of a Fellow of the Association, the address and application of the widow or orphans certified by two physicians. It may be added, among prominent physicians in the United States who have given their support and money toward the endowment of a Medical Aid Fund may be named many ex-Presidents of the American Medical Association, viz: the late S. W. Gross, Austin Flint Sr., John Hodgkin, and W. T. Briggs, Prof. N. S. Davis Sr., Lewis Sayre, P. O. Hooper, Henry O. Marcy and the eminent gentleman who at present presides over the Association, Donald Maclean, all of whom have officially declared, "that any practical plan to aid disabled physicians and their families deserves the favorable consideration and support of every member of this Association, and they will gladly favor such an object."

In closing this report your committee will venture the opinion, based upon the facts and proofs above given of the success of the Medical Aid Societies of Massachusetts, of Kentucky, Pennsylvania and of other States, that the time has come for this Association to undertake a like good work according as its wisdom may decide. This appeal your committee would make especially to the Christian physicians of the Association who believe that "pure religion and undefiled before God and the Father is this; to visit the fatherless and widows in their affliction"—and, "if any provide not for his own, and especially for those of his own house, he hath denied the faith and is worse than an infidel."

Finally, your committee believes that if a Section on Benevolence be engrafted upon the Association that ere the close of the nineteenth century its membership will be augmented, its fraternity strengthened and other National organizations, such as the American Public Health, the Surgical and Gynecological, and the Military Surgeons' Associations of the United States will become cordial co-workers with us in this godly duty toward the needy ones of our profession.

Respectfully submitted,

FREDERICK HORNER, M.D., Chairman of Com.

On motion of Dr. Jackson, of Pennsylvania, the report was received, and the committee continued, with instructions to report a feasible plan at the next meeting of the Association.

Dr. E. D. FERGUSON, of New York, Secretary of the Committee on Nominations, read the report of that committee, as follows:

#### REPORT OF COMMITTEE ON NOMINATIONS.

The Committee on Nominations met at 3 P.M., on Wednesday, May 8 and organized by the election of Dr. J. E. Reeves as Chairman and Dr. E. D. Ferguson as Secretary.

After some preliminary arrangements concerning the methods of selecting candidates, etc., the following list of candidates was selected:

President, R. Beverly Cole, California.

First Vice-President, J. J. Chisolm, Maryland.

Second Vice-President, C. Le Grand, Alabama.

Third Vice-President, Augustus C. Clarke, Massachusetts.

Fourth Vice-President, T. P. Satterwhite, Kentucky.

Treasurer, Henry P. Newman, Illinois.

Secretary, Frank Woodbury, Pennsylvania.

Librarian, G. E. Wire, Illinois.

Members of the Board of Trustees: Alonzo Garcelon, Maine; I. N. Love, Missouri; James E. Reeves, Tennessee.

Members of the Judicial Council: N. S. Davis, Illinois; H. D. Didama, New York; John Morris, Maryland; W. E. B. Davis, Alabama; Daniel R. Brower, Illinois; D. W. Smouse, Iowa; M. B. Ward, Kansas, for three years. W. M. Welch, Pennsylvania, for one year.

Address in Surgery, Nicholas Senn, Illinois.

Address in Medicine, William Osler, Maryland.

Address in State Medicine, Geo. H. Rohé, Maryland.

Atlanta, Ga., was then selected as the place of meeting for 1896, and W. F. Westmoreland was designated as the Chairman of the Committee of Arrangements and J. McFadden Gaston, Jr., as Assistant Secretary.

JAMES E. REEVES, Chairman.

E. D. FERGUSON, Secretary.

Dr. G. L. TANEYHILL—I move the adoption of all of the

report except that pertaining to the place of meeting and the election of the Secretary.

Dr. GEO. W. WEBSTER, of Chicago—I second the motion. Carried.

Dr. FERGUSON—With regard to the question of election of the Secretary, the point was raised as to whether the committee should have made any nomination at all. There is provision in the Constitution that the Permanent Secretary shall remain in office until, either by death, resignation, or removal, by a two-thirds vote of the Association a change shall take place. Whether it is proper for the Committee on Nominations to bring up that question each year is a question. Personally, I feel that it should not. I therefore move that that portion of the report pertaining to the Permanent Secretary be not agreed to, and that the present incumbent remain in office.

Several members seconded this motion.

Dr. I. N. QUIMBY—I have a few remarks to make, and I do so with reluctance because I know what I say will be a divergence from some of my best friends; but under the present circumstances, taking all the views into consideration of the long, faithful service of our present Secretary, which has been, gentlemen, thirty-one years and without a single absence in all those times (applause); an unprecedented attendant upon our meetings, we ought not as a scientific body to cast him aside. Let us do justice to our faithful hard-working men. (Applause.) I tell you, Mr. President, that this magnificent Association whose foundation stone is principally the advancement of scientific medicine for the healing of the nation, can not afford to do Dr. Atkinson an injustice. It can not afford to do a single member injustice, whether he be high or low. Let the sentiment of this Association be *fiat justitia*—exact justice and mercy to every one, whether he be high or low, and let this Association sustain the present Secretary, at least for the present. Let us not send him home as though he had some affliction, but let us try and make him feel happy. I therefore second the motion that the present Secretary remain in office in the place of the one nominated.

THE PRESIDENT—Are you ready for the question? (Cries of Question! Question!)

Dr. OSLER—*Fiat justitia* for the Association is all right, but let the quality of mercy be not strained. I stand here and say plainly and honestly before Dr. Atkinson what I and many other members have said behind his back, that he is not an efficient Secretary of this Association, and that we have not found him so. (Hisses, followed by applause.) You may hiss if you will, but I unhesitatingly say that no more important step in advance will be taken by this Association than when it changes its Secretary. (Cries of Question! Question!)

PRESIDENT MACLEAN put the motion that the present incumbent remain in office, and it was carried by a large majority.

Dr. I. N. LOVE—It having been determined that this Association has no power to elect its Secretary, I move that the Constitution be amended, so that in future the Secretary shall be elected annually. Seconded.

Dr. PRIESTLEY—That is the point I offered in my resolution yesterday.

Dr. C. W. BROWN, of the District of Columbia, moved to select Washington as the next place of meeting. This motion was supported by Dr. A. L. Gihon.

Dr. JEROME COCHRAN urged Atlanta, Ga. After considerable discussion in which Drs. Gihon, Gaston, Taneyhill, Cochran, Keller, Quimby, Brown, Daly, Bishop, Reynolds, Scott, Davis, Garcelon, and Love participated, Atlanta was agreed to as the next place of meeting.

Dr. H. BERT ELLIS, of California, offered certain resolutions recognizing the members of the profession in New York regardless of their affiliation with the body which had abandoned the Code of Ethics.

Dr. N. S. DAVIS announced that to entertain these resolutions it would be necessary to alter the Constitution.

THE PRESIDENT decided that these resolutions were out of order.

On motion, Drs. Gihon and Ferguson were appointed a Committee to conduct the President-elect to the Chair.

Dr. R. BEVERLY COLE, of San Francisco, was then conducted to the platform and received by the President, amid much applause.

PRESIDENT MACLEAN, in introducing his successor, said: "It gives me great pleasure not only personally but officially to present to you our next President, Dr. R. Beverly Cole, of San Francisco. In doing so I extend to him the heartiest good wishes for his administration in this honorable office,

and I wish to say that if at the next meeting the members of the Association treat him as generously, kindly and nobly as it has the retiring President, he will be a very fortunate, happy and very proud man." (Applause.)

PRESIDENT COLE then addressed the Association as follows: "I apprehend that no man lives but that he at some time in his life has been overtaken by circumstances which paralyze his powers of expression. Such is my position at this moment. Any member would feel proud of being elevated to this exalted position by such a body of men, representing the brains of our profession of the North and South, East and West. The compliment is one that is not only appreciated by my humble self, but my State will feel that it is the handsomest compliment and the proudest day in her history when it shall be wafted across the continent that I have been elevated to this exalted position. (Applause.) In this there is no egotism involved. I am here as the representative of my State and coast. I would not be here otherwise, and then if it be that her representative is elevated to this position, must it not follow that the State herself will feel proud of this compliment as expressed through her humble representative? I want to say here that I am perhaps one of the oldest members of this Association. Many have been the voyages that I have made, that I might mingle with you, from the far-off land where the sun goes down, but leaves the softening influence of its rays upon her people. From that far-off land many have been the voyages I have made at a cost of three months' time. But there was some attraction for me, and I leave it to you to divine what that possible attraction has been. Since our facilities have increased I have attended the meetings almost regularly, with the exception that there was an interruption for four years of my visitations owing to impaired health. Thank God I have been measurably restored, and that an opportunity has been furnished me to return to the fold and to receive this hearty recognition at your hands.

"In my administration I shall endeavor to rule fairly, impartially, but you may depend upon one thing. I will endeavor to understand clearly and intelligently every question as it may be presented and rely upon my intelligence and interpretation of the law in my rulings. But there will be no hesitation. I shall rule firmly, but to the best of my ability and understanding with the light before me. (Applause.) I beg of you, then, that should it be my privilege and yours to meet at Atlanta next year, I trust I shall have your entire support. You may rely upon me doing my duty. I want you to come to me and give me the benefit of your advice. While in this exalted position, I am, so to speak, a little deity, but I want to tell you that I am but a man, subject to all the infirmities and errors of judgment that characterize other men; yet I feel that I can receive great assistance at your hands by timely advice, and this I now solicit. With these brief remarks I again thank you for the distinguished honor that you have conferred upon my State through this humble individual." (Applause.)

The President then appointed the following delegates to societies abroad: W. H. Daly, J. A. Ouchterlony, I. N. Love, C. G. Chaddock, L. H. Montgomery, A. E. Rockey, I. N. Quimby, and H. H. Bridle.

DR. GEORGE W. WEBSTER, of Chicago, offered the following, which was unanimously adopted:

*Resolved*, That a vote of thanks be tendered to the city officers, the Reception Committee, the Committee of Arrangements, the local profession and citizens, and the public press for the hearty welcome, the magnificent entertainment, the unlimited, spontaneous courtesy and hospitality, the accurate reports of proceedings, during our pleasant sojourn in the Monumental City; also a vote of thanks to the President.

DR. GEORGE H. ROBE, of Maryland, submits the following amendments to the Constitution:

1. After Par. 8, of Article II, insert the following:

"Active members shall consist of such permanent members as have attended three meetings of the Association and shall have all the privileges of delegates, so long as they conform to the regulations of the Association."

2. Insert in line 6, of Par. 6, Article IV, relating to duties of officers:

"He shall, in conjunction with the Local Committee of Arrangements, make complete arrangements for the verification of the credentials of delegates, and for the registration of members. He shall also prepare annually an accurate list of members of the Association."

3. That ordinance No. 18 be amended by substituting "The Permanent Secretary" for "Committee of Arrangements."

THE SECRETARY then read the

#### REPORT OF THE GENERAL BUSINESS COMMITTEE.

Upon the request of the Section on Materia Medica and

Pharmacy, the General Business Committee, recommends to the Association that the work in therapeutics be added to that of the Section, and that the name of the Section be changed to that of the Section on Materia Medica, Pharmacy and Therapeutics.

Upon the unanimous request of the Section on Dermatology and Syphilography, the General Business Committee requests that the name of the Section be changed to that of the Section on Cutaneous Medicine and Surgery, as it is believed that thereby there will be greater interest excited in the work of the Section on the part of the general practitioner.

The General Business Committee indorses the following recommendations from the Section on Materia Medica and Pharmacy:

*Resolved*, That in view of the adoption of the metric system in the U. S. Pharmacopoeia, this Section recommends the more thorough instruction of the students at the medical schools in the use of metric weights and measures, and further recommends that physicians, when writing metric prescriptions, always make use of the signs Grm. and Cc. to distinguish between quantities by weight and volume.

The General Business Committee gives notice of an Amendment to Article —, Section VII, relating to the establishment of the Committee, to the effect that, "officers of Sections shall fill vacancies temporarily in their Executive Committees, to serve on the General Business Committee during the current meeting of the Association."

L. DUNCAN BULKLEY, M.D.

Secretary General Business Committee.

*To the American Medical Association*:—Recognizing their high responsibilities in regard to the sectional and scientific work of the Association, and the need of fostering it in every way possible, your General Business Committee gave long and very careful consideration to the resolution which was referred to it, making the regular time for the reception of the report of the Nominating Committee to be Thursday instead of Friday, as has been the custom. In view of the amendment which has been proposed, devoting the entire day of Thursday to sectional work, omitting the General Session entirely on that day, and for many other reasons, your Committee unanimously resolved that it was not expedient to change the customary date of receiving the report of the Nominating Committee.

On motion of Dr. Cochran, the report was adopted with the exception of those portions which introduce changes in the By-Laws, which must lie over for one year.

The following resolutions from the State delegation of New Jersey were read and adopted:

*Resolved*, That the American Medical Association renews and hereby confirms its long-standing allegiance to and defense of the letter and the spirit of the unamended Code of Ethics and etiquette of the American Medical Association; and further

*Resolved*, That any revision of that Code on the lines hitherto adopted or proposed, should be rejected by every regular practitioner of medicine as being inimical to the honor of the medical profession and subversive of the best interests of the people of the United States.

ALEX. MCALLISTER, Chairman State Delegates of New Jersey.

#### REPORT OF LIBRARIAN.

The following report of the Librarian was offered and accepted without being read in full:

*To the President and Members of the American Medical Association*:—Your Librarian begs leave to submit the following:

During the past year all the books, etc., constituting the library of the American Medical Association have been transferred from Washington, D. C., to the Newberry Library at Chicago, in accordance with the terms agreed upon at a former meeting. A certified copy of this agreement is appended hereto.

The report of the Librarian of the Newberry Library shows that our library consisted of 3,781 volumes, 3,708 pamphlets. In accordance with the terms of our contract, these will be classified, bound, shelved, and for the first time in the history of our Association, be accessible to the profession.

Now that a permanent home and proper care is assured for our books and journals, there is an abiding reason for continued and generous contributions from the members of the Association. Respectfully,

GEORGE W. WEBSTER, Librarian.

*To the American Medical Association*:—The main part of the Library of the American Medical Association, now in the Newberry Library, filled seventy-four cases. It was supplemented by the exchanges of the JOURNAL office for the period, 1890-94, and by the exchanges sent directly to Dr. Webster. A rough count of the volumes and pamphlets gives the following figures: volumes, 3,781; pamphlets, 3,708.

Perhaps 95 per cent. of the collection consists of periodicals, transactions and reports; of which the most of those



published before 1885 are bound. The arrangement of the unbound volumes is not completed; but the work has gone far enough to show that few, if any, of the sets are perfect.

The percentage of single volumes is comparatively small, most of them being old books. Among these are a number of works on cholera. Some of the volumes have been ruined by damp, while others have been mutilated by roughly tearing off the covers; on the whole, however, the books and pamphlets are in a good state of preservation.

Recent exchanges are represented to the number of 250. This includes nearly all the United States medical publications; some from Europe, and many from the Central and South American States. The medical and learned societies of Europe are well represented as are our own State societies. The transactions of these societies are particularly valuable for library purposes.

There is also a good showing of United States medical periodicals, printed early in the century and coming down as late as 1850.

The pamphlets consist largely of reprints from United States medical journals and of the publications of German universities, notably those of the University of Kiel. There are also some early files of insane hospital reports.

According to the terms of the arrangement entered into between the Association and the Trustees of the Newberry Library, the volumes and pamphlets will receive a mark showing the source of acquisition. It is hoped that the members of the Association will continue to manifest their interest in the Library by forwarding to it copies of their works.

J. V. CHENEY, Librarian.

#### THE NEWBERRY LIBRARY AGREEMENT.

It is hereby mutually agreed by the Trustees of the American Medical Association and the Trustees of the Newberry Library that the American Medical Association shall permanently deposit in the Newberry Library its entire collection of books and pamphlets now in the Smithsonian Institution at Washington, or elsewhere, and in consideration thereof the following arrangements are made and agreed upon, namely:

1. That the said books and pamphlets shall be treated by the Newberry Library in all respects as its own, and as it treats its own books, except that in labeling, stamping, or otherwise marking them, they shall, when received, be so marked as to show that they belong to the collection received from the American Medical Association; and the said Association shall never thereafter have the right to remove said collection of books or any part thereof from the custody and control of the Newberry Library.

2. That duplicates or other books may be exchanged or sold at the discretion of the Librarian or Trustees, but that such books received in exchange or purchased with the proceeds of sale shall be marked or stamped as above provided for.

3. That the American Medical Association shall hereafter continue to deposit in the Newberry Library all the books, journals, etc., donated or contributed to it from any and all sources; except those given to reviewers for writing the reviews, and such journals as are needed to keep complete files in the office of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. All such books, etc., shall be treated in all respects as hereinbefore provided concerning the collection at present existing.

4. That the Newberry Library shall defray the expense of transporting the aforesaid collection to the Newberry Library.

Dec. 5, 1894.

THE NEWBERRY LIBRARY,

By EDWARD S. ISHAM, First Vice-President.

Attest: R. B. McCONNEL, Secretary.

GEO. W. WEBSTER, Librarian A. M. A., June, 1894,  
A. GARCELON, President Board of Trustees.

Attest: JOHN B. HAMILTON, Secretary.

The following resolutions from the American Pharmaceutical Association were offered and adopted.

In response to the resolution sent from the American Medical Association, the American Pharmaceutical Association offer the following:

*Resolved*, That the American Pharmaceutical Association condemns the prescribing and dispensing of proprietary medicines; and while the necessity of protecting capital invested in the manufacture and marketing of galenical preparations is recognized, we protest against any system of protection which permits one manufacturer to retain the exclusive control of a pharmaceutical product indefinitely, and regard the law which permits it as opposed to true progress in pharmacy and medicine.

*Resolved*, That the working formula of every pharmaceutical preparation should be published, and a technically correct scientific name given it, so that it may appear in professional literature, find a place in the

Pharmacopœia or National Formulary, and be free to all pharmacists to manufacture and sell.

*Resolved*, That physicians be particularly requested to consult the United States Pharmacopœia and National Formulary in prescribing galenical preparations, and that we request both of these works be made text-books in the medical colleges.

J. M. GOOD,

WILLIAM C. ALPERS.

THE SECRETARY read the following:

#### DECISION OF JUDICIAL COUNCIL.

May 9, 1895.

The papers referred to the Judicial Council concerning the Texas State Medical Association consist of a printed pamphlet severely reviewing the past action of the Texas Association, and a letter from the author, apparently, asking the Committee on Registration to suspend the registration of delegates from the Texas Association until a proper protest can be presented. But as no such protest accompanies the papers received by this council, there is nothing in form ready for the action of the Judicial Council of the American Medical Association.

JOHN B. ROBERTS, Secretary.

By order of Council.

DR. GINON offered the following, which was adopted:

*Resolved*, That the cost of the necessary printing and distribution of circulars for the Rush Monument Committee shall be defrayed by the Association on vouchers certified by the Chairman and Secretary of that Committee.

DR. HERR, of Lancaster, Pa., offered the following, which was adopted:

WHEREAS, Many of our ablest and most honorable members have been Acting Assistant Surgeons in the service of the United States during the War of the Rebellion, occupying responsible positions and subject to the same rules of discipline as commissioned officers, and enlisted men; it is the sense of this society that the Congress of the United States should, by enactment, place them where they honorably served, upon the same plane of distinction as commissioned officers of the same grade; therefore be it

*Resolved*, That this body recommend Congress to enact such legislation as will place all those who served as Acting Assistant Surgeons during the years from 1861 to 1865, and who were honorably dismissed, the same distinction as commissioned officers in the same grade of service.

The Association, on motion, adjourned to meet in Atlanta, Ga., the first Tuesday in May, 1896.

## SELECTIONS.

**Tuberculous Adenoid Vegetations of Naso-Pharynx.**—M. Lermoyez (*Ann. des malad. de l'oreille, etc.*, 1894, No. 10) alludes to some experiences with adenoid growths in the naso-pharynx, which, on examination proved to be not lymphatic, but tuberculous in structure. In such cases the removal of the growths gave only a temporary relief; a return soon followed. In one case a rapid development of tubercle of the lungs followed the operation. The writer proposes in all cases where there may be a suspicion as to the tuberculous nature of the adenoid growths to forestall the operation by a histological examination of a test portion and to complete the operation finally by galvano-cautery in order to hinder the entrance of germs into the opened blood vessels. The subject is quite important, but the writer's material was so scanty that further investigations in this direction are earnestly desired.

**A Case of Tubercular Meningitis, with Recovery.**—(Freyhan in *Deutsche med. Wochenschrift*.) Existing opinions in general are against the possibility of recovery from tubercular meningitis since the brain is only in rare cases the sole point of infection, but a general miliary tuberculosis, as a rule, exists. So much the more interesting is the observation at the city hospital at Friedrichshain in Berlin of an instance of recovery, in which the tuberculous nature of the process was most infallibly shown. The diagnosis was proved by puncture of the spinal canal at the level of the second lumbar vertebra and by drawing 60 c.c. slightly turbid, light colored serum, in the sediment of which was found a scanty number of pus corpuscles and undoubted, deep red, tubercle bacilli, arranged like strings of pearls, whose presence was further assured by numerous control preparations. After the puncture the patient recovered so quickly and uninter-

ruptedly that after three weeks without fever he was able to leave his bed. This case is also instructive with regard to the differential diagnosis between tubercular and cerebro-spinal meningitis. The recovery of a case in which opinion has wavered between these two affections, usually tends to strengthen the diagnosis of cerebro-spinal meningitis. The result of a puncture in connection with the microscopic and bacteriologic investigations is destined to clear the point. Entirely aside from the therapeutic value of this method, it is certain we possess in it a diagnostic resource of the first rank in the differential diagnosis between tubercular and cerebro-spinal meningitis.—*Centralblatt für innere Medicin.*

**Omphalectomy in Radical Operations for Umbilical Hernia.**—Dr. L. Pernice, surgeon to the Deaconess' Hospital at Frankfort, relates in detail an operation on a very corpulent woman for a long-standing, irreducible, umbilical hernia as large as a child's head. The operation was undertaken on account of constipation, pain, and persistent vomiting. The incision was about 25 cm. long, and passed in a semicircle to the left of the umbilicus. A short incision passed to the right of the umbilicus and so completed an oval which was excised with the sac and the margins of the rectus muscle. The inflated intestines were replaced with great difficulty. Then, following Bruns' recommendation of the plan of Condamin, he attempted the suturing in three layers, found this impossible from the tension, and even with the single layer was forced to resort to silver wire, and to use many sutures. The patient did well; stool on the fifth day after calomel; no rise of temperature, except on the eleventh day (38.4 degrees C.), when four days had elapsed without stool. All sutures removed on the sixteenth day. On the eighteenth day sudden dyspnea and cyanosis and she died within fifteen minutes from pulmonary embolism.

"I would especially emphasize that I do not ascribe this death to the method of operating, but to an accident. Although a post-mortem was refused, the diagnosis of embolism seems sufficiently assured. The operation in itself is simple; excision of the umbilicus is easy; replacing of the intestines would not in most cases be hard; but the greatest difficulty in the operation lies in closing the wound. The Condamin method of suturing can not be recommended. On the strength of this one case, I feel compelled to regard the usefulness of this new operation as limited. While in Bruns' case the hernial opening admitted the tips of two fingers, in mine five or six could easily enter, hence it was at least three times as broad. After such an excision the edges of the wound were separated too far to be easily brought together. And when, moreover, the hernial sac has long contained many coils of intestines, and the abdominal cavity has become diminished in size, it will be seen that the difficulty of closing the wound is much increased after the hernial contents have been replaced."—*Centralblatt für Chirurgie.*

**Snegirjoff Steam.**—A new Hemostatic. Preliminary Report. (Clinical Lectures of Professor Zacharyn and the work in the clinic of the Faculty of Therapeutics of the Imperial Univ. of Moscow.) This work of the distinguished Moscow gynecologist deserves special attention. In 1893 he extirpated an echinococcus cyst of the liver which protruded from the left lobe with a base of four fingers breadth. Since the base of the tumor was very thick and he yet wished to remove the entire sac, he tried to divide the pedicle with the actual cautery, but failed completely in stopping the hemorrhage, until at last he filled the wound with gauze as a tampon. The woman recovered. He was convinced, as other surgeons have been, of the inadequacy of our means of hemostasis from the liver. Sutures cut through, mattress-sutures can not always be used, cautery is often insufficient,

so that marpy scraps (Scotch gauze) become necessary. In this way there occurred to him another long known hemostatic.

Seven or eight years before, he had used steam as a cautery and hemostatic in gynecologic therapeutics. After a dilatation of the cervix and curetting, for instance, he passed into the uterus a catheter, perforated at the end, like a sieve, within which was a thin metal tube, connected with a steam boiler supply. The application of steam at about 100 degrees C., for a half to one minute was sufficient for cauterization and hemostasis and this was recognized by the discharge from the catheter of a dark-colored fluid, resembling strong bouillon in appearance. This operation is painless and the patient does not recognize the moment of application of the steam. What happens within the uterus? In the extirpated uterus, at an experimental trial, the mucous membrane immediately afterward appeared scalded, covered with a thin white pellicle. In cases where there was putrefaction, at once all odor disappeared; where the mucous membrane was painful, the pain was removed; if one adds the antiseptics accomplished by the steam, then its full significance is seen; cauterization, hemostasis, anesthetization and antiseptics. All this had long been known to him, but now he turned his special attention to the hemostatic action and conducted a series of experiments on animals with specially constructed instruments: 1, without any loss of blood portions of liver were removed, the animals surviving; similarly, parts of the spleen, the lung, the kidney, the brain; 2, hemorrhage from the cancellous tissue of bone was stopped. The marrow was scalded and reformation of true bone (?) resulted; 3, in a dog it was possible to remove a horn of the uterus without hemorrhage; 4, the femoral artery was severed diagonally or transversely without hemorrhage; 5, hemorrhage from wounds of muscles or skin ceased at once; 6, furthermore, primary union followed. The final experience was not only with animals, but also in operations on man, and even in laparotomies.

In 1893, he used steam in the Alexina Hospital in the following operations: 1, in five cases of resection of the knee-joint, without hemostatic forceps, without a single ligature; 2, in an amputation of the breast for cancer, also without a ligature; 3, in removal of cancerous, lipomatous or cavernous neoplasms of the skin; 4, in amputation of the cervix uteri; 5, in stopping hemorrhage from the pedicle after removal of fibroids; 6, in abscesses for disinfection and stimulation to cicatrization; 7, for hemorrhages from sinuses and fistula (especially in tuberculosis).

On the strength of this, Snegirjoff pronounces steam a powerful hemostatic and antiseptic. Sound as well as diseased tissues, and the organism *in toto* bore the action of steam vaporization well. Primary union was not prevented, the wounds of parenchymatous organs appeared smooth, even shining, at the site of removal of tumor. By way of illustration, Snegirjoff dictated a description of the examination of a dog subsequent to operation: in the region of the left kidney a piece of the left horn of the uterus, 2 cm. long, in which, as in a cyst, was a collection of fluid, was attached to the broad ligament. Over the steamed surface was a smooth cicatrix, pigmented in the center. The lumen of the left horn of the uterus, at the point of excision was firmly closed, in consequence of which the cyst-like collection of fluid resulted. The margin of the broad ligament, along the incision was smooth, even without noticeable cicatricial contraction. The peritoneum was smooth, moist, shining. No pathologic changes in the para-uterine or other pelvic cellular tissue. There were large blood vessels in the broad ligament of the remaining portion of the left horn of the uterus.

In view of this, the surgeon can without fear remove portions of parenchymatous organs. The far-reaching significance of the results thus made public is evident. If the statements are fully confirmed, the work of the active and vigorous Moscow college will bring about a revolution in the whole technique of operations. Steaming would have the greatest value in hemorrhage in laparotomy for extra-uterine pregnancy, in atony of the uterus, after injuries of the soft parts in delivery, after symphysiotomy, in rupture of the uterus, all the operations for cancer, etc.—*Centralblatt für Gynakologie.*

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

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No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.

W. H. LOWDERMILK & CO., WASHINGTON AGENT.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Henry P. Newman, Venetian Building, Chicago, Ill., sending him a certificate or statement that the applicant is in good standing in his own Society, signed by the President and Secretary of said Society. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership.

On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the Editor, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 86 Fifth Avenue, Chicago.

SATURDAY, MAY 18, 1895.

THE BALTIMORE MEETING.

The forty-sixth annual meeting was characterized throughout by great harmony. The Section work has seldom been better managed, and the attendance was larger than the average. The ASSOCIATION, by an overwhelming vote, indefinitely postponed all proposed amendments to the Constitution and there will therefore be none of consequence to be voted upon at the Atlanta meeting.

The vote by which the Secretary and the Treasurer are required to be in attendance one day before the opening session, for the purpose of better organization of the registration, will save much annoyance to the members, and relieve the local committee of much of its burden.

The action of the Board of Trustees in regard to the advertising was the subject of much favorable remark. This action, which appears in detail in the report, was agreed upon at the Chicago meeting of the Board, but as two members were unable to be present at the Chicago meeting, the Board were not ready to report earlier than on Thursday. An attempt was made on Monday to compel them to report at once, and to have a special committee appointed to inquire into its nature, but the ASSOCIATION declined by a majority vote to appoint a committee, the effect of which would have been to create distrust. When the report was made, it was so clearly in the line desired by the mover of the resolution, DR. S. SOLIS-COHEN, of Philadelphia, that that gentleman himself, amidst thundering plaudits of the meeting, moved its adoption in an eloquent speech. This action of DR. COHEN at once proved

the sincerity of his course, and the practical unanimity of all parties composing the ASSOCIATION. Now that the advertising question has been eliminated from further consideration, we sincerely trust that all may work the harder to sustain, support and improve the JOURNAL. It is due the Trustees to state publicly that the change finally adopted has been gradually going on, for the last year, and as fast as contracts have expired the formula has been required from advertisers of proprietary medicines. It will take some time to bring the remainder into line. The members will please to understand that those carried beyond this issue are only awaiting the expiration of the existing contract.

PRESIDENT MACLEAN still further added to his well-won laurels by the dignity and wisdom with which he performed his difficult duties. In the election of DR. R. BEVERLY COLE, of San Francisco, a tribute was paid to long and faithful service in the ASSOCIATION, recognition of a medical teacher of National reputation, a sanitarian of eminence, and a compliment to the profession of the Pacific coast.

The minutes of the general sessions, which we present in full in this issue, will, we feel sure, be of unusual interest, not only to those members who were present at the meeting, but as well to the larger body of our colleagues who were compelled to remain at home.

The social features of the meeting were quite sufficient to occupy all the time at the disposal of the members and the ladies by whom many were accompanied. Baltimore looked its best. The boulevards are fresher at this season than at any other; the grass and the leaves a more vivid green; the flowering shrubs, the wisteria clusters with their delicate heliotrope coloring, everywhere met the eye, and the fragrance of lilacs pervaded the air. Nowhere in America, except in Washington, does one see cleaner streets than in Baltimore, and if certain sanitarians do occasionally take a fling at the policy which prevents the construction of sewers, it must be admitted that the month of May in Baltimore is a very charming month indeed.

The teachers at the Johns Hopkins Hospital had every opportunity to show to good advantage the high class work they are doing, and that they made full use of the opportunity thus offered was as pleasing to the ASSOCIATION as it was creditable to themselves.

In conclusion, it may be said that those elements which go to make up the *tout ensemble* of a successful meeting of our great ASSOCIATION, viz., harmony, science and social pleasure, the forty-sixth annual meeting possessed in an eminent degree.

Blank Applications for membership in the ASSOCIATION at the JOURNAL office.

## THE WORK OF THE PRINCIPAL SECTIONS.

This number of the JOURNAL is preëminently the ASSOCIATION number, for we have a verbatim report of the discussions and debates in the general sessions, and as well the resolutions passed therein. The bare report of the final action of the body, without a statement of the debate which gave direction, is sometimes unintelligible to those who were not present.

The work of the Sections was in general characterized by thoroughness and enthusiasm. We append a brief review:

## PRACTICE OF MEDICINE.

An unusually large number of papers were read in the Section on Practice of Medicine. The topics were well selected and the authors gave more than usual care to their preparation. We have a pleasure in store for our readers who were not present at the meeting, in the perusal of the papers of this Section.

## SURGERY AND ANATOMY.

The work of the Surgical Section comprised the presentation of forty papers. Of these papers all but ten were read. The latter were read by title, and will be published in the proceedings of the Section. Whereas the range of subjects covered the entire field of practical surgery, a number of special subjects were extensively considered. Among those of special interest were, "The Surgery of the Kidney and Ureters," and "Modern Methods of Cystoscopic Examinations of the deep Urethra and Bladder." Abdominal surgery was further considered in papers and discussions upon, "Appendicitis," "Intestinal Obstruction," and "Surgery of the Gall-Bladder." To accomplish the reading of all the papers, the Chairman of the Section felt it incumbent without favoritism to enforce the twenty minute rule as to the reading of papers, and the five minute rule for the discussions. The good judgment of the Section at large was amply illustrated in discussing particularly those questions which were of paramount interest, and passing, without comment, papers of less general interest and importance. Altogether, the work of the Section was fully equal to the best efforts in the same direction of previous years. If any exception could be taken to this work, with the view of improving Section work for the future, it would be in the number of the papers read. As the Section work is now constituted, the Chairman of the Section is not empowered to refuse volunteer papers. The time must come when all papers will be presented to a proper committee and deemed worthy of a place upon the program before they can be submitted to the Section by their authors. J. R.

## OBSTETRICS AND DISEASES OF WOMEN.

The work of the Gynecologic Section was satisfactory to a high degree. As will be seen from the reports, the papers presented were of an unusually

high order, both as to subject matter and manner of treatment. The discussions were spirited and were led by men qualified to speak with weight upon the points at issue.

The attendance at each session was large and interested, the only drawback to the enjoyment of the meetings being the difficulty of hearing speakers in so large an auditorium, the acoustic properties of which were bad. Withal, the Chairman of the Section, DR. FRANKLIN H. MARTIN, is to be congratulated upon the unqualified success of the department over which he presided. The Chairman-elect of this Section is DR. JOSEPH TABOR JOHNSON, of Washington, D. C.

H. P. N.

## OPHTHALMOLOGY.

The sessions of the Section on Ophthalmology brought together probably the largest number of working ophthalmologists that have ever assembled in America. The restriction of papers to ten minutes, and of remarks in discussion to five minutes for each speaker, was noted to be more effectual in keeping out matter lacking general interest, and in holding the speakers to the point under discussion, than any other means that have been tried.

In arranging the work of this Section all the papers on the same or related topics had been carefully grouped together; and time had been provided for their discussion, and speakers invited to open the discussions. The result was not only that large numbers came to the meeting to attend this Section, but that they closely followed its sittings up to the last day of the meeting.

The series of papers on operations on the ocular muscles; and other methods of treating muscular anomalies; on plastic operations about the eye; and on astigmatism, with the discussions they elicited, will long be remembered by those present. What was felt to be the most serious defect in the program was the arrangement of receptions on the evening of the Section dinner. This annual dinner has become a highly appreciated occasion of reunion; and the feeling in this Section is very strong that in arranging for future meetings one evening, preferably the second, should be devoted entirely to Section dinners.

E. J.

## NEUROLOGY AND MEDICAL JURISPRUDENCE.

The Section on Neurology and Medical Jurisprudence at the Baltimore meeting, had the largest attendance and the greatest number of scientific papers of any previous meeting of the Section. The average attendance exceeded that of any other Section of the ASSOCIATION.

The scientific work was arranged principally in three symposia, to-wit: hypnotism, electricity and epilepsy, and about a dozen papers were read on miscellaneous topics on neurology. The discussions were unusually good, and participated in by some of the ablest neurologists in America.

D. R. B.



## STATE MEDICINE.

The Section on State Medicine had an unusually large attendance. There were thirty-eight papers on the program, twenty-two of which were read. The symposium on alcohol by members of the American Medical Temperance Association was one of the distinguishing features, and the character of the papers was of high scientific value. The appointment of a special commission to investigate the alcohol question will doubtless be hastened by these preliminary discussions in the Section. The Section, as will be seen elsewhere, loyally adhered to the ASSOCIATION movement for the establishment of a Department of Public Health.

## DISEASES OF CHILDREN.

This Section, which has languished for the last two years, sprung into new life under the active efforts of its Chairman, and the meeting this year was the largest ever held. In scientific value the papers were fully equal to those of the Detroit meeting, which up to this time has been supposed to be its best meeting.

## LARYNGOLOGY AND OTOTOLOGY.

The work of this Section exhibits the same general advance in interest that was manifest last year. The attendance was more than three times that at San Francisco, and several of the leaders who of late have been conspicuous by their absence from the ASSOCIATION meetings, were present and warmly welcomed.

## CONCENTRATED FOOD AND ARMY RATIONS.

A ration, in the phraseology of Army Regulations, is the "established daily allowance of food for one man." The regular ration of the United States Army is accepted by all as liberal and satisfactory; but as it may not always be possible to issue it during active service, the question of an emergency ration has been under discussion, for some time back, in Army circles. Recently a practical turn has been given to the subject which promises to yield results that will be of value, not only to the soldier, but to the country at large. GENERAL MORGAN, Commissary General of Subsistence, has invited the attention of the Secretary of War to the want in our service of a special ration to be carried by each soldier and used only when the regular issue can not be made. Such a ration should combine the properties of wholesomeness, palatability, proper nutritive value and portability, and should in addition possess good keeping qualities. MAJOR WOODRUFF, of the Commissary General's office, has elaborated a ration of biscuit and soup tablets, the latter containing the fiber of the meat, which is regarded as furnishing the needful nutritive principles in a minimum of bulk and weight; but before recommending the adoption of this, GENERAL MORGAN desired to have the coöpe-

ration of line and medical officers in considering the question and determining the selection. He therefore suggested that in each of the military departments a board, of one subsistence, one medical and three line officers, be convened to consider and recommend a proper ration for troops operating in emergencies, and that each of these boards give special consideration to the following points: "1, the component parts of the ration selected with regard to wholesomeness, nutritive value and portability; 2, acceptability to taste; 3, keeping qualities; 4, weight, and the kind, size and form of package for convenience of use and of carriage on the person; 5, directions for use; 6, number of rations to be carried by the soldier, and 7, whether these are to be carried at all times as a part of the equipment or to be issued only as required by the probable emergency. If after the reports have been received by the commanding general it should be found that there are material differences of opinion it is suggested that a board of officers be convened at Washington to reconcile these differences if practicable. I also recommend that a sum not exceeding \$100 [and this is the practical part of the recommendation] from subsistence funds be assigned to each board to meet the expenses of materials and preparations thereof in the experiments necessary to be made by it." The Secretary of War has approved the General's recommendation and these boards will speedily be organized.

The emergency ration of foreign armies consists generally of biscuit and meats, pemmican, sausage, stews, soups, etc., put up in hermetically sealed tins and prepared usually at private factories. Of these the pemmican is regarded as the highest concentration, four ounces being considered equivalent to one pound of meat. The meat biscuits, 25 per cent meat and 75 per cent flour, formerly used in the British service were found to keep very well; but as the baking at about 500 degrees Fah. was believed to injure the nutritive value of the meat, their use was discontinued. For some years preserved meats from Australia, Argentina and the United States were used by the British government. Chicago canned beef was regarded by the medical officers of the Netley Medical School as having more than twice the nutritive value of an equal weight of good roast beef. This canned beef with its high nutritive value costs in the United States less per pound than fresh meat, with its large percentage of refuse and its liability to become tainted. Students of domestic economy should make note of this important fact. Germany established canneries as long ago as 1870, and is now able to turn out daily nearly half a million of meat rations. Up to this time France has depended on the United States and Australia for a canned meat ration; but a recent Army Commission has reported against any further con-

tracts for these meats, on the ground that the foreign manufacturers before canning the meat, extract from it a concentrated bouillon from which they make Liebig's extract and solidified soups. They are thus able to underbid French manufacturers who put into their cans every particle of the nutritive elements of the meat. The Commission therefore urges an appropriation for the establishment of governmental canneries.

Beef extracts are not used as emergency rations by any of the governments. The meat fiber is present in all; but in most of the samples, particularly in the patent or cooked rations of various makers, on trial by military authorities, there is an unnecessary amount of water. In some this non-essential water constitutes more than half of the bulk. In the form of biscuit, farinaceous foods appear to approach as near as possible to the condition of water free food. It is therefore mainly to the elaboration of the meat ration that the attention of the boards to be convened at the request of GENERAL MORGAN, will no doubt be directed,

#### PERILS OF THE LABORATORY.

It has been so, since the world began, that the pathologist takes his life in his hand. There are, we believe, far fewer dissecting-room wounds now than before the Listerian era, but the grounds of peril have not been removed; they have been shifted to the laboratory. When one considers the vast army of laboratory workers, however, and the minute and almost unintermittent toil given by many of such workers, is it not strange that more frequent misadventures by infection have not been reported? The rules of all well-constituted laboratories are rigid, and recognized to be in the line of the self-preservation of the workers. These are all very well and yet they doubtless do not, and can not, cover all the points of peril coming from atmospheric infection; take, for example, the ærial carriage of the tuberculous bacillus, in the form of floating floor-dust, after the break-age or upsetting of a tuberculosis culture.

The death of DR. JOHN M. BYRON, of New York Quarantine Station, has recently been reported, and is believed to be an instance of the fatal results of laboratory infection by tuberculosis. His death at the early age of 35 years means the untimely removal from the ranks of the profession of an exemplary scientist, a man who has already achieved a more than local reputation.

DR. JOHN MANUEL BYRON was a Peruvian by birth and a graduate from the University of Lima. After taking his degree he went to Europe and spent several years in study, making a specialty of the diseases originating in bacteria. He visited Paris and Berlin, attended medical lectures, and pursued original investigations in the hospitals. He then went

to Naples, and settled down there to practice. He was proficient in five languages—inclusive of his native tongue, the Spanish. About seven years ago, he took up his residence in New York. He never practiced very much, preferring the life of the laboratory. He was appointed chief of the bacteriologic department of the Loomis Laboratory, and lecturer in that branch in the University Medical College. In addition to this work he was connected with the New York Dispensary. He did not court outside practice, but used all his leisure in the study of his specialty in the Loomis Laboratory, where he gave special attention to the bacterial study of malarial fevers and leprosy. During the cholera scares of 1892 and 1893, he was made the pathologist to the Swinburne Island Hospital, and was isolated there until the cases were all closed by recovery or death. Health Officer of the Port, DR. DORY, had only recently appointed him to a similar but larger line of work, as the bacteriologist of the quarantine establishment of New York Harbor. Concerning his own experience in regard to the onset of tuberculosis, he is reported to have expressed himself as follows:

"I have been making cultures of disease germs for twelve years, and I suppose familiarity with them made me careless, just as a surgeon frequently cuts himself with his knife. You know it was our custom to get the sputum of patients in the hospitals suffering from consumption, and to find this bacteria. These are generally confined in bottles or tubes when not in use, but when we want to put them under the microscope they are spread out on glass.

"One is practically safe as long as they are wet, but when they become dry they fill the air as so much dust, and you can not help but inhale them. It is in this way, you know, that consumption spreads.

"I was somewhat run down last February—in fact, I had never become very strong after my exposure during the cholera scare. I was doing some experimenting with tuberculosis bacteria at the time, and I suppose that some of them had been allowed to dry—how, I don't know—but it may be that some were brushed to the floor during our researches, or that the bottles were not thoroughly sterilized, or in any of the thousand and one ways in which carelessness may exhibit itself."

#### ON THE RIGHT TRACK.

The JOURNAL hastens to seize the present promise—before it fades away fruitless—that the opponents of oleomargarine are about to fight that product on legitimate grounds. Bills are pending in sundry State Legislatures to forbid the addition of coloring matter to oleomargarine or any of its variants whereby it may be butter in appearance—"the same with intent to deceive."

This is laudable and proper. Every honest citizen who hates sham and fraud will join the JOURNAL in applauding such a measure. Let us have our oleomargarine in its pristine purity, like the pearl from which its name is borrowed. Let us have no sailing

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, MAY 25, 1895.

No. 21.

## ADDRESSES.

### ADDRESS ON SURGERY.

Delivered at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY C. A. WHEATON, M.D.

ST. PAUL, MINN.

A retrospective examination of surgical literature since the advent of anesthesia does much to make the thinking student wonder whether the longevity of the human family has been conserved, or its physical welfare materially enhanced by modern surgery. That the operating room has been robbed of its terrors by ether and chloroform is conceded. That the clinical chart no longer presents the erratic markings of the clinical thermometer as influenced by a body aflame with the products of infection, ignorantly permitted to obtain a foothold in the human economy, is also admitted—but has not our feeling of safety, engendered by our acknowledged perfection in surgical detail, opened a wide field of surgical speculation and experiment which serves rather to enrich the surgeon than to minimize disease and prolong life. In my humble opinion the segregation of our professional work is in a large degree responsible for much of the opprobrium which attaches to the over-zealous pursuit of a given theory or special method of doing an operation whose only excuse for being done is the desire to elaborate a hobby. The practice of the various branches of our profession to-day is practically relegated to the different specialties. I would not underestimate or undervalue the great achievements of such men as Senn, Kelly, Price, Polk, and many others in this country, and with such guiding hands as Keith, Tait, Creig, Smith, Treves, Fenwick, Batlin, Heath, and a host of others in the British Islands. With continental Europe teeming with the literature of such medical Nestors as Billroth, Charcow, Virchow, Pasteur, Koch, and the prominent members of the present French school, is it any wonder that we occasionally pause in amazement at the accomplishments of the members of "our cloth" in all the civilized countries of the world, and wonder whether it is not all a chronicle that might have been contemporaneous with the Arabian Nights, or heralded by a Sancho Panza. That this whole magnificent fabric should have been evolved from an intimate acquaintance with the primary cell, whose intrinsic importance is just beginning to unfold itself to the scientific thinkers and workers in the various branches of our art, is harder to conceive and more difficult to believe than the revelations of the Book of Genesis or its associates in the whole autonomy of man.

It is said that "the sovereignty of reason is the sphere of morals; or man's power as possessed of reason to give law to himself." In following this line

of thought he who assumes to dictate the destinies of so many of his fellow creatures should be well caparisoned for the fray and should be symmetrical in his professional growth in order that he may discharge with dignity, proficiency and honor the obligations that fall to his lot as a surgeon. He can not be such an one, unless his professional superstructure is built upon a fundamental basis, such as is born of a thorough knowledge of all the collateral arts and sciences which bear intimate relation to his life work. I believe that the specialist of the future, no matter what avenue he elect to follow, should be a regular graduate in all the branches of medicine, and should serve a sufficiently long period in the field of general medicine to raise him above the level of mediocrity before he assumes to pose on the witness stand as an oracle in nervous disease, or at the bedside to advise for or against an abdominal section. I confess to a feeling of sentiment and regret when I think of the decline of the family physician. There was a time in the childhood of most of us when that functionary was one of the most important adjuncts of the domestic circle—his edict was law—his coming was a pleasure and his going a regret. He was consulted in matters domestic, financial, political, and if his advice was not always heeded it was usually sound and healthful. As the nineteenth century advances he is becoming year by year a greater rarity, and I regret it, for I believe it is from the ranks of such men that our specialists should be recruited. That time-honored quotation from the early Sanscrit is specially apropos in this connection: "A surgeon not a physician is as a bird with one wing." How truthful and full of meaning this old aphorism is—if his surgical growth is not symmetrical, his professional career must of necessity be full of doubt, hazard and disappointment, fraught with wretchedness to himself, danger to his patient, and unjust criticism of his art.

A review of the evolution of surgery as a science since the birth of anesthesia, is indeed a wonderful story. Operative surgery was practically shorn of its terrors and in less than a quarter of a century thereafter, through the agency of Mr. Joseph Lister and his co-workers, the possibilities of surgical convalescence were understood, and now with the revelations of the microscope in connection with bacteriology we would seem to be approaching a surgical millennium. And we might almost think we had attained it, were it not for some of the license which is a common accompaniment of great victories—I refer to what I consider some of the abuses of nature's (now known) marvelous resources. There is unfortunately no longer need for hurry in the operating room, and convalescence is assured in most cases, if we are surgically clean and our work reasonably well done. I say, unfortunately, because if the recording angel who stood at our elbow had spoken her mind, we

would have been admonished that although we had snatched our confiding victim from the "valley of the shadow," we had possibly also added weeks, months, and perhaps years of suffering and woe to one who might have been spared the long exposure of body surface or vital structures to the curious gaze of one who should have been ready to do the work, and do it promptly, when the patient was ready. There is little doubt that anesthesia is responsible for just this abuse of the operating room, and that many a tortured nervous system lives to-day to testify to the truthfulness of this statement. Let us review operative surgery in a general way and see what it has accomplished:

The cerebro-spinal axis has attained a prominent position in the forefront of latter day surgery, as a result of the painstaking untiring labor of such men as Ferrier, Horsley, Thorburn and others abroad, and a goodly array of fellow-workers on this side of the Atlantic, marshalled by such men as Keen, Roberts, Starr, and kindred students in the same field. They have done away with occultism deciphering the many maladies that owe their origin to organic changes in these most important structures. The physiology of the brain and cord is beginning to be understood, and fitting surgical remedies are at hand to successfully combat these diseases. Craniectomy has come into the surgical lists for recognition as a remedy for microcephalus, but its usefulness is doubtful and its legitimacy questioned by some of our best authorities. Laminectomy for the paralysis of Pott's disease is an operation of much less favor than formerly—it undoubtedly had a useful place in surgery when applied to paralysis as the result of trauma resulting from fracture, hemorrhage or inflammatory pressure, but otherwise the limitations of its usefulness are very circumscribed. An infinity of surgical procedure has been suggested and practiced for epilepsy but, except as applied to the disease of traumatic origin, all are of doubtful utility. One exception possibly may be taken to this statement—in occasional cases of well-marked focal or Jacksonian epilepsy—but then only after the most critical study is surgical interference to be entertained. Excision of the Gasserian ganglion for trifacial neuralgia is a comparatively recent acquisition to our list of operations. Its environments are such as to make its removal of the greatest surgical difficulty, and it will be rarely undertaken except under the most trying conditions.

Although ophthalmology has made such praiseworthy growth since Von Grafe revolutionized the extraction of cataract, it has not been without its surgical peccadillos. For example, when the popular clamor against clapping glasses on all offending eyes became of rather alarming proportions, graduated tenotomy was suggested as a remedy for all muscular insufficiencies, without other mechanical means, and it was months, yes years, before operators awakened to the fact that a buttonhole was a very good and permanent aperture in some fabrics, but muscular tissue was not among them. Otology also bears its quota of caprices, conspicuous among them being the indiscriminate angling for the ossicles, which would have reached far more extensive limits had it not been for such men as Jack and Blake whose faithful and honest reports have done much to stop this questionable method of treating dry catarrh of the middle ear. I think it is generally conceded that for sound conducting purposes, the

ankylosed ossicles as a stiff conducting rod between the drumhead and the "oval window" is far better than to have nothing but an air space interposed between the outside world and the broken foot-piece of the stirrup, bound lightly to the entrance of the labyrinth, not to mention an incus supposed to have been removed, which is still crouching in the attic, there slowly necrosing, unmindful that the war is over.

The naso-pharynx has become a labyrinth of marvels to the layman as well as the specialist—compromise of its functional integrity threatens the maintenance of all the special senses; its serious impairment is one of the gravest calamities of early childhood and may interfere with all the functions of organic life. It is the breeding ground of many of the microorganisms that threaten us upon every hand. A knowledge of its anatomy and physiology is an imperative necessity to the successful surgeon. There is little doubt that in the coming years the indiscriminate burning, lancing, probing and swabbing will become less general and the treatment of naso-pharyngeal disease will furnish fully as much of benefit to mankind, and less to criticise in its extravagances.

The surgery of the tongue, jaws and face has not materially changed in the past decade, except the improvement noticed in our plastic work about the face, aided by the Thiersch method of skin grafting. Esophageal surgery has materially increased its boundaries since gastrostomy has become an operation of comparative safety. Drainage of pulmonary cavities and operative invasion of the mediastinal spaces are, fortunately, rarely a necessity.

If his statistics are reliable, Professor Halsted has added fresh laurels to his already brilliant record, in his recently published demonstration of what can be accomplished by early and thorough removal of the breast for malignant disease; to my mind it is one of the most important bequests to modern surgery; it bids fair to revolutionize the statistics of this operation. The ghastly history of breast surgery will certainly be improved when the laity become aware of the fact that hope of cure is to be entertained if the disease has early recognition and proper operation.

In a seriatim review of human anatomy, from a surgical standpoint, one does not invade the infradiaphragmatic territory without some misgivings. It is here that we find a theater frequented by nearly all the specialists. The stomach, the gastro-intestinal circuit inclusive of the gall bladder and intestinal tube, kidneys, ureters, appendix, cæci, uterus, Fallopian tubes, ovaries, bladder and the genitalia, male and female.

Pylorotomy, and the various other plastic operations for gastric cancer, are triumphs of skill on the part of the operator and of endurance on the part of the patient, but for many obvious reasons should be rarely practiced. Gastro-intestinal anastomosis is vastly more humane and will, in most cases, contribute as much to the patient's comfortable longevity. The gall bladder has deservedly attracted much attention in the past few years; in suitable cases where anastomotic communication between this viscus and the duodenum is desirable, we have a most useful adjunct in the ingenious device of Murphy—which has proved also a great comfort in operations of emergency where lateral approximation of the intes-



tinal canal becomes a necessity. Whether it will supplant the older methods of end-to-end union of the divided gut is still a mooted question. It seems a queer dispensation of fate that so small an organ as the vermiform appendix should create so much physical woe and so much professional bickering. To the man whose faith is pinned to internal medicine (if we are to believe their reviews of its inflammation) it is not commonly the cause of much solicitude. To the surgeon who is brought in frequent contact with it at the operating table, and who has so often seen its frightful ravages, "under cloak of modest mien" it is a never-ending source of anxiety.

I hail, with gratification, the turning tide in favor of honest conservatism in the surgical management of disease within the female pelvis. It is a lamentable fact that in this, as in every other branch of surgery, in his evolution from surgical boyhood to maturity as an accomplished master of his art, the surgeon's pathway is strewn with wreckage which can only be atoned for by the greater good he is able to dispense to suffering humanity. Every State in the Union has its dozen or more laparotomists mostly gathered from the ranks of the younger men—each struggling to outdo the other in the race for supremacy, and each must of necessity leave behind him a trail of mistakes, misfortunes and accidents. A very large percentage of the material from which he gleams his experience is furnished by the female sex, and her pelvis is a most prolific field for adventure. If this battle could be fought by the giants who represent the advanced and mature thought of the day, how much better for suffering womankind might it all be. The day has gone by when every so-called cystic ovary will be removed, when ovaries are removed for symptoms rather than disease, when all tubes will be removed because they contain pus or serum. Plastic surgery will take the place of these more radical measures. Myomectomy will take the place of many hysterectomies now being done. The vaginal route will be the one of election when possible. Trachelorrhaphy will not be advised as it too often has been as a panacea for all the woes of women. Electricity will be left to the few who care to, and know, "how to use it." And in proportion as the scattered remains of her tattered anatomy and function are restored, her enlarged field of usefulness will be a benediction and a blessing to him who has wrought this change.

Bladder, ureteral and kidney surgery has received a recent impetus at the hands of Dr. Kelly, of this city; he has made it possible to secure an accurate ocular review of the mucous membrane of the "female" bladder; with his ureteral catheters, accuracy of diagnosis is attained and intelligent therapy, medical and surgical, can be applied.

The pelvic extremity of man, just now, is in greater jeopardy than any other part of his anatomy, in consequence of the recent investigations of Professor White, of Philadelphia. His remedy for senile enlargement of the prostate is probably not destined to become popular with the sex, but when his comprehensive review of the subject is digested, and we see his deductions and results corroborated by many of the most distinguished teachers in all parts of the world we are constrained to give it serious thought. It is difficult to understand why the removal of functionally inert testes should cause an atrophy of the prostate, but that such a result does follow is

established by incontrovertible proof. We have had no experience in this method of treatment of prostatic disease, but a quite large and successful experience with suprapubic prostatectomy and the known repugnance of man to part with any of his organs, *particularly these*, has prejudiced me against the operation. The ingenuity of some of the operators in ureteral surgery has demonstrated the feasibility of lateral anastomosis; it is possible and at times practicable when that tube has been accidentally injured. Some plastic operations upon the kidneys have been recorded, but of date too recent to establish their practicability. The literature of radical cure of hernia is filled with remarkable records of cure, by many different operators and by many different methods. With the exception of the series of cases reported, I think, within the past year by Professor Halsted of Johns Hopkins, none are sufficiently affirmative to make us feel that we ought to advise the operation purely as a cosmetic measure; in other words, a properly fitting truss which amply protects the hernia is a sufficient argument against radical operation. There is an element of doubt as to whether the cure will be permanent, and remote elements of danger in the operation.

There is little that is new or worthy of special consideration in the surgery of the circulatory system and little to be added to the masterly review of Senn in his experimental surgery on nerve suture. Since its infancy, orthopedic surgery has vacillated between the operative and mechanical periods. But a few years ago, arthrectomy excision or amputation was about all the attention the joint received. Then there came a sudden reaction and mechano-therapy came in vogue and is no doubt a great advancement especially in growing bones. I believe America has reason to be proud of its so-called orthopedic measures designated as American.

The conservative treatment of joint diseases is without doubt gaining in favor and demanding more attention from the surgeons of Europe. Lorenz as late as 1892 states that it is very important that the patient has the benefit of sunshine, fresh air and exercise, while the joint is protected by an apparatus which will relieve the weight of the body from the diseased joint, thus permitting freedom of exercise without pain. This has been regarded as fundamental in this country for years. The chief danger now seems to be that they carry the mechanical treatment too far, neglecting the operative.

Not a decade has passed since a prominent surgeon created considerable consternation among his fellows by making the statement that he believed that a cold abscess when it remained quiescent had best be allowed to remain so. Were the question submitted to the orthopedic surgeons of to-day I believe the majority would still be in favor of this treatment.

The aspirator is not such a universal instrument as it once was for the opening of abscesses. The results have been exceedingly unsatisfactory. Even if the flaky condition of the pus does not check its flow through the needle, the abscess cavity refills with great rapidity. From the large needle which must necessarily be used and the repeated aspiration necessary, the fibrous wall soon breaks down and we have a spontaneous opening. Thus this practice has been gradually abandoned and if surgical interference is necessary at all, a free incision with thorough cleansing is now the practice.

Of late years the club-foot shoe has largely given place to the knife and forcible replacement, open incisions, tarsectomy, free subcutaneous division with subsequent retention. The very important and useful treatment of manual and mechanical treatment is almost lost of.

Mechanical appliances, immediate rectification by osteotomy and osteoclasis for the cure of rachitic deformities seem to be receiving more attention than the early diagnosis of rachitis, and the prevention of the deformities by prophylaxis. At present the injection of iodoform seems to be much in vogue, especially in European practice. I believe that a great deal more is claimed for it than it deserves. That immobilization of a given joint is in a large degree responsible for the benefits derived from the injection treatment.

Scoliosis has attracted a great deal of attention in the past, because of the various appliances which have been exhibited, recommending forcible correction; the old treatment by gymnastics hardly seeming to deserve recognition. Torticollis has for its treatment the distinction of nerve excision.

The various appliances for the relief of congenital dislocation of the hip have been largely abandoned, and now we find the orthopedist scooping out the os innominatum for the reception of the head of the femur.

Operative interference is greatly practiced for the relief of the deformity following spinal or cerebral paralysis. A good-natured quarrel upon traction as a means of fixation in the treatment of joint diseases shows that some one is trying a hobby, if we are to judge by the Orthopedic Section of the New York Academy of Medicine. One would think from articles written and from the number of statistics regarding tuberculous joints, that little if any attention is given any other joint affection, unless it be scorbutic joints which seem at present to be rather gaining in fashion.

Orificial surgery, so-called, is one of the recent fads. It is conspicuous by its absence from the transactions of all surgical deliberative bodies.

#### CHAIRMAN'S ADDRESS.

Delivered at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY E. WELLS KELLOGG, M.D.

MILWAUKEE, WIS.

*Gentlemen of the Section on Practice of Medicine, American Medical Association:*—I cordially welcome you to the forty-sixth meeting of this Section, here, in the same city, where, nearly half a century ago, the AMERICAN MEDICAL ASSOCIATION, as a newborn infant, gave its birth-cry.

This lusty infant passed through adolescence to maturity, and now in adult life, returns to the place of its birth.

A vast change has come over the medical profession during these forty-six years. The division of labor and the specialization of the practice of medicine has taken slice after slice from the so-called "Section on Practice," and yet I believe that with all the specialization there is no section which should more interest every disciple of Esculapius.

It seems fitting that at this time we should take a backward glance over the past forty-six years to that first meeting of the newborn ASSOCIATION, and contrast the Then and Now.

Such remarkable progress has been made in certain special departments of medicine that many consider the practice of medicine as a whole, somewhat backward. But looking over the past years, we can see a progressive change of ideas and methods which, though less marked perhaps than in the special departments of gynecology and surgery is no less apparent, each year adding to the list of boons conferred upon mankind.

The changes which have taken place can not be better suggested than by quoting the following from the report of the Committee on Medical Sciences, given at the first meeting of the ASSOCIATION in Baltimore in 1849:

"The fact is established that certain etherial vapors when inhaled produce insensibility to pain, and that the most sensitive portions of the living body may be divided by the knife of the surgeon, while his patient lies in a state of unconsciousness."

This astounding fact was at that time one of the recent advances in medicine; and it proved one of the greatest blessings ever vouchsafed to man; yet the committee at that time was divided in regard to their value, one portion considering the limited amount of authenticated facts in relation to the danger of their use, a sufficient ground for opposing them. The same committee stated that another virtue still attributed to quinin was its anti-malarial effect and ventured the opinion, "That there did appear to be something like an antagonism between quinin and malaria."

The salicylates were unknown. Antipyretics were unknown and many others too numerous to mention, the discoveries in chemistry having revolutionized the practice of medicine.

As late as 1877 at the annual meeting of the ASSOCIATION the theory that many diseases were caused by minute organisms was pronounced a seductive but unwarranted assumption.

As chairman of this Section I am required to present any recent advances in the branches belonging to the Section, but in speaking of the recent advances it is not an easy task to determine which are real advances and which are only apparent advances, to be followed by retreats. We, as a people, are prone to follow fads and the medical profession is not exempt from fad followers.

The temple of medicine has been slowly building for centuries, and it continues to rise; but many stones are laid only to be removed because they do not stand the test of time and experience. The ground is strewn with blasted hopes and exploded theories. Half a century ago physicians bled for everything, later the lancet was obsolete, now it is again being rationally used.

The use of antiseptics has been carried to the top-most wave and broken in foam; yet we have learned that avoiding causes of disease is better than removing the disease after it has developed; that the practice of asepsis in medicine as well as in surgery is better than the use of antiseptics; that good hygiene is preferable to the best therapeutics.

Serum therapy more than any other one subject has during the past year occupied the minds of the profession.

It is with the utmost caution, that I approach this latest form of medication. The past year has brought forward a theory and practice, which is either a tremendous farce, or the greatest discovery, in any branch of medicine, since Jenner in 1798 proclaimed

to a plague-stricken world, the greatest scientific discovery ever made by man.

Toxin is prepared in glass vessels containing sterilized and peptonized broth which is infected with diphtheria bacilli from a fresh culture. This culture is kept warm for a month when the toxin is filtered off and injected into a healthy horse two or three times a week for about three months, when the animal is considered immune. From the jugular vein of this immune horse a quantity of blood is withdrawn and the serum from this immune blood called antitoxin is used hypodermically. It is manifestly important that the serum be a pure culture of definite strength; that the diagnosis in every case be a bacterial one; that the operation itself be performed under strict asepsis to avoid the introduction of pathogenic germs; and that it be performed at the earliest possible date in the history of the case.

Serum therapy is daily securing new advocates. If one-half of what has been written concerning Behring's discovery be true it is worthy a trial. Its advocates boldly claim that they can abort one of the most treacherous diseases in an incredibly short space of time; that the remedy is innocuous, and produces no untoward effect when injected into the tissues of healthy persons; that a diphtheritic patient's condition, as a rule, greatly improves almost immediately, the exudate subsequently peeling off, leaving a healthy membrane, and that all abnormal appearances often disappear within twenty-four hours; that it is a prophylactic for seventeen to eighteen days against diphtheria.

But, on the other hand, some careful observers after a trial of months under the best conditions, declare that the remedy does not fulfill the claims made for it; that its uselessness in secondary infections, in diphtheria of the bronchi, and the unfortunate after-effects, as purpura, albuminuria, hemorrhagica, nephritis, arthritis, and other evidences of systemic intoxication which at times have resulted in death, more than counter-balance its good effects.

Extraordinary enthusiasm has been shown upon both continents over this new departure in medicine, but a single year's experience is not enough time to determine its value. Enough has been proved to determine that it is worth a trial in connection with other better known remedies, and we may well content ourselves to await the dictum of time and experience.

The ultimate criterion must be a clinical experience covering a large number of cases under all the varying conditions and circumstances, and this can only be determined by careful work and the lapse of time.

The practice is still *sub judice*, and must pass the stage of empiricism before it can be adopted as a curative measure by the general practitioner.

In this present age, when new ideas flash around the globe with the rapidity of lightning; when the discovery of to-day is upon the lips of the world to-morrow; when countless numbers of men are vying with each other for the production of a panacea for some of the microbic diseases which have destroyed humanity for ages; we may well be cautious of our conclusions until enough time has elapsed to determine whether the lights in the horizon be a sign of dawn or simply a will-o'-the-wisp shining to lure the traveler from the true path into unknown depths.

In looking back over the wrecks of previous exper-

iments, the false hopes raised by the advocates of tuberculin, and the well-known fact that cases of diphtheria often recover with surprising rapidity with little or no medication, we can well afford to await the verdict of years of experience before pronouncing it a certain specific.

The numberless remedies which have been claimed for almost every disease may well be taken into consideration before we pronounce this a cure for a disease which has long baffled mankind.

The tendency of the profession against the use of antipyretic drugs, except in extraordinary cases, I regard as one of the recent advances in medicine. There can be no doubt that the use of heart depressants in fevers has been carried beyond the limits of reason, and the reaction has begun.

Tuberculosis is each year regarded more as an infectious and contagious disease, and the profession as a whole can not be too active in urging upon the public by all possible means the necessity of regarding it and guarding against it as such. The marvelous fact that persons are allowed to systematically travel over the continent carrying and spreading germs of a disease more fatal, more destructive to human life than any other known ailment, can only be explained by the ignorance of the public as to the danger of such a practice, and physicians have a sacred duty to perform in urging upon the laity the necessity of regulating this matter by law.

## LECTURES.

### LECTURES ON INTRACRANIAL SURGERY.

X.—THE OPERATIVE TREATMENT OF IDIOCY.

BY EMORY LANPHEAR, M.D., PH.D.

ST. LOUIS, MO.

Continuing the discussion of the operative treatment of idiocy I will first speak of

#### RESULTS.

The immediate danger is little. As Packard has said (*Annual of Medical Sciences*, 1891): "The procedure is a brilliant one, but of surprising ease in skilled hands." The primary mortality is about 10 per cent. since we have learned exactly how to handle these cases. There is commonly a considerable amount of improvement in many of the symptoms within a very brief period—an improvement that may last but for a few hours or that may be permanent; for example, if the child has been restless and inclined to sway back and forth with the peculiar cry of the idiot, there may at once supervene a condition of happy quietude; if of sufficient age, the patient may begin to notice things that have hitherto passed unnoticed—the general condition is very much as if there were a reversion to infancy; in a face heretofore void and expressionless, there may come a look of intelligence corresponding to that found in a baby a few months old; and shortly after the operation, if progress be favorable, there will be a more or less decided change for the better in the mental condition, as manifested in attempts at playing with toys, self-feeding, and by crying when spoken to harshly. This change I have seen to occur within a few weeks in cases of apparently hopeless idiocy. What the ultimate result will be, time alone can tell. In some cases there has been a marvelous amount of change—for a time—and then a lapse into the same old state.

## CASES.

As an illustration of the various types of idiocy I have operated upon, I will relate the following histories:

*Case 1. Microcephalic Idiocy—Operation—Improvement.*—Harry A., of Riverside, Cal., age 4 years, came under my treatment April 25, 1892. His general health was excellent. When he was about three months old, he had a severe convulsion, which was repeated in a few months, and since then spasms have occurred at irregular intervals, ranging from a few days to a week or two. The family history was good, except that the father and grandfather were inebriates; three brothers, aged 8, 12, and 14 years, were in perfect health. The child had never manifested any signs of intelligence, except to pay close attention to music, and to be attracted by bright colors. He always liked to make a great noise; had never made any articulate sounds, but always whined when not engaged in any noisy play. He could walk a few steps in a hopping sort of a gait, frequently falling; he never made any attempt to feed himself. Examination showed an expressionless face, evidence of only the slightest cerebral development; the frontal region somewhat deficient; occiput unusually well developed but the entire skull much smaller than it should be. The parents were told that very little could be hoped from an operation, but that it would be done if they so desired.

He was admitted to the hospital May 12, and was prepared for the operation in the usual manner. I made the first operation May 13, with the assistance of Drs. J. D. Griffith and J. F. Binnie. A large flap was turned back on the left side, including the periosteum. A half-inch trephine was applied, about one inch in front of the coronal suture; the bone was found to be unusually hard and thick. When the button was removed, the brain bulged prominently into the opening, but pulsated well. With Keen's forceps, a part of the skull was removed,—about three and one-half inches backward, and one and one-half inches in width. Hemorrhage was checked, iodoform applied freely, a rubber drainage tube inserted in the lower angle of the wound, and the scalp closed with continuous catgut suture, iodoform gauze, bichlorid gauze, cotton and bandage. Patient was put to bed at 10:45 with very little shock. At 12 he was very restless and crying piteously; therefore he was given:

R Chloral hydrat. . . . . 4.  
Elixir potassii bromidi. . . . .  
Elixir simplicis. . . . . aa 16.

Misce bene. Sig.: Half teaspoonful every two hours until quiet.

At 6 P.M. the temperature was 104.5, although there was no evidence of "shock;" he was sleeping, but very restlessly. He was ordered 3 grains of acetanilid, as a result of which the temperature was 103.5 at 11 P.M.

May 14 at 7 A.M., the temperature being still 104, he was chloroformed and the dressing removed. It was found that the drainage tube had slipped out of sight. The wound was therefore opened and the missing tube searched for; it was discovered pressed between the bone and dura behind the motor region, in the region of the supramarginal gyrus as nearly as could be determined. It was removed, the wound cleaned of blood serum, iodoform dusted in, catgut drainage inserted, and the usual dressings applied.

At 9 A.M. his temperature was 101 and he was more quiet; this prescription was given:

R Ammonii bromidi. . . . . .2  
Hydrarg. chlor. mit. . . . . .03

Misce et. ft. pulv. No. i. Sig.: To be repeated every two hours until bowels move freely.

At 7 P.M. the temperature was 99; patient doing nicely and sitting up in bed.

May 16. Doing well. Temperature normal.

From this time on, progress was uninterrupted, the child not being confined to bed even an hour.

The second operation was made June 17, by Dr. Griffith, assisted by myself. The same steps were followed as on the opposite side, except that catgut drainage was used instead of rubber. The temperature never rose above 99.5, and the dressings were not removed for a week. Convalescence was rapid and uninterrupted.

The boy improved rapidly in his mental condition; in

August my case record says: "This child can now walk in a natural gait. He is beginning to talk, saying, 'baby,' 'mama,' 'papa,' 'auntie,' 'good boy,' 'O God!' etc. He can now feed himself to a limited extent; pays the greatest attention to what is going on around him, and is playing with toys, something hitherto unknown to him."

The last report in 1893 from this patient showed even more marked improvement; and he had not had any more spasms.

A letter of recent date (almost three years after operation) from his mother states: "My boy is getting along finely now. His health is good, though he is still quite nervous and does not talk well yet. He can say a great many words distinctly, and has become one of the smartest boys you ever saw but he will persist in running away from home. He does not have his nervous spells (convulsions) now. He understands fully everything that is done and said and sometimes will repeat long sentences I speak to him, then laugh and run. I think he could talk if he wished to. He can sing any song he hears once or twice. He is very fond of music and has learned how to play on the guitar. He will play and sing for hours at a time. Dr. Lanphear, I will ever be thankful for what you have done for him."

The most remarkable thing about this case was the tremendous elevation of temperature after the tube slipped beneath the bone below the motor region. This, accompanied by the marked motor excitement, it seems to me, goes to support the assertion of Horsley, that there is a thermotaxic center in the motor region. The rubber drainage tube was used merely as an experiment, because there was an unusual amount of oozing; the experiment will not be repeated. A few strands of catgut have proved amply sufficient for drainage in a large number of trephinations I have done, and possess the advantage of not having to be removed.

*Case 2. Congenital Idiocy—Operation—Unexpected Improvement.*—Henry B., of Cairo, Ill., age 6 years, patient of Dr. J. C. Sullivan, presented for operation Sept. 22, 1892. Family history neurotic, epilepsy and insanity being present in near relatives. General health excellent; no history of illness except meningitis at his third year. He presented all the signs of the genitetic form of idiocy since his birth, and suffered from convulsive epilepsy for several years, the seizures increasing in severity and number until they were noted almost daily for some months prior to examination. My notes taken at the time read thus:

"Status Presens: Child well developed physically, except in the lower extremities; has all the symptoms of congenital agenesis of gray matter, viz., idiotic expression, prominent and brutal lips, irregular and decayed teeth, dribbling of saliva; he has the habit of sitting alone and swaying back and forth with a crooning noise, quite frequently throwing himself back on the pillow, screaming or moaning, tossing his head from side to side as if in pain; mental condition a perfect blank. The mother states that the child has never shown the slightest sign of intelligence, has never attempted to walk or to use his hands except automatically, has never tried to say a word, or appeared to notice anything that is said to him nor to pay attention to tones; at times she even thought him deaf because of his inattention to sounds. He has to have his food masticated and put far back into his mouth, as he has never learned to chew, and sometimes can scarcely swallow food, even liquids. He lies for hours, sometimes simply whining to himself or moaning. He becomes fretful when hungry, but is generally good-natured when kept well-fed."

The mother was told that this was a case that presented absolutely no hope from operation, as it was a variety that had never been operated upon so far as I could learn; and one that might possibly prove fatal. It was explained to her that there was the barest possibility that the irritation set up by the operation might produce a trifle of improvement, and she decided to take the chance; consequently the child was prepared in the usual manner for operation.

September 22. I performed craniotomy assisted by Drs. Thrush and Maxson, on the left side of head; the skull was very thick; the dura bulged strongly into the opening, pulseless, but upon enlarging the trephine hole to the usual dimensions, pulsation was established. In this case I opened the dura; decided paleness of the brain, and shallow sulci were noticed. Dura and scalp were closed with catgut and the patient put to bed in good shape.



September 23. Little shock was present; patient slept well; he was restless in the early morning, but food was given him, after which his actions were the same as if no operation had been made. Temperature 99.5.

On October 5. Operation made on right side of head. Bone greatly thickened but soft, was removed to the extent of 2 by 4½ inches. Dura not opened; no blood lost; duration of operation, twenty-eight minutes.

October 6. No shock; resting quietly; temperature 99; doing well; acting as usual.

October 7. No bad symptoms, restless manner entirely gone; has not cried once since operation.

October 17. Discharged from hospital.

December 26. Mother wrote that "Henry is improving in general condition; spasms are very infrequent and not severe, and he is beginning to pay attention to what is said to him, and particularly as to the tone of voice. When spoken to crossly he cries as would a baby six or eight months of age. He is learning to play with toys, and seems to take an interest in some things that are going on about him."

March 22, 1893, the mother wrote: "Henry seems altogether different. He has lost the restless way he had before the operation. He seems contented and satisfied everywhere. His feet are filling out, and he is getting a little use of his legs. His flesh is firmer and more solid. When he is hungry he hollers, 'Eat, eat, eat,' and, Doctor, his ways are all so much like a 1 year old baby's. He tries to climb up by chairs and stand on his feet, and I notice that if he happens to fall when climbing up, he is careful to hold his head and try and not fall again. He does not put his hands to his ears and head as he did before the operation. He gets amused with playthings and seems to enjoy himself. He seems to grow stronger in every way, but does not improve about walking. Still, he wants to hold to everything that he can reach. He eats heartily and sleeps well. His arms and body seem to be very strong, and his lower limbs are improving also. If they were only strong, I think he would walk soon. The way I first noticed his flesh was getting more solid was when he would kiss me, he would press his cheek against my face and it felt so much harder than before you ever saw him, so I felt of his arms and legs, and I know that he is gaining in flesh.

"Well, Doctor, I have been asked more questions about him since his operation; it seems to be a miracle the way he has improved, so everybody says who sees him. He blows his lips like a child just learning to talk. He can say four words right plainly, and he often does what I tell him to do and seems to understand me. I can say God bless you, and hope that some day we can send you money."

Dr. Sullivan recently informed me that progress is still satisfactory in this case—decidedly far more change than he ever expected to see; and that the present condition is certainly much better than could possibly have resulted from mere educational efforts.

This was a typical case of congenital idiocy, and as pronounced as any that has ever come under my observation; yet if the reports can be regarded as true, the amount of development since operation has been more phenomenal than that of any case that has ever been reported; which leads to the conclusion that operation is of some benefit in cases of congenital as well as in microcephalic idiocy. It does not seem to me that simply the increased efforts to teach the child could account for such marked changes; certainly the craniotomy was responsible for checking the epileptic paroxysms which were such a distressing element in this case.

*Case 3. Epileptic Idiocy—Removal of Angioma—Some Improvement (Temporary).—*Roy L., of Independence, Kan., age 12 years, was sent to me Nov. 29, 1892, by Dr. A. McCully. He was well developed; general health, good, and in excellent bodily condition. As a baby he was excessively nervous, but otherwise well, and was unusually intelligent up to the age of 3½ years when he began to have "night terrors," and a few months later developed epilepsy. Since then his mental development was very slow. Examination showed patient to be suffering from epileptic idiocy (the idiocy being of high grade); his language was fairly good, though sharp and quick, and only the most infantile forms of expression were used. His right side was far less developed than his

left, and the spasms were always on the right side of the body. He had convulsions very frequently at night, and once in four to six weeks had a hard convulsion in the daytime, the diurnal attack being upon both sides of the body. He had to be watched constantly because of a developing viciousness. He could intimate his desire to micturate and defecate, but could not unbutton his clothes. He had absolutely no idea of right or wrong, the moral sense being totally absent. He played with the usual toys, was passionately fond of music and could readily learn to whistle a tune. Operation was strongly advised, for the cure of epilepsy, but with little encouragement as to mental improvement.

On December 1, I made the usual operation. With the gouge a cut was made through the skull to the dura just at the margin of hair on forehead, then the opening extended over the frontal and motor regions about two inches wide and four inches long. Over the leg and part of the arm center there was found an angioma measuring about one and one-half inches across. This was excised with much bleeding as the veins in the dura were almost varicose in size, and had to be ligated with catgut. The dura was sewed with catgut, iodoform put in, catgut drainage inserted, catgut sutures in the scalp, and the usual dressings applied. Duration of operation, one hour and ten minutes. In the evening he was resting well; temperature 99.5 and no evidence of spasms. Recovery from the operation was speedy and uneventful. He had a convulsion December 5, but no more up to the time of his discharge on Dec. 21, 1892.

May 10, 1893, Dr. McCully informed me that reports from the patient indicated much improvement in the mental condition. Language was being acquired with marked rapidity. Education was already begun with gratifying success, and there had been no return of convulsions since discharge from hospital. But unfortunately the boy could not be sent to Wilber's School for the Feeble-Minded, at Kalamazoo, Mich., as I advised; instead he was placed in the Kansas Insane Asylum at Osawatimie. The Superintendent, Dr. L. F. Wentworth, lately wrote: "He now has frequent attacks of epilepsy; many of his seizures are very severe and the number sometimes reaches as high as six, eight, ten, twelve or even fifteen in a day. His mind is therefore weak and childish and there has been no improvement in this particular since he came to the institution."

This was a typical case of idiocy due to convulsive seizures, I believe, and may be taken as an illustrative case of what might be accomplished by operative procedures in cases of suitable character; I am sure that the general epilepsy which caused the mental deterioration might have been prevented by earlier recognition and operation at a time prior to such marked impress upon the whole brain. It is a case which emphasizes the absolute necessity of early operation in Jacksonian epilepsy. Of course no man can make a diagnosis of angioma of the dura before trephining, so that in a measure such operations are exploratory; but none the less indicated.

*Case 4. Traumatic Epilepsy—Operation—Death.—*Jay B., of Guthrie, Okla., age 6 years. Family history and previous health excellent. Up to the age of 3 years he was in good health and as bright as children usually are. He then fell down a full flight of stairs and was picked up unconscious. The physicians called did not think the skull fractured, and prescribed a placebo. The unconscious condition continued for forty-eight hours. Upon return of consciousness the baby had a convulsive seizure like epilepsy and seemed "dazed." After this time convulsive epilepsy manifested itself by almost daily spasms and by mental deterioration. At the time of examination, Feb. 12, 1893, a condition of idiocy was found present; no speech, no attention to what was said or done, restlessness pronounced and spasms frequent, one occurring during examination. Upon the head over the motor region, there was a great prominence with roughened margin of old fracture apparent through the scalp. Operation was advised. With the assistance of Drs. Maxton and Truex, on February 15 I removed a button of bone with the trephine, and found the skull to be one-half inch in thickness just behind the parietal eminence. In front of this there was a depression with very fine fibrous tissue overlying the dura, with the thickened and roughened margin of the old fracture sticking up at its edge. With a Hoy's saw and chisel the protruding mass of bone was removed, as shown by the accompanying specimen:

There were two large sharp osteophytes projecting inward more than a half inch, removal of which caused sharp hemorrhage for a moment. The adhesion between the roughened, depressed bone and the dura was very firm. After removal of the bone the dura was opened and the brain found apparently normal in appearance and consistency, so the dura was quickly closed and the operation brought to an end. This was especially necessary as the child came near dying upon the table from some unexplainable cause—possibly from shock. In the evening the patient was resting easily; no convulsions; temperature 100; some shock, but apparently not severe.

February 16. Patient passed a quiet day, eating well and sleeping soundly; no convulsions during day.

February 17. In the early morning the child gave a scream, went into a most extraordinarily severe convulsion, ceased breathing, and died.

The post-mortem revealed no reason for the death of the child, and it is hard to account for the fatal termination. There was, as already stated, complete recovery from shock to all external appearances, and at midnight the patient was reported as out of danger. The house surgeon, who was present at the time of death, regards the fatal ending as simply asphyxia from the prolonged continuation of the tonic spasms of the muscles of respiration during the convulsive seizure.

'This was a case that should have given excellent results, and I should not hesitate to advise operation in every similar one. The size of the piece removed may seem extraordinary to those unacquainted with

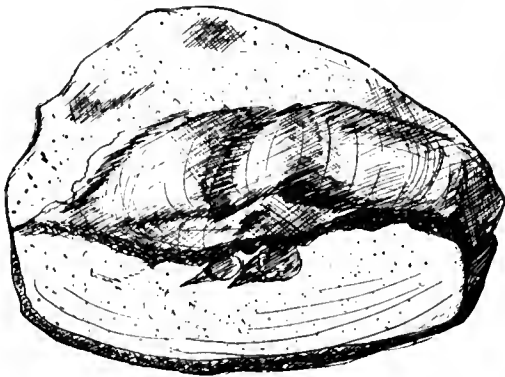


Figure showing shape of piece removed and space in center. Actual size. Thickened and depressed bone; roughened and thinned bone, and small osteophytes; adhesions.

work upon the head, but I have frequently removed pieces of even larger size than the one here shown, without fatal termination. I am inclined to believe that the house surgeon is correct in his opinion as to the cause of death.

*Case 5.—Hydrocephalic Idiocy—Operation—Mental Improvement.*—Lydia W., age  $4\frac{1}{2}$  years, Kansas City, Mo.; had always been healthy excepting the head trouble, though rather weak and anemic. She was apparently normal at birth and until the fifth month was not unlike other children although her head was regarded as rather large and fontanelles had shown no signs of closing. About the end of the fifth month she began having slight spasms, the head drawing to the left; soon afterward her head began increasing in size rapidly and she soon had well-defined hydrocephalus, from which she became totally idiotic; she had severe convulsions occasionally, and from five to ten light ones daily. Examination showed a head twenty-two and one-half inches in circumference and sixteen inches from ear to ear. She had marked protrusion of the eyes and some strabismus. At the time of examination the head was hard and the sutures closed, though for long they remained widely separated and projecting as ridges beneath the scalp. Operation Nov. 28, 1891, after careful preliminary treatment. Scalp opened by large horseshoe flap over left side; button removed with trephine; skull found eburnated but not more than one-thirty-second of an inch in thickness. The opening was enlarged to about one and one-half inches by three inches. The dura was thin and translucent, showing a large amount of fluid below, but no fluid was withdrawn; the scalp was stitched back into position and the wound closed. Little shock.

Duration of operation twenty-six minutes. In the evening the patient was resting well and smiling; had been very quiet during the day and slept some. No vomiting. Temperature 100 degrees. On November 29 the patient was in good condition, eating as usual. Temperature 99. November 30 she was in as good shape as before the operation. Temperature normal. On December 6 the dressings were removed and healing by primary union found. A hollow needle was thrust through the scalp and dura and three ounces of serum removed; antiseptic dressings were then applied. A slight convulsion was noted afterward. December 10 the puncture was repeated. No convulsions were noticed, but there was some continuous leakage after withdrawal of the needle. On December 16 more fluid was withdrawn, though constant drainage had necessitated changing dressings. December 20 three and one-half ounces of serum were removed and one-half ounce of iodoform emulsion (10 per cent.) previously sterilized, injected. A slight convulsion followed. January 16, the patient was rapidly improving. Withdrawal of fluid and injections were repeated.

The people now disappeared and the case was never seen again; but friends of the family recently reported marked improvement in the mental condition—they called it a "cure," the pressure symptoms, convulsions, etc., having disappeared. The mental condition is said to be about like that of a child of 3 years.

*Case 6.—Inflammatory Idiocy—Operation—Death.*—Nicholas L., of Selina, Texas, age  $4\frac{1}{2}$  years, came under my observation March 6, 1892. Family history was excellent. The health of the child was good until the age of eighteen months, at which time he was as bright as any baby of that age and was learning to talk. An attack of meningitis occurred at this period of his life, presenting the typical features of acute inflammation of the meninges. It was followed by complete loss of all intelligence, and the child remained a perfect idiot until date of examination. After securing the history and making a careful examination, operation was advised against; but the parents insisting, the experiment was made. A very large piece of skull was removed from over the motor area, extending forward into the frontal region. There was great thickness of the dura, and upon incision a cloudy infiltrate was noted in the pia. Upon attempting to raise the membrane from the surface of the brain, adhesions were found everywhere over the frontal convolutions, but not in the superior parietal ones; hence the impairment of intelligence, but non-involvement of the motor functions. The adhesions included the speech centers as well as the convolutions situated more anteriorly. As nothing could be done to secure improvement in this case, the dura was closed with catgut and the scalp united without drainage, there being no hemorrhage of consequence.

Death fortunately followed two days later from meningitis. I characterize the fatal termination as "fortunate," because the operation certainly would not have done any good. It is possible that some cases of less severe degree might be benefited from breaking up the adhesions; but I must strongly advise against operation in any case known to be of inflammatory origin. I have thought it best to report my fatal cases lest it might be inferred that there is but trifling danger. In twelve operations for idiocy I have lost three patients—a mortality of 25 per cent. My first fatal result was due to the use of the chisel and to the fact that I operated upon both sides of the head at one operation—a thing I would not do now. This case is reported in full in the *Kansas City Medical Index* of February, 1893.

Aside from the case of Nicholas L. just reported, my operations have been limited to microcephalic, traumatic, congenital and hydrocephalic classes; the remaining cases are as yet too recent to permit legitimate conclusions to be drawn.

#### CONCLUSIONS.

From a thorough study of the literature of the subject and careful observation of my own cases, (which certainly have not given as good results as Lannelongue's reports led me to expect) I have reached this conclusion: the field is a limited one

yet operable cases are so very numerous, the mortality so low, the future of every case so barren of hope without operation, that I can not but believe we are justified in still continuing the experiment. But we should make it an invariable rule to carefully explain to the parents that the operation is a purely experimental one, point out the dangers to be encountered, very plainly state that the results thus far observed are not sufficiently flattering to warrant us in recommending operation, and that we can promise absolutely nothing except that the mental condition can not be made worse. If in the face of these statements the parents insist on having the operation done, we are certainly justified in undertaking the work in the most careful manner possible, to give the poor unfortunate the one slight chance of relief from an otherwise impenetrable darkness.

## ORIGINAL ARTICLES.

### CLINICAL REPORT OF THE PAST TWO YEARS' WORK, AT THE ROCHESTER STATE HOSPITAL FOR THE INSANE.

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Much of valuable clinical material is incident to every hospital year, and would seemingly be fitly gathered and rendered available for study and comparison with other hospitals of its class, as well as by physicians generally. As a lengthy list of cases would be tedious, we would frame a review of the two years' work, by touching upon those topics and cases which rise above the level of the daily routine, so familiar to us all. First, we would add some explanatory comments upon the clinical information, designated by the statistical tables of our report. Every hospital report has accompanying it, a list of statistical tables. As every official doubtless knows, this information is necessarily very defective.

1. *The Recoveries.*—Dr. A. A. Christian, of the Pontiac Asylum in an article (*American Lancet*, 1894, p. 161) analyzes with great pains a series of cases to show that a large number of so-called "recoveries" speedily relapse, and are more or less recurrent in character. That another proportion is not fully recovered, as shown by the test of ability to meet their home duties. He finds, after rigidly excluding such cases, only about 17 per cent. of true recoveries to admissions, in a considerable number of cases studied with painstaking care. Dr. Burr, Superintendent of the same hospital, in 1893 urged this same matter before the Association of Superintendents. Indeed, Earle's book on "The Curability of Insanity" covered a considerable part of the same ground some years ago.

Dr. Burr urges the formation of tables which shall be more accurate; but if by accuracy is understood the following of the case for five years after dismissal, it would seem to be somewhat impracticable, approximations being all that are possible any way. Tables call for designation of cases as recovered or not, at the time of dismissal. Public reports, moreover, have to be made regularly, and one can not wait years before making a diagnosis for them. The central idea

of most value is, that the decision "recovered" or "not" is in each and every case a *matter of judgment*, and that there is no way of having it otherwise. That the person making the table can include doubtful cases as "recovered," or call some recovered whom others of equally good judgment would exclude is true. It is, however, possible to draw up some lines, forming a basis of judgment, which shall be used by all making such judgments, and therefore a common standard be secured. This is the aim as I take it, of the resolutions adopted by the Psychological Association. The personal quality of painstaking judgment in the one making the decision, and a common standard seem to be what are required. To follow patients, however, after leaving here for all parts of the State seems hardly practicable, and most of them have no friends with sufficient judgment to make an accurate report.

Aside from any "judgments," however, our total of curable cases admitted (which as Dr. Chapin suggests in his late report would be those selected by a general hospital in its estimate of results) is at a close approximation and excluding inebriates, about 266 out of a total of 621 insane admitted. This, however, leaves out of account chronic mania, and chronic melancholia, as well as the senile degenerations, paranoia, paresis and others. But these cases designated as chronic, (over one year's duration) occasionally recover. Adding these to our list, then, we have a total of 397 out of 621, to be considered upon admission as recoverable cases; leaving 214 or 34 per cent. who would be considered incurable usually on admission. Of these 397, some are recurrent cases. It might be said in general, then, that 35 per cent. of the cases admitted to this hospital are clearly incurable at the time of admission. A personal canvass of each case, however, reveals that most of the so-called chronic cases are also practicably incurable, and therefore 50 per cent. would be more near the true figure.

A caution is needed here; by "curable" we do not mean *treatable*. General paretics and others need treatment. Probably from 70 to 80 per cent. of cases need treatment, slight or great, upon their admission, although later they may drift into a chronic and stationary state.

2. *Age of Admission.*—Sinkler, Harriet Alexander, C. K. Mills, Sarah Weldt and others, have in the past two years had their interest excited, and have gathered some cases of insanity under 10 years of age. It is admittedly, however, rare and tends toward epilepsy or defectiveness. The great tendency of insanity is to wait toward the decline of life. As if forsooth, the impetus of natural endowment or constitution carried a man past the most vigorous time, only to be caught as the powers of life naturally begin to decline. The average age on admission here of over three thousand cases, is approximately 38 years. The average of cases coming into this asylum, then, are at what may be called the beginning of the decline of life.

3. *Causes.*—In our table of the causes alleged by physicians and friends on admission, there is necessarily so much of error as to make it of little value. We do not know enough of the history to correct more than a few of these causes, and the examiners are apt to put down impromptu, that which has been the last stirring event, or most prominently suggestive or suggested by the relatives. This is copied in by us,

only correcting it as our knowledge will occasionally allow. But, aside from all this, it is to be remembered that it is rare that *one cause alone* is responsible for the disease; and moreover that a clear distinction as possible is needed between predisposing and exciting causes. For this period we have carefully considered these causes, and have tried to classify them so as to suggest prominent and leading causal factors.

We firmly believe that *heredity* is the chief predisposing cause. Heredity must needs have no narrow sense, however. It must be broadened out so that it means both, "if the patient is peculiar, eccentric or partly demented, and the son goes to the asylum an acute raving maniac and, on the other hand, if the parent be a raving maniac, and the son have only the quiet unnoted feebleness of mind. But in all statistical tables neither of these cases would find any recognition, nor are many others of indirect heredity recognized at all." These tables of heredity only recognize insanity in a near relative, so gross as to be well known. Indeed a large number even of these are denied to us.

Recognizing an inherited or inherent brain and nerve instability as the predisposing cause, then we feel that it must almost necessarily be present to allow for other causes to act. Probably this is the most important topic in our list. It would seem, in looking about in the world, that you could sum up and pile all of the other causes on one man and he would not become insane because he had *not* this inherent instability. Without being able to define this most essential element in the cellular nervous structure, we would yet say that it is to an extent recognizable in the same way as is the tendency to consumption; in the consideration of which it is fully as manifest that some men will go through all of the causes and never have the disease, consumption. These latent, inherent predispositions of the body are hard to define, even with the use of modern terminology; yet need not be therefore denied. But heredity of the indirect though real form, can not be reduced to statistics. Of direct heredity, we find 84 men and 58 women, out of a total admission of 374 men and 247 women. This is probably much too low even for the direct form; but incomplete information is not preventable.

4. *Forms of Insanity*.—It is seemingly very important to have a table of diagnosis of the forms of insanity; but a close thought would reveal that it is really, however, not so important as it is to have *uniform methods* of naming the form among different hospitals. But we doubt if any two hospitals for the insane in the United States have exactly the same list of names. The distinctions between the different forms, even if made by experts, being in many cases transitory or unessential, it is the broad types which the far-seeing alienist wants; not particular names. There is a type of "general paresis," and particular cases conform with more or less closeness to it or lean over toward other types. There is the type, "senile dementia," and special cases conform with more or less closeness to this type, or vary toward the paretic or apoplectic type. There is the type, "acute mania;" and only a few cases adhere closely to it, many having a quite distant approximation, while some are on the border line toward melancholia or senile dementia; and so on through the whole list. The sharp lines drawn are all in our imaginations. They are arbitrary. The cases are not fenced off

into pens, as we would fence a drove of animals, but are scattered over the whole field, and each may imagine his own fences arbitrarily. However, one set of boundary lines may be far better than another, and we should, as far as possible, select broad fundamental differences. For example, youthful cases are apt to approximate the defective or feeble-minded class; having superadded variable and vacillating exacerbations, upon a gradually increasing mental trouble. This is a far more fundamental distinction than is the transitory and varying maniacal or melancholic behavior of any particular time. "Pubescent insanity or developmental insanity" are names we have used to designate these cases; names more true than those of mania or melancholia.

The distinctions, "acute" and "chronic," are only arbitrary, and are by some discarded altogether. To call all cases under one year's duration acute, is a common method. If some committee could be appointed with authority to enforce the use of some list of names, we all ought probably to sink our preferences in favor of uniformity. Of the acute manias we have made two classes; the acute disease which rises to a climax like a fever, with its typical excited incoherent speech and conduct. A second class might be probably called sub-acute; it includes the exacerbations of mildly affected cases; very slowly progressing cases approximating chronic, yet not over one year's duration as reported by relatives and having no acute rise as far as known. Of these two forms the former (the only true acute mania), we have in a total of 621 admissions only 54 cases as shown by our tabular analysis. Moreover, even of these 54, only about 20 were of the extreme maniacal type, with flushed face, trembling incoherent speech, etc., approximating the type, "acute delirium." Adding to these the 130 cases of *acute melancholia*, and we have as approximately the sum total, 163 cases in 621, in which insanity was distinctly an acute disease, rising to a climax, and unassociated with any gross brain lesions, like those of atheroma, paresis, senile dementia, etc.

"Syphilitic dementia" designates the dementia produced by syphilis. If a mania or melancholia is accompanied by syphilis it goes among the other manias, and syphilis is put down as a cause. This is due to the predominating tendency toward dementia as a sequel to syphilis.

"Choreic dementia" is subdivided into the dementia of the adult progressive chorea and the "juvenile" form, according to the very different characters of chorea producing the trouble.

The melancholias are subdivided into the agitated and stuporous forms, to meet the usual distinctions made as to behavior.

"Puerperal" is put down among the list of causes, and the manias so produced are included among other manias; this seeming to be the most just and accurate way.

5. *The Causes of Death*.—These cause some perplexity. It would seem best to have the immediate and fundamental causes given separately. The word "exhaustion," perhaps, causes the most question. Exhaustion usually means tire from activity; in insanity it frequently does not. For example, in general paresis or senile dementia, it means a gradual deprivation of central nerve power. The cortical impairments of these troubles easily suggest the cause. The substitution of the immediate for the fundamental cause



is avoided as much as possible. "Heart-failure" was, however, necessarily used in several instances; for example, one old man failing somewhat from senility, died suddenly and quietly in bed a half hour after eating a good supper. He seemed well, and as no autopsy was held, and atheroma did not seem prominent, "heart-failure" was designated as the cause.

"Acute periencephalitis" has been used to designate the cause of death in cases following H. C. Wood's designations. The five cases so named could be termed subacute meningitis doubtless, if we so wished. They seem to fall halfway between acute delirious mania (or the "acute delirium" of recent writers) and ordinary meningitis. No autopsies of these cases were secured. Among the total number of deaths of 131, we find that 40 are from pulmonary tuberculosis, and 39 from general paresis. Epilepsy claims 8, apoplexy 4, senile dementia 13 and brain disease 11.

6. *Occupations.*—The occupations are systematized and condensed on the fundamental lines of a probable leaning toward mental impairment, and do not well sustain the idea of brain strain or mental overwork as a factor in producing insanity. A preceding defectiveness is the most prominent element.

Leaving now the statistical tables, there are other subjects which have received especial study and consideration during the past two years. "Phthisis and its relation to insanity" was quite thoroughly looked up by Dr. Sarah L. Phelps. "Strychnin—the use of in inebriety," was made the subject of an experimental study. The general consideration of "Inebriety" as a curable disease was considered. "Hereditary chorea," and its relationships, and "Periodicity in insanity," were made subjects of articles. Of phthisis or pulmonary tuberculosis, Dr. S. L. Phelps, from analysis of evidence, concluded that there was no mysterious connection with insanity; that it produced no especial form of insanity, nor did insanity, except in the various *indirect* ways, produce the lung troubles. Confinement, inactivity, extremely careless habits of neglect, extreme neglect of all voluntary sanitary measures, predetermining toward tuberculosis, producing a somewhat larger proportion of cases than among the outside population, even if among selected people of the same ages. Looking over our record we find that we have had 40 deaths from tubercular disease of the lungs, during the past two years, out of a total of 131.

Dr. Channing recently (*Boston Medical Surgical Journal* July 19, 1894) assumes tuberculosis to be the cause of insanity quite definitely, following Clouston in his ideas of the disease, and asserting it to be about three times as prevalent in asylums as among the sane. Later study, however, it seems to me shows many corrective facts. The average age on admission to hospitals for the insane is here about 38 years. Statistics among the sane usually include all ages, of which the total adult population is but a fraction. Again, most cases of tuberculosis in asylums are among melancholiacs and demented, who sit inactively for months, and neglect, as far as they are personally concerned, nutrition and exercise, which are the two main preventives of the progress of tuberculosis. Sane people do not so neglect themselves. Again, the insane are careless as to cold-catching and exposure; the sane are not. The insane have a tendency toward sedentary life, as in most cases the sane do not.

Dr. Channing found the average number of deaths

resulting from tuberculosis among the insane, to all deaths, to be about 16 per cent. which is about our average here. This is hardly, however, three times the proportion of deaths from tuberculosis outside, which for persons at adult age, say from 35 to 45, the average age of the insane seems to be nearly (perhaps a little over) 10 per cent. while for all ages it seems to be only about 5 per cent.

Of evidence of tuberculosis as the cause of insanity, we can add little that is new from this two years' record. In two cases of admission here, tuberculosis was present on admission, and progressed coincidentally with acute typical mania, both dying in a few months. One was a case of a girl aged 18, who had been some five years previously treated here for a similar attack, and had quite fully recovered. Tuberculosis was in the family history. She failed rapidly, dying twenty-three days after admission. Another, an old lady, aged about 61, approximating somewhat the senile age, yet had an attack of quite typically acute maniacal behavior, the second one in her life, it leading on rapidly to death from pulmonary tuberculosis in the same manner as the preceding case, about six months after admission. Among the forty cases of deaths during this period these are the only two, however, suggesting in any way a causal connection, and we fail to see any distinct evidence, more than a coincident one, in these cases. Ordinarily these consumptives are quiet melancholiacs or demented. In the forty cases mentioned, twenty-six were melancholiacs and nine terminal dementias; one, chronic mania; one, mania a potu; one, morphinism. Only four cases were at all active ones.

*General Paresis.*—General paresis is a subject always calling forth peculiar interest. As will be seen, we have thirty-nine deaths from this trouble, this period; thirty-three men and six women. This is a large and important element in our death causation. More sad still is the fact that once diagnosed, treatment will only delay the fatal termination, never prevent it. It receives extended study, however, not so much in hope to cure, as to study its forms and causes and to secure such thorough knowledge as to prevent to some extent its invasion. The causation is still somewhat vague. Continued study only goes to show that though syphilis is considered the most powerful cause, that all intemperance and excess seem to help its onset. Too little attention, perhaps, is paid to the element of *predisposition* in this case. For it is evident upon a broad outlook that while the causes of paresis act upon an immense number of people, only a few of them develop the disease, general paresis. Lack of space prevents giving a synopsis of the thirty-nine cases.

Under general paresis it should be said that more and more cases have come to be included, which once went by other names. Senile cases of strong parietic form, also gross brain lesions of various kinds, which have tended to produce the same sluggish parietic state, and even to have considerable of the same progressive tendencies, tend to receive the name. We have not space to review the thirty-nine cases which during the past two years have proved their diagnosis by a rapid progression and death, but will mention a few summarized facts concerning them.

Of the thirty-nine deaths, thirty-three died in exhaustion, by which is meant a steady progressive failure, without other special bodily trouble. One

died from choking, one from meningitis, two died from convulsions of an apoplectic form, and one from a series of convulsions, simulating status epilepticus. One died with erysipelas.

Concerning convulsive seizures in general, it is to be said of the thirty-nine, that nine had at some time during the course of their trouble, convulsions of a decided character, while seven more had "spells" which approximated unconsciousness, with or without convulsive movements. Their average age on admission was 41 years; the average duration of their stay here was one and one-fourth years. To this duration, however, we would add the probable average duration of each case before being admitted to this hospital, of from one to two years.

*Chorea.*—Of chorea we have had examples of the varied forms; have had two cases in youth, (one aged 18, another 20) in which the mental weakness and confusion of mind was coincident with the chorea, seemed to be caused by it and receded with its recession. These we have designated as choreic insanity "juvenile," to differentiate it from the radically different adult form. We have had two more cases of the adult progressive chorea with choreic dementia, one of these giving a vague history of "hereditary chorea" form. We have had two marked cases of the so-called "post-hemiplegic chorea," also one case of most extreme chorea with imbecility.

There was also one case of a sudden outburst of chorea of most extreme form, coming on within two or three hours at the beginning of a relapse of typhoid fever. The mental state in this latter case was a hysterical delirium, culminating in this choreic attack with quite complete helplessness. This case, a young girl of about 20, recovered very perfectly.

The most striking case of chorea was one of acute form, producing death, coming on about a year after childbirth. This case is published elsewhere, (*International Medical Magazine*, February, 1895) as also a case of prolonged lethargy of nine months duration, and one of adult bilateral athetosis, idiopathic in character.

*Paralysis Agitans.*—Two cases have been admitted during the two years just past; one a woman aged 70, having dementia of the senile, weak, childish form, without defined delusion. The other, a man of nearly the same age, also demented, with delusive ideas feeble in character. It is doubtful if a special kind of insanity should be so named; it is probably enough to record paralysis agitans as the cause, with the mental reservation that it is perhaps merely the concomitant element.

*Jacksonian Epilepsy.*—Jacksonian epilepsy, in the sense in which is meant an epilepsy with some localizing motor spasms, is rare in the advanced cases presented here. One case in which epilepsy followed a gross brain injury of seventeen years ago presented itself. This man, in spite of a trephining, had been epileptic for some seventeen years; had been at times somewhat actively deranged mentally, but usually only when he drank, which he did at every chance. He recently, while here, began having fits more severely and showed more of mental derangement, and after some of them there remained a numb feeling, a lack of power in one hand, with some occasional involuntary motions of the fingers. These motor symptoms in a general way, corresponded with the locality of the scar upon the opposite side of the head. Dr. Charles Mayo on consultation agreed to

operate. Before consent of relatives was obtained, however, patient went into a status-epilepticus, out of which he was brought by the use of nitro-glycerin. Was then in a semi-delirious condition. Operation was successful; scar was found to be not all bony, and directly under the scar was a cyst holding about two ounces of fluid. Patient had one fit the next day, but in the course of about two weeks recovered his ordinary mental state, and eloped from this place reaching home safely.

*Gross Brain Injury.*—A man was admitted here, in 1893, with a large irregular opening of nearly two square inches in the skull, above the inner corner of the right eye. This had been produced by a supposed intentional suicide, with a gun. The brain lay exposed and pulsating to the view, though covered by a coating of purulent deposit. A probe reached indefinitely back along the surface of the brain; brain matter to the extent of a teaspoonful or more was said to have exuded, and was removed after the accident. He was obliged to keep his face forward, for the drainage of what was practically a large open abscess cavity. He began to have some fever, went to bed, seemed to be failing, and his people were sent for on the strength of a bad prognosis. They took him home, however, and a month later sent for his discharge, on the plea that he wanted to do some business. He had, while here, no motor symptoms or paralysis, and was only a case of ordinary mild melancholia. If accurate data could have been had as to amount and exact location of the brain matter removed, the case would have been of considerable value.

*Acute Alcoholic Dementia.*—This is the designation of one of our cases, and would be of one more, except that the second one came upon an inebriate warrant. As the term might be perhaps misleading, I give the case briefly: a man, aged 50, was here several months as an ordinary inebriate. He went home on trial, and a few months later was committed as insane. He was then found to be completely demented, and in a condition closely resembling general paresis. His face was blank and smooth in the extreme; his memory almost gone, talked fairly free and very peculiar; polite in form, although his ideas were mostly imaginary. Speech was hesitating but not much slurred. In this state he has continued for the eight months which have since elapsed. The causation in this case was acute, and the result is quite different from that of a case of chronic alcoholic poisoning, and therefore we have given the distinguishing name.

*Primary Dementia.*—This is used to signify a number of cases in which there is a slow growing demented condition, such as is produced by alcohol without any especial mania or melancholia. In some cases, however, there seems to be no alcoholic history or other like causation upon which to base the designation. To these we have given the name, "primary dementia" in that we have considered them too different to come truly under any one of the other designations. These cases are usually of adult life, and could not, therefore, as would be otherwise quite possible, combine with the pubescent cases. These could be forced into other classes by distribution, but it would seem could not be done without obliterating important distinctions.

*Use of Strychnin in Inebriety.*—Among other subjects which have received special study during the past two years, the preventive action of strychnin

upon inebriety was studied by an experimental trial in twenty-five cases, in the firm belief that this was the active element in Keeley's cases. The results were published. Though averse to having any seeming connection with Keeley's methods, yet of its possessing an action above any suggestive one, there seems to me to be no doubt. That the suggestive element must be relied on to carry on the effect, however, there is also not much doubt, as the drug action is only a temporary one. That it can be asserted to be logically the best drug for the purpose is, however, in my opinion very probable.

Our opinion as to the value of hypodermic injections of strychnin in combating the craving for alcohol, was practically re-affirmed two years later by Dr. Breed, (*Philadelphia Medical News*, April 7, 1894) who outlines in a similar manner its direct value above that of a suggestive one, in annulling the appetite of the inebriate, "and that without the least effort on his part." Its strong tonic action is also dwelt upon. Dr. Breed, however, was a little too near to the first enthusiasm of the immediate effect of the hypodermics to judge conservatively of their permanent value. He assumes inferentially, moreover, that the drug effect is a permanent one which seems to me a great error. Suggestions, fear and moral effects must keep up the waning influence of the drug. (I have often wondered if the administration of the drug could be kept up either in small doses or in an intermittent way, so as to insure permanent effect.) Dr. Breed also speaks of the hypodermics of strychnin as if new, whereas during the past two years it has been frequently mentioned, and our own idea two years ago was gotten partly from the references to the records of Russian and Italian physicians, the experience of whom I believe goes back as far as 1880, and from whom I suspect Keeley to have adopted and developed the idea. Partly also my incentive was from Dr. Gray, who claimed to be using it in his Sanitarium at La Porte, Indiana, and whose methods rather than Keeley's were the ones that I adopted. We used here the nitrate of strychnin, especially prepared by Eli Lilly, for such treatment.

Partial or modified responsibility. This somewhat philosophical subject, running out on theoretical grounds, yet being of far-reaching practical value, the "partial" or "modified" responsibility of some people, was strongly advocated as needing a recognized standing in an article before the State Medical Society this year. The connection of Bright's disease with insanity, strongly and ably advocated by E. D. Bondurant of the Tuscaloosa Asylum, stimulated us to an extra effort to see if we could justly admit ourselves to have overlooked such fact. Aside from the consideration of any theory of connection, however, we could not find any such facts of albuminuria and casts as he detailed. We found even after some selection of cases, only about 13 per cent. of cases; and probably we would average not over 5 per cent. of the admissions; whereas he found about 85 per cent. in consecutive examinations, some 50 per cent. having both albumin and casts. Drs. Bennett, Tuttle, Christian, Amelia Gilmore, Babcock, Norris and others have all studied the subject with varying results. Landon Carter Gray's recent article also falls in the same line.

*Treatment of Choking.*—In connection with Training School work, there has originated a peculiarly useful mode of treatment in cases of choking which,

so far as I have noted, is not mentioned in any text-book on nursing. In one case of choking by meat, when the finger could not reach the morsel, and the man was becoming comatose before my eyes, it suddenly occurred to me to reach with thumb and finger deep down behind the sternum, to pinch the windpipe and strip it upward; thus carrying the contents up into the throat. It was easily and promptly executed; the meat taken from the mouth, after which three minutes of artificial respiration brought him to life. So simple and fairly sure is this procedure that I should now think that one of our nurses was neglectful of duty who did not try it in any similar case.

*Hypodermics of Nitro-Glycerin in Epilepsy.*—In last year's literature several references were found as to the value of hypodermics of nitro-glycerin in checking the convulsions of epilepsy. Upon having a case of status-epilepticus in a young girl, in whom a comatose condition had been present for over twenty-four hours, in whom the temperature had reached 104 degrees and who was considered as surely going to die, the idea of trying these hypodermics was considered. The very first one was followed by a reviving effect, and a continuation brought her from the coma and fever to her usual condition in, approximately, about four days. She has been as usual since. This seems to me a quite noteworthy and unexpected effect. The hypodermics were tried later in the case preceding trephining, as outlined elsewhere, and with good results. This is the last case of status-epilepticus which we have had here. We have tried the remedy on the mental confusion of an epileptic state with somewhat of temporary benefit, and are trying it now on various other epileptic temporary conditions that come up from time to time. Its permanent benefit must as yet be considered very doubtful.

*Massage.*—This was first introduced systematically last year. The very first case taken by the members of the class in massage, a case of "post-operative" exhaustion or shock, progressed so steadily and logically toward health that it acted as a great incentive to the class to continued work. The case was one of confusional state of mild melancholia, and the Wier-Mitchell treatment of rest, massage and electricity was very effectual.

Contagious diseases have been very rare in the hospital. During the last two years, however, we had several cases of measles and several of mumps; in all but two cases, however, among the employees. We had three cases of typhoid fever, all sent to us from the cities. We had no dysentery except in isolated cases during that period.

## CHRONIC INEBRIETY—FROM A MEDICO-LEGAL POINT OF VIEW.

Read before the American Association for the Study and Cure of Inebriety, in New York City.

BY T. D. CROTHERS, M.D.

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The chronic inebriate appears most frequently in the lower courts charged with crime against persons, and also minor grades of crime against property. He is commonly a continuous drinker, taking spirits daily, and to excess, when he has the means to procure it, and the conditions are favorable; or a periodic drinker with distinct drink paroxysms, at uncertain or definite free intervals. The paroxysms

subside usually from exhaustion, and begin again when a degree of restoration comes on. Such persons are more commonly laborers, mechanics, bar-keepers, boatmen, hostlers, and others of servile occupations. A certain number have descended from higher levels of business and social life, and a certain percentage are wrecks from various disasters; but the larger proportion are degenerates from inheritance, and have never been able to rise above the present levels. In appearance an irregular shaped head, face and body are often prominent. Often they are of large coarse frame, or small irregularly developed bodies, with coarse, bushy, or thin, straggling hair, irregular projections or defects of the nose, mouth or eyes. The entire body seems to be stamped with signs of imperfect development and degeneration. Such persons begin to use spirits early in life and are usually intoxicated at or before puberty.

This drink impulse is often associated with dangerous sanitary conditions, with irregular, unhealthy living, sleeping in bed-rooms insufficiently lighted and ventilated, and living on bad, innutritious food, also in a bad mental atmosphere. Add to this the continual indulgence of all the impulses and passions, in surroundings full of the contagion of bad examples, and the result is inevitable. There is here a constant widening perversion from the natural standard of mental and physical health. Exhaustion and drinking of early life is followed by degeneration, which affects the entire organism. Ambition dies out except for the most selfish gratification. Criminality grows out of these surroundings as naturally as weeds spring up in a neglected garden. The evils they suffer from perpetuate themselves, and grow more and more rank. All effort to rise to better conditions of living and acting involve the exercise of powers which are either wanting, or are feebly developed, or early crushed out by the predominance of other elements. As criminals they always lack the boldness of experts; usually they are followers acting under the guidance of others, and are sneak thieves, petty swindlers, gamblers—ready to engage in any scheme that will furnish sources of gratification to their passions, without much danger or special labor. As inebriates, they drink insanely for a time, governed by circumstances and conditions. Some of these cases are reared in bar-rooms and the lowest circles of life, and have the marks of pronounced degeneration. Others come from the wealthy classes, or in those inheriting large amounts of property and have grown up without any fixed purpose in life. Not unfrequently they have squandered their patrimony, and been placed in positions where all efforts to help themselves have resulted in failures. They are ordinarily marked by a weak mind and unbalanced judgment, and suffer from neurosal and mental troubles, and are filled with delusions of oppression and wrong at the hands of others. Conscious that society is at war with them and its methods antagonize the full play of their passions, they accept the situation and never seek to change or vary the conditions. Finally, they rapidly become beggars, criminal paupers, robbing their relatives and friends; also lapsing into communists, full of all the small vices, ready at any moment to aid in crime, or take advantage of any weakness, licentious and drunken at all times, and resorting to the lowest devices to gratify their impulses. Syphilis and general degeneration are common—improvidence, fawning, and

audacity are marked. In some cases they possess an apparent average or superior brain power, coupled with a defective moral force, and general want of control. They are more prominent as inebriates than as criminals, and often do criminal acts under cover of apparent drunkenness. This class are the skeletons haunting their friends continually for money and support, rarely committing noted crimes, but always in centers of low dissipation.

The second group are made up of persons who have been clerks, traveling men, peddlers, gamblers, and swindlers of all kinds. They are higher up than the last class, and possess a degree of activity which is evidence of more brain-power. Quack doctors, police, lawyers, defaulters, and patent swindlers are of this class. They frequently inherit an unbalanced organism and a distinct degenerative diathesis; with a family history of insanity, epilepsy, inebriety, syphilis, criminality, cancer and consumption.

Like the first class, they are largely the outgrowth of the surroundings, originating in bad sanitary and mental influences from early life. The worst phases of this class are seen on the frontier, as miners, speculators, and gamblers, or in business centers of large cities, as brokers, agents, and middle-men, who are ready, with any excitement or excuse, to defy law and order. As communists and railroad rioters they have attracted much attention for some time. Frequently they are filled with delusions of wealth and power, are superstitious of fate and chance, and alternate between hope and despair. Failure follows in nearly all circumstances of life, and is attributed to others, and the wrongs they suffer at their hands. While complaining bitterly of the dishonesty of others, they continue to cheat and drink in an aimless, impulsive way. They have appeared in the temperance work in great numbers, and have been noted as defaulters in coffee-house enterprises, and as lecturers recounting their experience, and soliciting help to build up again, etc. With a degree of sharpness and low cunning that is rarely obscured by drink, they have found the various temperance movements of the day a field for the fullest play of all their talents, which they are not slow to occupy. They are truthfully called the temperance tramps of the day. As inebriates they are noted for their marked periods of sobriety, and the unexpected, insane-like relapse, which seems to be partially under the control of the will. After the fullest gratification of the disordered impulses, they stop short and seem to recover. They commit crime in this impulsive, unreasoning way, confusing courts and juries as to the motive present. In asylums and in prisons they are always the most hopeful, and are sure to create sympathy, and gather about them friends which they sooner or later victimize.

In both of these groups the surroundings and predisposition to criminality and inebriety are about equally developed; sometimes one predominates over the other, and in some cases they exhibit much skill in concealing the one or the other; profound degeneration and suspension of the will and moral power is present in such cases. They never realize anything but the fullest gratification of the lower faculties as the ideal of life, and criminality and inebriety are the best means to this end. They suffer from neurosal disorders, such as exhaustion and a special degeneration of the nerve centers. Either from a non-development or a general perversion of functions



and structure, they are born both inebriates and criminals.

Such persons are usually marked in every community by their irregularities of living, and mental peculiarities, as well as physiognomy. They appear as inebriates in all grades of crime, and are seen in prisons, hospitals and work-houses, all over the world; and are frequently studied in courts of law and insane asylums, as types of all inebriates. Literally, they are all moral imbeciles, that drift up and down the world like ships without a rudder or compass.

They are committed for crime against both person and property, and constitute over 50 per cent. of all the inmates of prisons and jails. Not unfrequently they occupy places of trust in society, and when tempted fall precipitately, and puzzle experts and judges to determine between insanity and criminality, and the measure of responsibility.

The inheritance of disease is more marked in this class than others. Dr. Stevenson remarks: "There can be no question but that heredity exists in the mental as well as the physical world, and that the diminished stability of organism and perversion of physical function are transmitted with as much certainty as the germs of disease; that brain structures receive certain tendencies from inheritance, which bind it down or control its future, or that it has a certain capacity for impressions and energy of organism which goes with it always after."

This expresses clearly the doctrine of heredity which is now accepted as an established fact. The inebriety of this class is of the same order of neurosis as insanity, and depends upon some molecular change of cell and nerve tissues, which coming down from parent to child fixes the mental and physical character with certainty. In other words, it is a symptom of physical degeneration of the nerve centers, an outward expression of an inner condition of disease, always connected with degenerate undeveloped cell and nerve structures. All this is confirmed by clinical histories of numerous families where, for generations, the criminal insane and inebriate neurosis has developed in one or more of the family.

Such persons possess a distinct neurosis, which manifests itself either in inebriety, criminality, or pauperism; or, very commonly, two or more combined in one. This degeneration may not be tangible to any physical examination, but later, the autopsy and microscope often indicate distinct cell changes.

When a certificate of continuous and excessive use of spirits is ascertained, there is specific degeneration of both the brain and entire organism. If the history indicates a diseased ancestry, this degeneration is more pronounced. The direction of these defects will be toward imbecility and general paralysis. In one case a low type of conduct and reasoning will appear, and sharp reversion back to mere animal life are the prominent features. In the other, mental exaltation appears with delusions of power and capacity, beyond all ranges of reason and observation. The brain is disorganized and weakened. A progressive dissolution has begun which is apparent in the general depression and failure of all the mental activities. Such cases use spirits more uniformly, and are more stupid from a less quantity of drink and grow more incapable of work; muscular control of the body is lessened; the use of the hands and legs becomes feebler, memory fails, and ideas and

judgment are faulty. Apathy and indifference to himself and surroundings, and no thought except to procure spirits are often prominent. Excitability and irritation occur in some cases and crime follows, which is usually impulsive, unreasoning. Assaults are committed on any one, both with or without provocation and no apparent realization of the act and its consequences are noticed.

The following are some common examples: a chronic inebriate of this class stumbled and fell on the street and was helped up by a stranger who jokingly alluded to his condition. He seized a stick and killed the stranger without a word or exclamation, and continued his walk down the street all unconscious of what he had done. Another man of this class shot a stranger who looked at him closely on the street, attracted by his staggering gait and manner. In a third case an inebriate killed his wife because she did not have dinner ready when he came in. These are common examples of chronic inebriates in a stage of dementia suffering from paroxysms of irritability and delirium. The dull apathetic cases are often involved in crime against property. They are stupid thieves, coarse bungling swindlers, and commit assaults and even murder when driven to it by circumstances. Seldom any premeditation is associated with crime they commit, and the same indifference is manifested as to the consequence of their acts.

When these demented cases develop symptoms of general paralysis, most commonly noted by mental exaltation and mild deliriums of strength and power, crimes against person are common. If against property it is from the suggestion and direction of others. Such cases become noted for their prominence in conversation and manner, and general recklessness of conduct. They drink at all times and are not often intoxicated or stupid from spirits, but are always impulsive and vociferous, never resenting insults by violence, and growing more and more egotistical. In the early stages they are politicians and reformers, and enthusiastic followers of every new movement that is revolutionary or lawless; later, they are senile egotists who boast of their influence and power. Often such persons are bigamists, and accessories to criminal acts, assisting and concealing crime and criminals. While such crime may show reason and cunning it will always lack in consistency and uniformity of conduct, and be noted by blunders and bad judgment in all their acts. The secretiveness of one stage of the criminal act, will break away into the most transparent expression of his purposes and motives in another. His denial of acts and explanations of suspicious conduct will be thoroughly imbecile and childish, and convey the real truth more accurately than confession of any kind. Statements of crime, either as witnesses or participants are of no value unless confirmed by other testimony. Some of these chronic inebriates manifest an unusual susceptibility to the personal influence of others. Particularly to some favorite bar-keeper who furnishes the spirits, or some woman along the same line of living, and but rarely for any one who antagonizes his mode of life and conduct. This is practically a hypnotic power along the lower levels, and on the plane of everyday life. But it varies widely in uncertainty and brevity. The hypnotic control of a chronic inebriate is very unstable, and while it may be used for the purpose of crime, can not be de-

pended on to conceal it. To make a man intoxicated and suggest crime to him is not unfrequent, but the commission of the act depends on a wide range of circumstances that may vary any moment; circumstances that the operator has no control over, and conditions that must be in harmony or the act will fail.

A saloon man sent an inebriate to set fire to the home of a temperance reformer. The flask of spirits to give courage for the act brought on a stupor, and after a short sleep, and confusion of mind he built a fire in the barn of the saloon-keeper by mistake. In another case an inebriate was urged to kill a certain man and partially intoxicated was led out where he could commit the act. He evidently became confused and began firing at every moving object, then when his victim appeared, confessed that he came to shoot him, and after an emotional period of weeping offered to kill the man who sent him on this errand. Often the statement is made by chronic inebriates, that persons have suggested crime and offered to reward them for the commission of such acts, but why they were not committed was not clear. In reality the inebriate mental condition is so uncertain that but a limited range of criminal acts can be committed only from the most favorable circumstances, especially crime by suggestion from outside sources.

The man who is apparently under the influence of some companion, who urges him to commit a criminal act fails because of some slight obstacle at the time or some sudden change in his mental condition. Such a case may go home and kill his wife or some other person on the slightest provocation, or commit some strange crime, without suggestion and from a passing impulse. The suggestion to have committed this crime any time before would have been unheeded and failed.

In reality the chronic and degenerate inebriate, while in some cases susceptible to suggestions of criminal acts, lacks reason and steadiness of purpose to carry them out. The confused brain is the center of conflicting impressions and rapidly physiologic changes that make it impossible for any fixed line of action to be pursued. Each glass of spirits increases the circulation of the blood in the brain for a brief time, then diminishes it. The exhilaration and rapid thinking of one period is followed by the depression and slow confused thought of another, and these follow each other so rapidly that it is almost impossible to follow any special line of conduct or carry out any particular idea. In certain cases confessions of criminal suggestions are made that are false. Crime is committed and the inebriate when sober is unable to explain why he should have acted thus. The thought that possibly some one urged him to do the act occurs. After a short time this becomes a conviction which increases with each repetition.

In one instance an inebriate who had shot his brother was questioned at the station house by a zealous officer, who suggested that he committed the crime under the direction of an enemy of the murdered man. He accepted this theory and confessed to an elaborate plot, in which all the details were described minutely. On the preliminary trial this story was elaborated, and accepted as true. Later, it was proved to be false in every particular. The prisoner had not seen the man who suggested the crime for many months, and at the time he was supposed to have instigated the crime was in a distant part of the State.

In the second case an inebriate who committed an assault which proved fatal, was told by his wife that she believed it was done at the bidding of a certain companion who had great influence over him. He accepted this and asserted it to be true, giving minute details. Later, it was ascertained to be false, and without any basis of reality. The statements of chronic inebriates of the causes and conditions of crimes which they have committed, are unreliable and untrustworthy unless confirmed by other testimony.

The possibility of committing capital crime at the suggestion and bidding of other persons is always open to grave doubts and should never be accepted as a fact unless established by very clear evidence. The statements of undue influence and suggestion of crime after the act by the criminal may be equally doubtful and should require the strongest proof before acceptance. In civil contracts and wills this question of suggestion is more frequently an issue. In wills the point raised is the undue influence of some interested party exercised when the man was intoxicated. Here, as in criminal acts, there is a wide range of possibilities and no general or uniform line of conduct which can be predicated. The enfeebled brain alternately exalted and depressed, always under a mask, and never able to appreciate its relations to the surroundings will act differently at different times. In one case such a man willed his property to his youngest son, and the next day to a daughter, then to the physician. In each case he declared he had no other wills and was, no doubt, honest in his convictions. It is extremely doubtful if any acts or disposition of property can be relied upon as rational, unless the act in itself is consistent and reasonable and just in its results to all concerned. A chronic inebriate disposed of a large property to many persons, and an issue was raised of his intoxication at the time of making the will. It was proved that the provisions of the will had been determined and mentioned to many persons long before, and in reality was simply the culmination of previous reason and judgment, that could not have been influenced by the intoxication at the time of signing the will.

The chronic inebriate not infrequently exhibits new and distinct personalities of thought and conduct. When drinking rapidly he may display emotional delirium of thought and conduct. At another time when using spirits regularly in excessive quantities, be very still and reserved, and show caution in conduct and speech. In the first period he may be loud and violent in his language but excessively cowardly, and the possibility of committing a capital crime at this time is very slight. In the second period the crime may be the sudden impulse of the moment, and never premeditated a moment in advance. In some persons, delusions of persecution, open or concealed, may be present and crime may follow as a sequence to this, but only from a rare combination of events. In other cases optical and aural delusions are the basic exciting causes. In some cases where after long continued intoxication voices are heard, some of which are threatening and insulting, sudden assaults are committed, the real causes of which may be forgotten. In a case of this kind a fatal assault was committed which was explained as self-defense at the time. The next day all recollection of this had faded away. In a second

case a fatal assault of a stranger on the street was explained by the criminal inebriate as self-defense. The victim came toward him with the most violent language and threats, telling him that he had a concealed knife which he would use and send him to hades. In the wild frenzy of fear the act was committed. The victim was quietly walking down the street, all unconscious when struck down. The criminal could not recall the reasons for this act a few hours later.

Optical delusions have been noted in some cases where suddenly the appearance of some man on the street would be interpreted as evidence of assault, and in defense the inebriate would attack him. Such cases are termed mistaken identity, and are settled as blunders and accidents. Some chronic inebriate will suddenly on the street have optical delusions, and conceive that the man who is passing him with his hand raised, is in the act of assaulting him, which he repels instantly, only to discover his mistake which he explains as mistaken identity. He may at this moment hear voices and have aural delusions as well as optical delusions; after the act he will have no clear recollection of what has occurred. *Many of the criminal acts of this class come from centers of infection, such as a dog fight, a personal altercation, an accident, some apparent wrong, or injustice; railroad and other strikes, or any occasion in which intense excitement is developed seem to have a powerful influence over the alcoholized brain. Crime under these circumstance is fitful, unreasoning and largely accidental, and of an insane transitory type. Property is destroyed, assaults are committed and strange unaccountable wrongs are enacted, associated with a degree of frenzy that dies away quickly before any superior force.*

The chronic inebriate thrown into centers of excitement, drinks freely and is soon narcotized and unfit for any physical or mental activity. On recovery from the stupor in centers of similar excitement, he becomes more delirious, and the former delusions are more prominent and new ones added.

Practical observation shows that the open saloon near centers of great public excitement is not only dangerous but increases the services of lawlessness and incapacity of all who frequent it, to act rationally. Crime committed in such circumstances and surroundings is practically insanity.

Sexual crimes by this class will be of the same impulsive unreasoning character. The history of the case, and circumstances of the act, will rarely fail to show the delusional and delirious character of the mental operations. The sexual impulse in these cases is usually exhausted early in the progress of the case, and passion is a small element in criminal acts. Cases who have been excessively immoral, as a rule, have parietic symptoms and are always exhausted and have incipient or pronounced states of dementia. Criminal acts lack in reason and premeditation, also ordinary caution and prudence, and when studied point out clearly the degenerate brain of the person. Any criminal with a history of chronic inebriety, meaning continuous and excessive use of spirits, is a pathologic case and should come under medical care and study at once, before his case is adjudicated or is examined legally. What are the physical conditions which have entered into the act, and been influential or prominent as causes? It is the answer to this question which will determine what disposition should be made of the criminal.

## READY-MADE MEDICINES.

BY CHAS. E. WARREN, M.D.

ROSLINDALE, MASS.

Some of the many medical journals, and societies, assuming a censorship in the matter, unauthorized by reason, and mistaking a spirit of obstructiveness for one of conservatism, have been trying in the past and are attempting at present to pronounce a wholesale damnation of ready-made medicines, without discrimination, asserting that such preparations are unscientific and unreliable; branding the physician who avails himself of them as too lazy to write a prescription, or too ignorant to know how. The physicians are also stigmatized as violators of the Code and irregulars, and are tacitly excommunicated from the body medical, by these self-appointed and self-righteous judges. It is too true, 'tis a pity too, that there are in existence many medicines, made up of unknown or unheard of ingredients, claiming to cure every ill that flesh is heir to, and many besides that have a spiritual existence only in the mind of the originator; myths, which he sends forth to dwell in the bodies and terrify the minds of his victims, as spooks and ghouls were supposed to do in ancient times, living on human flesh and preying on immortal souls. Of such remedies we can not express too deep an execration or pronounce too severe condemnation. We trust that there are few physicians who are so low in morality or so poor in purse as to resort to the use or recommendation of such remedies, and we are sure that all physicians and well-educated people will agree with us that the use of patent medicines without a knowledge of their composition, does injury to the health of the people.

"Because they may, and in fact sometimes do, contain powerful or poisonous articles unsuspected.

"Because they always may be, and often are inert, and become a false reliance to the neglect of other and due measures in the care of health.

"Because they are liable to be changed in composition so that any experience of their effects as they are purchased at one time, is not conclusive as to the same-named articles purchased at another time.

"Because they favor excessive recourse to medication, and thereby increase the resort to physicians, and intensify the demand for the physician to give medicine whether needed or not.

"Because it is submitting disease to the treatment of a distant and irresponsible stranger, and hazarding health in an apparent game of chance.

"Because they are trusted to act as an antidote in the sense in which no medicine can act.

"Because their analyses show the greater part of them to be given with multiplied falsehood, and the patronage of falsehood must be demoralizing both to the mind and to the body."

On the other hand, there is a class of special medicines, the composition of which is known, many of them prepared from the formulas of reputable and eminent physicians of high standing, by large houses or competent individuals, who have attained great skill by long experience. Such preparations have a merited place in modern medicine and are to a greater or less extent, employed in the practice of every physician.

It would be manifestly absurd to condemn in one sweeping statement, without a hearing and without qualification, all remedies known by a special name

or which are superior in purity, elegance of preparation, facility of administration or assimilation, or which are prepared by a well-known house, simply for any one of these reasons mentioned.

It is claimed that the use of these remedies is unscientific. But why, forsooth? Is it not unscientific and irrational not to use them? Medicine ought to avail itself of every remedy that it can obtain.

The Code asserts that it is unbecoming to the profession to keep secret any remedy which is found to be of benefit to mankind. But if we are required to give information to our confrères, *pro utilitate hominum* should we not also be willing for the same reason to accept information, or its equivalent, a remedy which will alleviate suffering or cure disease?

The duty of the physician morally, aside from monetary questions, is to alleviate sickness and this he is in honor bound to do, in allegiance to the name he bears, regardless of any code to the contrary. If a medicine is in the market which is superior to any that he knows of, he is bound to use it. Even the courts of justice say this, for a man is supposed to keep abreast of the times and to give his patient the benefit of all the improvements that progress may have introduced.

Many of the preparations in that classic book of reference, the Pharmacopeia are merely empirical compounds, some of them centuries old, handed down with the Code, as relics of a by-gone age, moss-covered milestones in the road of progress, which would be more fitting as tombstones of the dead past. When we read the list of advantages claimed for some of the official drugs, and see what an army of ills each one can slay single-handed, yea, more than the jawbone of the ass, in Samson's hands, we are led to think that the description is nearly as inclusive and sweeping as that of some quack medicines which claim to cure everything without regard to sex, age or nationality.

Many special medicines contain but one remedial agent in an agreeable vehicle or combination. Others are rational compounds which clinical observation and physiologic experimentation have shown to have a real value in medicine. No one can consistently deny but that the value of a given drug is increased with its elegance of administration or perfection of assimilation. A cod-liver oil emulsion is certainly tolerated in many cases where the plain oil would be rejected, and we think the physician who would refuse to use one of the many emulsions in the market in such a case would be guilty of contempt of the times and negligence of his duty to mankind. The same is true of all elegant preparations; gelatin- and sugar-coated pills, encapsuled powders, cachets, flexible capsules, elixirs, syrups and the like, and in especial of prepared foods, yet such is the obstructiveness of conservatism that at a recent State meeting of physicians all food articles were excluded from the exhibit. Such an action was certainly very short-sighted in its policy and derogatory to the good name of the profession as a progressive body. Physicians, who all of their lives have laid special stress upon the advantages of a properly regulated regimen in living and eating, and have attempted to discourage the indiscriminate employment of medicine by the profession, and the irrational resort to drugs by the laity as a cure for every ill, are helplessly and involuntarily placed in an anomalous position by such an action which seems to set medication above treat-

ment. They seem to say to the young physician, You must give medicine; let nature take care of herself. Medicine you must give! Accordingly the advance guard who depend more upon a rational treatment, are cut off from the main body of the rank and file and left without support.

We eat to live, but unfortunately some are so constituted that it is very difficult to find anything suitable to eat. In wasting diseases, in fevers, where it is all important to keep the spark of life alight until we can subdue the raging disease, or until it wearies itself out and its violence is overcome by sheer exhaustion; in such cases where each drop of nutriment is fuel, like oil for life's flame, we welcome liquid foods, beef extracts and other invalid foods as we would nectar from the gods. To the invalid, such foods may serve as a staff to aid him on life's rough road, to help him to ford the river of disease, and perhaps to gain the vantage ground of health beyond. In such a case, food is far more valuable than medicine and, in fact, in some cases medicine is injurious.

It is said that ready-made medicines are unreliable. In truth, many of these are more reliable than those extemporaneously compounded. Even the druggist who attempts to dissuade the physician from the use of these articles, avails himself of a certain class in his extemporaneous work. Tinctures, syrups, extracts, plasters and the like are sold in large quantities to the druggist, and few at the present day fill their stock bottles with their own preparations, since they can purchase them, of standard and uniform strength, cheaper and better than they can make them extemporaneously. In the preparation of these remedies the purest and freshest drugs are employed, as a rule. Expensive machinery is needed and the utmost care is taken at every step to retain the activity of the drug. Careful assays are made during the progress of manufacture and a standard article is placed on the market.

It is asserted that the use of these remedies is a violation of the Code of Ethics. It is not! These preparations are not patent or secret and are not vaunted as cure-alls. They are advertised, legitimately, in medical papers of established character, the proper medium for conveying information to the profession. The manufacturers incur great expense to inform the profession still more, by samples and circular letters, and by their agents, all of whom are as a class gentlemanly in their address and unobtrusive in their manner, contrary to the rule of the road that "a drummer is a bummer." Many of these agents are young physicians and are thoroughly entitled to the respect of the physician upon whom they call. No man knows so much but that he may know more. I am not ashamed to say that I have learned many points of value in talking with such men and have seen some very pretty and striking demonstrations in my office, and yet some men who are ethically gentlemen prove themselves practically bores by their ungentlemanly reception of agents, forgetting that civility costs little and is worth much.

Any one who uses ready-made preparations, does so understandingly; the character and quantity of the ingredients is known; the dose of each is regulated and it is as proper to prescribe them as it is any drug in medicine. It is unfortunately true that these remedies may be abused. Manufacturers may advertise their preparations among the laity and they may



thus become household remedies. But if they do good and relieve suffering they are in accordance with the Code. Then, too, there are many drugs that are household articles such as Jamaica ginger, paregoric and the like, and yet we prescribe them in spite of the fact that they are known to the public. Granting that the manufacturer abuses the confidence of the physician, the latter has the remedy in his own hands. He alone can regulate his own actions and it is manifestly unjust for any man or clique of men to lay down arbitrary rules for his guidance, to trespass upon his liberty, or to dictate arbitrarily, "this, thou shalt not do."

I am convinced that much of this hue and cry is raised by mercenary druggists, actuated by envy or malice. One reason for this is that it is becoming possible for the physician to dispense his own remedies, thus naturally depriving the druggist of a large percentage of profit. His cupidity being disappointed, he turns like a snapping dog on the one who opposes him and by blackmail attempts to injure him. In former days the physician properly filled his own prescriptions; the druggist was a latter-day convenience, but now the physician has become the druggist's convenience. The patient comes to a physician and gets a prescription, which he has charged; he takes this to the druggist who fills it and gets cash, several hundred per cent. upon the dollar, in many instances. If the druggist is not over-scrupulous, he will not hesitate to fill the prescription an indefinite number of times, by number, for any one who may call, or to recommend the prescription to others, or to put it up as a preparation of his own. We once had a patient who begged for a face lotion and we gave her a prescription making a 4 ounce mixture. She liked this so well that she had the druggist put up a gallon of it and retailed it to her neighbors and has since established a thriving business. In another case, an enterprising druggist, more enterprising than honest, criticised a prescription and the treatment, and sent the patient to another physician who paid the druggist a percentage—and the patient—died. These are not imaginary cases but facts, for which I can vouch.

Physicians can change all this and easily settle the much disputed point as to the ownership of the prescription by furnishing the patient with his medicine, no prescription being needed. The patient is thus better satisfied as he gets something material, a *quid pro quo* for which we will pay much more readily than for a prescription and advice. The average mind can not approximate or appraise the value of an opinion; it can set a price on the material substance. Hence it happens that the druggist is paid, while the physician may whistle for his fees. The one is a business transaction, by a tradesman, the other an ethical courtesy extended by a professional gentleman, who sets a false dignity upon himself, and his comrades, and who is deterred from setting a just money value upon his services, because forsooth it is derogatory to the dignity of the profession. Still a man is thought more of if he insists upon his rights and for value given a physician certainly ought to insist upon an equivalent value in return.

Aside from the politic aspect, the physician can often alleviate suffering, at once, by having a medicine case handy, greatly to the relief of his patient and to his own reputation. Tablets, triturations, and

concentrated tinctures and extracts furnish potent remedies, in a portable form, which are of especial value in emergencies and in night service when it would be impossible, or would involve great delay to obtain them from a druggist at a time when a minute saved may mean a life saved. The charges made are serious and demand earnest consideration, but they should be conscientiously disposed of and be handled without prejudice. We have spoken of the Code. We do not want to be considered as opposing the Code. It is very good what there is of it, and plenty of it, such as it is. It contains incongruities, inconsistencies and contradictions which are not acceptable to a reasoning man. It attempts above all to manufacture a gentleman by arbitrary rules, and yet all know that gentlemen are born so and are not made so. The profession, individually, need no such Code. If a man can not keep the Golden Rule and the eleventh commandment, on principle, he ought to do so from policy. The profession do need a rational code of instruction in complicated cases and need it very much. The present Code is antiquated, and in many respects obsolete, and to be guided by it is like navigating one of our monster iron steamships with a crude and ancient compass and a roughly drafted primitive chart, both uncorrected and uncertified and sure to run the ship to destruction.

The Code tries to cover too much and takes too lofty ground. Some consider medicine a science, others an art. Some think physics a profession, others a trade. No rules can cover all this variety of purposes. The business must be governed by business laws which are practical. Science, which is essentially built upon theory, until proved by fact, can not be bound by narrow rules but must have latitude to soar and be visionary, to dream and, perhaps waking, find a reality.

All of us, as physicians, I am sure honor the first principle of our profession, that to alleviate suffering is of the first importance. I am sure we all realize the high morality of our calling and endeavor to advance its highest good, but incidentally the corporal existence must be maintained, for without a body there is no mind. So the money question is an important one after all. Way down at the bottom of the matter, at the root of the evil, we catch a glitter of gold, and we see the whole of mankind digging for that glittering gold with all their energy. Fame is but a name and glory but a story; both may make a good dessert but not a good square meal and neither has a marketable value.

### GANGRENOUS INGUINAL HERNIA.

HERNIOTOMY INCISION MADE—BROKEN GUT FOUND—  
LATERAL INTESTINAL ANASTOMOSIS WITH MURPHY BUTTON THROUGH INDEPENDENT LATERAL ABDOMINAL INCISION—SIX MONTHS LATER, AN END-TO-END UNION FOR THE CURE OF FECAL FISTULA—RECOVERY.

Read before the Chicago Pathological Society, Feb. 11, 1895.

BY THOMAS A. DAVIS, M.D.

CHICAGO.

Patient a male, white, aged 36. Admitted to the Medical Department of Cook County Hospital on Feb. 27, 1894. At the time, the following brief his-

tory was written: patient has been sick about one week, suffering from severe pain across the lower part of abdomen. His bowels have not moved for five days. He has suffered from a right inguinal hernia for nineteen years and stopped wearing a truss two weeks ago because of pain in the abdomen which he thought due to the truss, which had been worn with comfort for years previously. Has been vomiting for three days (not fecal) and has also had troublesome hiccoughs.

Examination: chest negative; abdomen rather distended, tympanitic on the left, flat on the right. Hernia is reduced. No impulse on coughing. Patient thinks that the hernia does not come down, when he stands up and coughs.

Morphiæ sulph. . . . .	gr. 1-6
Pepsinæ . . . . .	gr. ii
Sodii bicarb . . . . .	gr. iv.
Bismuth sub nit . . . . .	gr. v
Pulv. Rhei . . . . .	gr. ii

Hot fomentations to abdomen.

This was the treatment given from the day of entrance into the hospital February 27, until March 3, when I made an examination of the case with the interne, and concurred in his diagnosis of strangulated hernia. The patient was immediately transferred to my care in the surgical ward and prepared for operation. The diagnosis was based on the history gotten at the time of the examination: that the intestinal obstruction symptoms did not subside after the apparent reduction of the hernia was made; there was tumefaction and tenderness on palpation in the right inguinal region (the seat of the hernia); the temperature was 97 degrees F., with pulse 84 and respirations 24 per minute. The patient's features were expressive of great distress.

Operation: an incision as for herniotomy was made. The hernial sac was found to be gangrenous, the gut gangrenous and broken open and fecal extravasation, which had given rise to a phlegmonous inflammation of the surrounding tissues had occurred. This seemed to me to be a very unfavorable field for a hernia-laparotomy and equally so for the establishment of an artificial anus, as very little, if any, intestinal contents passed during my inspection of the broken-down gut; and if, as I thought, the obstruction was due to inflammatory adhesions, together with still existing primary constriction at the inner ring, to break these adhesions down, it seemed to me, would invite a septic peritonitis. For these reasons I concluded to make a lateral-intestinal anastomosis with the Murphy button through an independent lateral abdominal incision. The abdominal wall was thoroughly cleansed and the herniotomy wound was packed with iodoform gauze. A lateral (right) abdominal incision about five inches in length was made, extending to within two inches of the upper end of the primary herniotomy incision. When the parietal peritoneum was cut through, a distended, congested, intestinal coil appeared and was traced but a short distance downward when its attachment to the internal ring was found. This was the proximal gut. A loop of collapsed intestine was drawn up from beneath the distended gut, traced to the same point of adhesion, and was considered to be the distal gut. There was no evidence of peritonitis. A lateral anastomosis was quickly made with button No. 3, and the abdominal wound closed. Free fecal circulation was promptly established and patient made an uneventful recovery, so far as general health

was concerned. Locally, however, the conditions were not so favorable. The button passed down the proximal portion of the gut and necessitated extraction nearly two months later.

About one month from the time of the removal of the button, fecal discharges ceased from the fistula. Patient was now allowed to get out of bed and to be about the ward. He grew strong, increased in flesh and felt pretty well, but the fistulous discharge increased and became fecal, and patient was transferred to the suppuration ward and given a bed, the first one from the large outside door where he said he took a violent cold the first night that he spent in the ward. From this time he began to fail. A severe cough with free purulent expectoration, loss of appetite and progressive emaciation attending. The offensiveness of the rapidly soaked dressings made life miserable and the patient urged an operation for the cure of the fecal fistula. This I did on September 10.

After curetting the fistulous tract, carefully disinfecting the field of operation and packing end of proximal gut with iodoform gauze, a hernia-laparotomy incision was made, opening into the peritoneal cavity just above the internal ring. The adhesions to this gut were but a line in thickness, though quite firm and strong. They were severed with the scissors, the intestine drawn down and Murphy's intestinal clamps applied. The mesentery was then tied off for two inches from either end and end-to-end approximation, with round button No. 3 was made. The peritoneal cavity was closed by suture and the external wound was sutured, leaving small space for iodoform gauze drain.

The recovery from operation was apparently without incident, excepting that the severe cough caused some intra-abdominal pain and necessitated an extra compress over the field of operation. Button was passed per rectum the tenth day. The subsequent history is that of progressive emaciation, severe cough, profuse expectoration until death October 23, forty-three days from the last operation.

The patient was able to be out of bed for a few days from about twenty days after operation. The history of the case from the time of transfer from medical ward March 3 to the time of death could not be found, so that I have been obliged to draw almost wholly upon my memory for this description.

#### NECROPSY.

Body quite emaciated. Circulatory organs: pericardium smooth and shiny and contains about 30 cc. straw-colored fluid. Heart: about the size of owner's fist, soft and flabby, weighs 320 grams; decolorized clot in right ventricle; both ventricles contain clotted blood; tricuspid valves negative; numerous small plaques in aorta; all valves competent to water test. Pleura: adhesions on right side anteriorly; none laterally or posteriorly; few adhesions over left side; there were firm adhesions below to diaphragm. Lungs: weight together 1700 grams (left 920 grams); right lung, firm inter-lobular adhesions, crepitates and floats; lower lobe, posteriorly is firm; both upper lobes emphysematous along anterior margins; a thin frothy fluid expressed from lower lobe (edematous); small cavity in apex of this; (right lower lobe not described). Left lung: lower part sinks, upper lobe emphysematous; inter-lobular adhesions; pleura much thickened in places;

the whole lower (left) lobe has many cavities, filled with brownish purulent fluid, some of it being thick and cheesy, gray and very offensive. No description given of condition of lung around these cavities.

Peritoneum: smooth and shiny except over region of operation. Stomach: negative. Small intestines: a band of adhesions from the parietal wall near the seat of wound of operation, passed downward and attached to ilium about three feet above ileo-cecal valve. Large intestine: negative. Liver: two thousand grammes; surface smooth; markings distinct; substance firm; lobules indistinct; center depressed and periphery raised; on cut section, pale in color. Gall bladder: thirty cc., dark bile; duct patent. Spleen: weighs 140 grams; flabby; capsule smooth; section, soft and pale in color. Kidneys: embedded in mass of fat, together weigh 400 grams, right, pale on section; pyramids distinct; cortex to the medulla as  $2\frac{1}{2}$  to 1; capsule peels readily; stellate veins marked; vessels in cortex well marked; glomeruli quite distinct. Left kidney: small cyst on posterior inferior extremity; otherwise same as right kidney. All other organs examined, negative. Microscopic, anatomic or bacteriologic examination not made.

#### Post-mortem diagnosis:

1. Beginning endarteritis deformans of aorta.
2. Localized adhesive pleuritis.
3. Right lung: edema of lower lobe and small cavity.
4. Left lung: multiple cavities in lower lobe. (abscesses).
5. Parenchymatous degeneration of liver.
6. Parenchymatous degeneration of spleen.

The specimen of intestine which I will exhibit shows perfect union in both lateral and end-to-end approximations of bowel. The cicatrices are linear and slightly less thick than the normal bowel wall. The thickening near the end-to-end approximation is due to the puckered four inches of mesentery which was tied off from the intestine resected. The lumen of the end-to-end union is as large as the button; that of the lateral about one-fifth larger.

#### CONCLUSION.

1. That the cause of death was independent of surgical operations.
2. That while the statistics so recent, and as yet showing so few cases of intestinal union with the Murphy button, do not place it beyond the pale of a device on trial, yet, if the statistics are referred to at all, we have the same right to make comparison between the different methods of the application of the button. In the *Clinical Review*, February, 1895, Dr. Murphy reports, in total number of cases up to date, seven cases of lateral anastomosis for benign obstruction with seven recoveries. With my case it would be eight cases with eight recoveries. In the same report he gives, "of the resections for gangrenous hernia, twelve cases with two deaths, a mortality of  $16\frac{2}{3}$  per cent."

In both of the fatal cases the gangrenous gut was broken, and in one an extensive peritoneal infection had occurred prior to the operation.

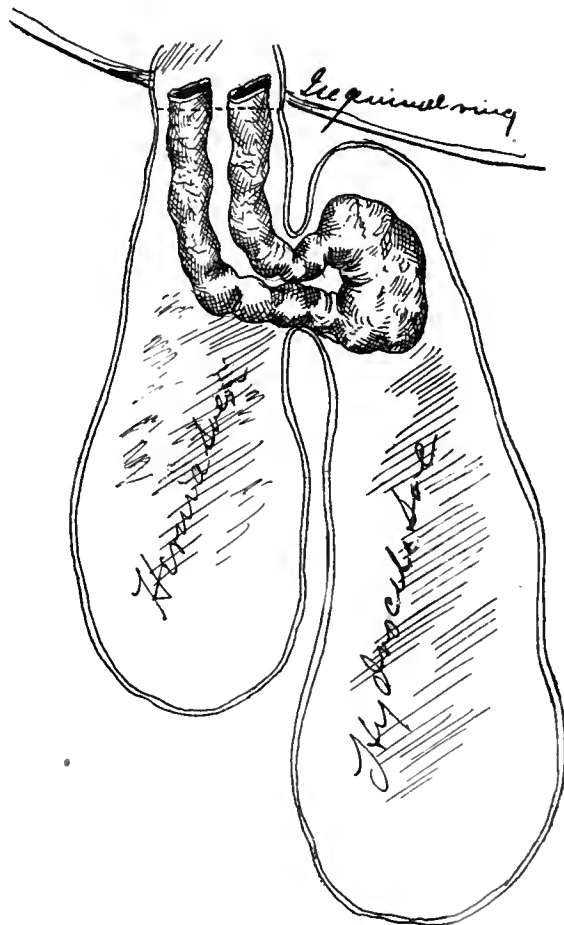
In his conclusions, in Dictum No. 6, Dr. Murphy states that end-to-end union should always be performed in gangrenous hernia. For the reasons given, and in consideration of experience in my case, I would beg to differ, and would offer a classification of gangrenous hernia: 1, with unbroken gut which

should be treated by end-to-end union; and 2, broken gut which should be treated by lateral anastomosis.

3. That the restoration of the fecal circulation by means of the Murphy button gives a large union-lumen, with marginal linear cicatrix, and all of the apparent conditions would seem to insure permanency and adequate patency.

#### DISCUSSION.

DR. J. B. MURPHY—The question raised by Dr. Davis as to whether the lateral or end-to-end operation should be preferred is certainly one that has two sides to the question, and I can see that there is good ground for taking the position the Doctor has taken. In my most recent case, which was somewhat similar to the one reported, there was gangrene of this portion of the bowel as well as the sac; that is, the sac of the congenital hydrocele was entirely gangrenous and infected, and it has been my belief since, that if I had



merely drained the hydrocele sac and made a lateral approximation in the hernia above, I might have saved the patient. Still there was a large quantity of fluid and blood in the peritoneal cavity at the time of the operation, and the case had gone on for six days with complete obstruction. Lateral approximation could have been made very readily without opening the sac of the hydrocele. The diagnosis of the pathologic condition was not made until I opened the original hernial sac. There were two sacs in this case; one hernial, and the other a hydrocele sac, and the patient had a Littre hernia in the ring of the hydrocele sac, involving four-fifths of the circumference of the bowel. The Doctor reduced hernia from the hernial sac and supposed he had completely done so, but examination of the patient before operation showed that he evidently had continued obstruction. I believed that it was because the hernia had been reduced *en masse*, and that the strangulation continued at the neck of the sac within, as we frequently find in umbilical hernia, but that was not the case. It was simply a strangulated Littre hernia that had existed from the beginning in the hydrocele sac, as shown in the illustration.

The operation of lateral approximation frequently requires a secondary operation, but not always. Dr. Joseph Price, of Philadelphia, has operated in one case which did not require a second operation, and there are two or three others who have done the same. Another objection to lateral approximation with this method is that the button might appear on the proximal side, that is, instead of falling into the distal portion of the intestine, it will fall into the proximal portion, the distal portion having been contracted before obstruction; but if the precaution be taken on the third or fourth day after the operation, to compress the fistula so as not to permit the escape of the contents of the intestinal canal through, the current will pass out through the opening in the side of the button, and the button will not appear in the fistula but pass on into the intestine. I saw an article recently in the *Annals of Surgery*, reporting a case of this kind, in which the doctor stated that on removing the button through the fistula, he tore the adhesions that had formed at the site of approximation. The report differs very materially from one which I received from the interne who made the autopsy after the death of the patient. The interne told me that the intestine was torn loose from the abdominal wall in extracting the button, and not at the seat of approximation. The doctor who reported the case must have misunderstood the post-mortem report which he had received or had forgotten it. It makes a very great difference in these cases, for it is an unsurgical procedure to extract a button of the size of No. 3 through a fistulous opening in the intestine. Dr. Davis tells us that at the second operation there was but slight adhesion; that the adhesion of the bowel to the abdominal wall was not firm. When we are resorting to lateral approximation, one of the precautions to be taken is not to make much traction on the intestine. If this is done we will tear it loose from the abdominal wall and leakage will occur.

Another difficulty encountered in lateral approximation is that we can not always tell when we have the right coil. (Dr. Murphy demonstrated the importance of this point by illustrations.) With reference to the mortality following end-to-end approximation for strangulated hernia, where we have a gangrenous condition and all the tissues are infected, we must expect it to be large. If we have a hernia that has existed for a long time with all the tissues infiltrated, I think the position taken by the Doctor, of resorting to lateral approximation is the proper one; but if we have the gangrenous non-perforative condition, mentioned by the Doctor, I believe the end-to-end operation is preferable.

## NEPHRECTOMY FOR TUBERCULAR AND SURGICAL KIDNEYS.

Read before the Chicago Pathological Society, Feb. 11, 1895.

BY J. B. MURPHY, M.D.

CHICAGO.

The following is a clinical history of the cases from which I secured the kidneys I here present for your examination:

Case 1.—Mrs. P., age 32, of Dixon, Ill., came under my observation May, 1888. Had complained for the last three months of pressure and pain on the right side just below the margin of the ribs. The pain was of a somewhat intermittent character, at times severe and at times entirely absent, but a sense of increasing pressure on the right side caused the patient to consult a physician. Examination of heart and lungs negative, patient emaciated, abdominal walls drawn in. On the right side a movable tumor the size of a man's fist could be detected at the position of the right kidney. It was somewhat irregular and very sensitive to pressure. It moved up and down about one inch with respiration. The fingers could not be pressed in above its margin, between it and the liver. The urine showed pus in considerable quantity, a few blood corpuscles, and no renal epithelium; specific gravity 1018; quantity in twenty-four hours, forty-one ounces. The lower end of the left kidney could be felt between the hands, was not enlarged and was slightly movable. The pressure on

the side continued during the succeeding week. Urination became more frequent and slightly painful. Temperature in the evening 101, on an average. There was at all times an absence of a history of renal colic. Diagnosis: pyelonephritis. Operation, September 1888, lumbar incision; pelvis exposed, kidney opened and drained; contained pus, but no stone. I could not succeed in passing a catheter down the ureter. Pus disappeared from the urine for a time, and the patient improved. The tumor diminished in size. After a time the drainage was dispensed with, but the patient was attacked with chills and fever, and the drain had to be re-inserted. Notwithstanding the thorough drainage, every three or four weeks the patient would have an attack of fever. During the attack she emaciated rapidly, and the pus in the urine increased in quantity. The discharge through the tube was offensive. She wore an elastic urinal over the tube. About half a pint accumulated in twenty-four hours, consisting of pus and urine. This was kept up until October, 1894, six years, when the patient finally consented to have the kidney removed. Quantity of urine passed daily, through the bladder before operation, thirty-two ounces, containing considerable pus; urination every hour, day and night. The patient had a chill the second day before operation; temperature 105, pulse 134. She had become addicted to morphin. Operation Oct. 19, 1894. A posterior incision around the sinus was made, and liberation of the urinary fistula down to the perirenal adipose tissue effected; then an anterior incision along the right linea semilunaris into the peritoneal cavity. Cecum and colon were then displaced to the right. An incision five inches long in the posterior peritoneum exposed a large indurated mass extending from the lower margin of the liver to the brim of the pelvis, and from the median line to the spinous process of the ilium. The posterior peritoneum was peeled off, drawn forward and sutured to the anterior peritoneal layer, thus shutting off the peritoneal cavity from the field of operation. The process of enucleation was then begun, first on the outer side until the fistula was reached and the adhesion separated, then the upper margin separating it from the liver and gall bladder. Great difficulty was experienced in removing it from the iliac vessels. The tumor was then drawn forward in the wound, the ureter separated and cut off. The induration continued beyond, and embraced the abdominal aorta and vena cava. Twice I had my finger around them, believing they were adhesions. A very careful dissection was then made between the margin of the kidney and the vessels on the right side; the renal vessels secured and ligated; remaining adhesions separated and the kidney taken out. The ureter was fastened in the lower angle of the wound; the upper angle was packed with gauze, and a small anterior drain of gauze close to the ureter. Gauze drains were used, and the ends retained in the wound.

It was the most difficult operation I had ever performed; and I am confident if I had endeavored to remove the kidney through the posterior incision, I should have torn either the iliac or abdominal vessels or both.

The patient's convalescence was uneventful. The morphin was cut off at once, and on the third day the patient jumped out of bed and quarreled with the nurse for morphin. Still it had no untoward effect on her. The pus has entirely disappeared from



the urine. The average daily quantity is forty-seven ounces. At the time of operation patient weighed 91 pounds; she weighs now 128 pounds.

Pathologic condition of kidney: the cortex had almost entirely disappeared; here and there a small nodule of secretory tissue remained. The mass looked like a thick-walled multilocular cyst; some of the pockets had only small openings accounting for the retention symptoms. The ureter was pervious, but its mucosa very much thickened. The microscopic appearances will be described by Dr. LeCount. The gross appearances were those of a pyelitis with retention.

*Case 2.*—Mrs. C. applied to me for treatment June, 1894. She had previously suffered from a pleuritis with effusion, which had disappeared; had enlarged glands of the neck, and a family history of tuberculosis. Complained of frequent urination followed by severe pain; quantity of urine passed in twenty-four hours, thirty-four ounces. It contained blood, pus, and tubercle bacilli. An enlarged, slightly movable nodular kidney could be felt on the right side. Examination of bladder, Kelly method, showed a tubercular ulcer around the right ureter and induration of ureter also present. Urine from that ureter contained a large quantity of pus; urine from left ureter normal. Diagnosis: tuberculosis of the right kidney and ureter, with tubercular ulcer of the bladder. Patient was suffering so intensely that it was decided to remove the right kidney and ureter. This was done with an incision similar to former case, in the right linea semilunaris. The kidney was much enlarged, sacculated, still readily enucleated; vessel ligated, ligatures cut short. The ureter was much thickened and removed to below the margin of the pelvis, was ligated, and a strand of gauze brought from the ureter out of the lower angle of the wound; wound closed with posterior and anterior gauze drain; forty-eight hours drainage; removed, with result of complete primary union. Patient's bladder symptoms subsided, a very small quantity of pus being found in the urine; she left the hospital three weeks after the operation. Two weeks after leaving the hospital the tenesmus set in anew. The pus increased in the urine; the bladder symptoms increased rapidly in severity until complete control of the sphincter was lost. The position in the wound where the ureter was sewed, reopened. Bacilli were present in the urine. The patient's condition became worse. She died Jan. 10, 1895, with symptoms of uremia, dropsy, and tuberculosis of bladder.

Pathologic condition of kidney: kidney reduced to a tubercular sac; all resemblance to a kidney gone; made very fine sections. The cortex was reduced to a granulation tissue sac, caseous inside. Here and there, evidences of tubules with regenerated lining cells, only obliterated glomeruli, the so-called fibroid glomeruli on the outer portion seen. The ureter was not so much attacked by the tubercular process. The muscular walls were in fair condition. The lining was gone and the ureter filled with caseous and necrotic debris.

The anterior incision made in these cases, I consider of very great importance, as it exposes the field of operation perfectly, and all tissues can be recognized and relations kept well in view. The only advantages which a posterior or lumbar incision has over an anterior are: 1, the peritoneum is

not opened; 2, drainage. The method I used, of suturing the posterior parietal peritoneum to the anterior, before extirpating the kidney, practically closes the peritoneum and makes the operation extra-peritoneal. I believe there is very little more, if any, danger with this method than by the lumbar incision. The posterior drainage is very easy to make after the operation is complete. The removal of an enlarged and adherent kidney from a fat subject through the lumbar incision is a very difficult and trying operation.

#### DISCUSSION.

DR. E. R. LE COUNT exhibited the specimens in connection with Dr. Murphy's paper, and made the following remarks: "The specimen from the first case shows the ordinary condition found in pyelonephritis, and at first I was inclined to think it was tubercular, but on examining the capsule and the trabeculae which divided off the cavities, I find it is not. The condition of the tissue is much more firm than that usually found in tubercular pyelonephritis, although on the whole, there is not a great deal of difference between the kidney in the first case and that from the second one, which is a tubercular pyelonephritis. There is this difference in the second case, that the formation of connective tissue in the capsule is not as extensive, and the connective tissue trabeculae which run down toward the pelvis are not as extensive either. Within the cavity of the pelvis we notice various sacculations, and the dilated calices are lined by well-marked necrotic membrane which is visible even at present."

#### A CASE OF BILIARY OBSTRUCTION BY A CALCULUS, WITH INTERMITTENT PYREXIA.

Read before the Chicago Pathological Society, Feb. 11, 1895.

BY ELIZA H. ROOT, M.D.

CHICAGO.

Mrs. M., aged 50, married thirteen years, the mother of five children, all healthy, the youngest being 7 years of age. She entered the Chicago Hospital for Women and Children Nov. 4, 1894. Previous history; the following history was kindly furnished by Dr. C. D. Collins: the patient was healthy before marriage, a few months after which she had her first attack of chills and fever. Some months later her first child was born, and during the following year she was quite well. Then the second attack occurred. From then on, she had repeated attacks at irregular intervals and lasting varying lengths of time. These attacks were characterized by chill, fever and sweat, followed by great prostration. Soon after the birth of her youngest child, an attack occurred after which she never wholly recovered, but has failed in health and suffered from recurrences of the group of symptoms. She was habitually constipated, the feces clay-colored. During the last three years there has been no albumin found in the urine. She was better when upon vegetable diet. There is no history of syphilis. There was not much pain until recently, when it was severe at times. Condition on entering hospital: patient was much emaciated, skin and sclerotics deeply yellow. Coughs a good deal and suffers from dyspnea. Temperature, 99.8 degrees; pulse, 100; respiration, 36. The liver was greatly enlarged, the right lobe extending to the crest of the ileum, the left lobe filling the epigastrium and extending into the left hypochondriac region.

The patient was in the hospital one week. The urine was acid; specific gravity, 1010, bile stained in color, and contained no albumin. The pulse was irregular, ranging from 80 to 120. The temperature was from 99.8 to 101 degrees F. The respiration varied from 30

to 36, and there was great dyspnea at times. Patient died comatose.

AUTOPSY BY DR. VIDA A. LATHAM.

The examination was made twenty-four hours after death, Nov. 12, 1894. The salient points were as follows: there were firm adhesions over surface of left lung, with calcareous patch on posterior surface. The heart weighed 496 grms., and showed simple hypertrophy. The pancreas and liver with pylorus end of the stomach were firmly united by adhesions, and together weighed 3,712 grams. The pancreas was very firm and showed increased connective tissue. The liver was greatly enlarged, a thick yellowish-green fluid oozing from its cut surface. Pigmentary deposit was seen in the periphery of the lobules, and there was a marked hyperplasia of Glisson's capsule, even to its finest ramifications. The gall bladder contained little fluid, and its walls were very friable. A calculus was found in the bile passage at the junction of the cystic and hepatic ducts, the latter being larger than the gall bladder. The calculus was two inches in length. It was examined chemically by Dr. J. H. Salisbury, and found to consist of cholesterolin, the soft exterior being reddish yellow in color, but containing little or no trace of iron. Crystals of bilirubin and biliverdin were present in the liver cells, capillaries and bile capillaries. The ductus communis choledochus was patent. A point of interest was a duct-like connection between the duodenum and fundus of the gall-bladder. This is evidently a point where suppuration had occurred and healing had taken place.

The kidneys together weighed 400 grms. They were both pale with indistinct cortical markings. The spleen was enlarged, weighing 432 grms., nodular and firm to the touch, and deep red in color. The stomach was small, with thickened patches along the greater curvature. There was a decided constriction of the pyloric end at the junction with the upper two-thirds of the viscus. The peritoneal cavity was filled with a clear yellowish-green fluid. There were abundant firm peritoneal adhesions.

Bacteriologic and microscopic examination: cultures from the liver gave the bacillus coli communis and pyogenic cocci. The tissues, hardened and stained in various ways, gave the following, on section under the microscope: the spleen showed the changes of chronic passive congestion; the pancreas exhibited a well-marked chronic interstitial inflammation with indistinct parenchymatous cells; the kidneys showed an arterio-sclerosis, with shrunken glomeruli; the tubular epithelium was swollen and desquamated; the capsules were thickened and there were subcortical hemorrhages. Blood cells and casts were seen in many tubules. These changes were most marked in the left kidney. In the liver were seen a commencing cirrhosis and a perihepatitis. Bands of fibrous tissue extended in from the surface. The liver cells were cloudy, swollen and fatty. Some times between distended capillaries were seen biliverdin crystals, granular material, breaking-down blood cells, some polynuclear leucocytes and bacteria, bacilli and streptococci. In places the central vein of lobules was obliterated. There was a well-marked cell infiltration and hyperplasia of the fibrous tissue. The bile ducts were atrophied, as also the portal vein and hepatic artery. The iron reaction was tried with negative results.

DISCUSSION.

DR. J. B. MURPHY.—The symptom of pyrexia in connection with lesions of the gall tracts is an exceedingly interesting one, and one concerning which we are not yet enlightened as to the exact cause of the pyrexia. We have the pyrexia occurring most frequently where a gall stone has reached the common duct, usually in the ampulla of Vater, and we have all the symptoms of an intermittent fever, with rigors every two, four or seven days, and sometimes even every fourteen days with regularity. In the cases in which post-mortem examinations have been made, it has been found that there was always an abrasion as a result of pressure of the stone, and it is my belief that on this account as well as because the ducts in this region are richly supplied with lymphatics, we have a septic manifestation developed. The temperatures occurring from impactions higher up are more rare, but not so very much so. We have cases of obstruction (from retention) to the cystic duct. In many of the cases I have operated upon for gall stones, over 50 per cent. were from obstructions in the neck of the gall bladder or cystic duct, never involving the common duct. At least 20 per cent. of these cases were accompanied by elevation of temperature. It is my belief that we either have infection or suppuration occurring in the gall bladder where we have no history that the patient has had either the presence of a stone or disease of the common duct. We know that abscesses form in the liver from impactions in the common duct; the infection in these cases must be in the duct. Where the retention is in the gall bladder alone, without infection or the presence of pus, the temperature rarely goes above 101 degrees, and where we find the presence of pus in connection with stones and cholecystitis, the temperature, even when the common duct is not involved, is as high as 103.5. I believe these are septic conditions. It is somewhat like the temperature we have from the passage of a sound into the male urethra. For a time that was considered of neurotic or nervous origin. From this condition of the common duct abscess of the liver may follow, that is, you will have multiple infarcts in the liver as a result of impaction in the common duct, which adds further to the belief that the pyrexia is of septic origin.

DR. ROOR.—The attacks of this patient continued for thirteen years at intervals, and she had these remittent and intermittent fevers. She had been under the care of other physicians who had treated her for ague; in the post-mortem there was nothing of the nature of ague shown. The peritoneum about the stomach, the liver and the upper part of the intestines were bound down with old and firm adhesions. From what I know of the case, I am inclined to agree with Dr. Murphy's idea that it was of a septic nature.

DR. GEORGE H. WEAVER.—In a case of this kind which I reported two years ago in which intermittent pyrexia had occurred in connection with gall stones in the common duct, for twenty-five years in a woman, there was noticed in her case one symptom which I have not heard spoken of or referred to elsewhere. Her bowels were constipated continuously, and if they moved freely, within a few hours she would have an attack of colic. The only way I can explain this condition is that the gall stones acted as an obstruction to the duct, the bile accumulating behind them in such a quantity that it distended the duct so that the gall stones fell back from the opening, allowing the bile to flow past into the intestines, and the bile entering the intestines in this way acted as a cathartic and caused the bowels to move. As the bile flowed from this cavity into the intestine, it allowed the walls of the dilated duct to come in contact with rough calculi, and in that way set up a spasmodic action which brought on the attack of pain. The pain was again relieved by the accumulation of fluid carrying the walls of the dilated duct away from the calculi. This was to me an extremely interesting symptom in connection with the case, and it might be that the fever which followed the attack of pain was due to the absorption of poisonous materials which were present. If the surface of the tube was freshly abraded by contracting down upon the rough calculi, this absorption would be favored.

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## PRE-COLUMBIAN LEPROSY.

BY ALBERT S. ASHMEAD, M.D.

LATE FOREIGN MEDICAL DIRECTOR, TOKIO HOSPITAL, JAPAN.  
NEW YORK.

(Continued from page 754.)

Dr. Franz Boas, who has given to the study of American races more time and interest perhaps than any other man living, who has just returned from an investigation of the Indian races of British Columbia, tells me that the Tenachca and Nass River Indians, whose diet consists mainly of small fish, smelts and shell fish (this is the diet which has always been supposed by the common people, and by many doctors, to be the predisposing diet of lepers) are not leprosy, but exceedingly syphilitic. Locomotor ataxia is almost epidemic among them. Dr. Gowers, of London, and many of our own specialists assert that locomotor ataxia succeeds syphilis, and that without syphilis there is very little locomotor ataxia. This is not my opinion. My experience in Japan, during two years of hard work, made it evident to me that in that region where they have lived in close familiarity with syphilis for thirteen hundred years, there never was, and there is not any locomotor ataxia. The same gentleman says that I am probably right in stating that locomotor ataxia has no syphilitic origin; for the old people of that tribe have a great deal more of locomotor ataxia than the younger and yet are less syphilitic. Besides, other tribes in that region examined by him have not locomotor ataxia at all, and yet have more syphilitic disease than the Tenachca Indians. Nor is it my belief, and I have had a great experience of such cases, that locomotor ataxia can be considered as a sequela or attenuated form of leprosy. For the disease called locomotor ataxia does not exist in Japan. If it was an attenuated form of leprosy, it would be found there. Therefore no matter how rampant the disease may be in British Columbia to-day, there is no evidence from this fact, that leprosy existed in British Columbia in pre-Columbian days.

Whether this syphilis of British Columbia came from East Asia or not, he is unable to say. He does not know of leprosy in any American primitive race.

Dr. Wm. F. Whitney, Curator of the Warren Anatomical Museum, Harvard Medical School, in an article entitled, "Notes on the Anomalies, Injuries and Diseases of the Bones of the Native Races of North America," published in the 18th and 19th Annual Reports of the Peabody Museum of American Archaeology and Ethnology, Cambridge, 1886, mentions among the diseases various exostoses with and without eburnation, and among the hyperostoses the subjects were as a rule persons past middle life. He says, moreover, that the flattened heads of the ancient Peruvians show also a large proportion of hyperostosis.

Periostitis is manifested by a deposit of new bone of greater or less extent, along the shaft of some of the long bones, especially the tibia. (For the evidence necessary to prove that this, as well as other changes, are the results of syphilis, see *Boston Medical and Surgical Journal*, vol. cviii, p. 365). The disease known as chronic rheumatic arthritis has also left its marks in roughness and deposits on the edges of the articular surfaces and on the bodies of the vertebrae. Under the heading, "Caries," he mentions three remarkable specimens.

The first, 17,223, stone-grave mound, near Nash-

ville, Tenn., affected the spine and there resulted an extreme case of anterior angular curvature. The disease had destroyed almost the whole of the bodies of the lower cervical, or upper dorsal vertebrae, and they had become united in a firm mass. The spinal column at this point was bent forward so as almost to touch, there being but a few centimeters distance between what are taken to be the bodies of the fourth cervical and fifth dorsal vertebrae. The amount of deformity must have been very great.

In this connection it is curious to note that there are in the museum, found in the stone graves of children in Tennessee, little clay images which are faithful representations of persons affected with Potts disease, and that many of the water bottles from the stone graves of Tennessee, and from the mounds of Missouri, represent women with hunchbacks.

From the mental acuteness says Dr. Whitney, which is so often associated with this malady, it is easy to conceive that such deformed people may have been held in peculiar veneration, or there may have been some superstition in regard to their protective influence. At all events this spine furnishes the veritable proof of the existence of persons so afflicted.

The second case of caries is found in bones, 27,372, from a stone grave in Brentwood, Tennessee. The articulating surfaces of the right femur and tibia forming the knee joint, show marked erosions of the smooth hard layer of bone on which the cartilage rests. At first sight, this might be attributed to the results of weathering; but closer inspection reveals the fact that there is a marked increase in the size of the openings for the nutrient vessels for some distance from the joint on either side, and that here and there the shafts are roughened by small pieces of newly formed bone. From this the inference is justified that the destruction noted above is the result of a chronic inflammation which in no way differs from the so-called "white swelling" of the knee that is always to be found in the surgical wards of any large hospital.

In the third case, 11,891, stone grave mound, Nashville, Tenn., it is the ankle joint that is implicated. The opposing surfaces of the left tibia and astragalus are entirely honeycombed by deep depressions, separated by irregularly shaped bony trabeculae with rounded or roughened edges. In the lower part of the tibia is seen a cavity communicating with the external surface by a small canal opening through the inner malleolus. Lying free in the cavity is a piece of dead bone, too large to pass through the hole.

These cases are interesting from the fact that such processes are now supposed to be the result of a local tuberculosis, and if this existed it is fair to assume that the internal organs must have suffered also from tuberculosis, the most common seat of which is in the lungs in some form of pulmonary consumption. This assumption is verified by one of the early writers on the habits and life of the Indians, who says of them: "*C'est peut être du même principe et de ce qu'ils ont toujours l'estoma et la poitrine découverte, qu'ils contractent une espèce de phthisie, qui les menant peu à peu en conduit la plus grande partie au Tombeau et à laquelle ils n'ont pu encore trouver du remède.*" (Lafitau, vol. II, p. 360, Paris, 1724.)—Translation. (It is perhaps for the same cause and from the fact that they have always the stomach and chest uncovered that they contract a kind of phthisis which, wearing them out, little by little, brings most of them

to the grave, and for which they have not as yet been able to find a remedy.)

There remain to note a few skulls which have cicatrices pointing to more or less extensive inflammation, the cause of which is still obscure.

The skull of a female of middle life, 18,264, from a stone-grave mound on the Little Harpeth River, Tennessee, has a number of slight cicatrized depressions, more or less distinctly connecting, passing completely round the head on the line of the forehead. Their form is chiefly linear, but in one or two places they cover spots as large as a finger nail. The parietal protuberances and frontal bone show the most extensive marks, and from the latter it passes down over the bridge of the nose. The right lachrymal canal is filled by a new and symmetrical growth of bone almost occluding it.



Tuberculation of face, from Dr. Morrow's collection of photographs.

Another skull presenting somewhat similar cicatrices, is 733, from a mound in Kentucky, in the Army Medical Museum at Washington. The whole surface of the parietal, frontal and occipital bones is covered by shallow cicatrices having a firm base, and near which are minute perforations through the intact outer table into the diploë. Some of these depressions look as if they had been made by placing a finger on the softened bone, while others are slightly star-shaped or else are linear and anastomose, surrounding islands of unaffected bone.

The general and extensive changes of these two skulls can be explained best by the assumption of a

syphilitic affection. But the appearances are not quite characteristic. There is wanting the peculiar ivory-like luster to the healed spots, and the accompanying sclerosis of the bone in general.

In No. 20,180, an imperfect calvarium from Stanley Mound, St. Francis River, are a number of very slightly depressed and radiating cicatrices situated chiefly on the frontal bone. The grooves for the arteries are very deep on the inside, but the bone is not in general sclerosed.

The maxillary bones are of interest and it is a pity that the bones of the face are in such a fragmentary condition that the exact extent of the lesions can not be satisfactorily made out. In the right antrum of Highmore, the posterior wall is thickened and the superior is covered with spicular exostoses, while a large linear one reaches from near the opening across the bottom. The whole inner surface of the bone is rough, and to it the lower part of the palate bone is intimately blended. Only a narrow strip of the hard



From Dr. Morrow's collection of photographs.

palate is left and it is difficult to decide how much of the loss must be attributed to post-mortem action. But just in a line with the lachrymal canal is a rounded and roughened edge, which must have formed part of a perforation into the mouth that existed during life. A fragment of the right side of the "sella Turcica," with an attached bit of the great wing of the sphenoid and pterygoid plates shows marks of roughening similar to that on the maxilla and palate bones, as if an inflammation had extended upward from this point. The edge of the anterior nares seems more rounded and deeper than normal.

There is less remaining of the left maxilla than of the right, but the same roughness of the internal surface is seen, and this has extended forward, partially filling up the edge of the anterior nares on this side. The socket of the first molar, which lies directly beneath, has evidently been the seat of an abscess, and it is possible that this stands in a causal relation to the changes seen on the bones bounding the nasal fossæ. It would be difficult, however, to bring this into relation with the cicatrices on the forehead.



At the Army Medical Museum in Washington are the bones of the face, with the frontal bone attached, (748) from a mound in Kentucky, showing the probable effects of a large tumor. This had completely filled up the nasal fossæ and had rounded off the edges of the nasal and maxillary bones forming the boundaries of the anterior nares. The septum of the nose and turbinated bones have entirely disappeared and the ethmoidal cells were freely opened. Through the hard palate there is an oval opening extending from just behind the alveolar process through the entire length of the hard palate, leaving a narrow strip of bone on each side. The edges of this opening are rounded off similarly to those of the nose. Possibly there may have been a congenital cleft palate into the opening of which the new growth extended.

From these facts we conclude that there exist evidences of tuberculosis and syphilis in the remains of the ancient races, but no evidences of leprosy. And we further may conclude that some ancient races of America buried images, representing the diseases with which they were afflicted. We have good reasons, at any rate, to believe that the ancient Peruvians intended to represent on their *huacos* pottery, if a disease at all was represented, one which we have good reasons to believe was considered by them as aristocratic and sacred.

Dr. Emil Schmidt, in answer to my inquiries as to evidences of leprosy in Peruvian antiquities known to him, says: "As to your questions about pre-Columbian leprosy in America, I looked once more over my collection of Peruvian skulls and mummies (more than eighty specimens), but with quite negative results. I do not remember to have found any evidence of pre-Columbian leprosy in other collections examined before. We have here, in the Leipziger Museum für Völkerkunde, a valuable collection of old Peruvian pottery; unfortunately, it is packed up in the museum, being transferred in another building. A few years ago I examined this collection rather closely, and I am sure I should not have overlooked them, if there were any unmistakable indications of leprosy."

I have addressed the following inquiry to Dr. Augustus Le Plongeon: "I can not see any positive facts showing that leprosy existed on this continent before the arrival of the Spaniards, except the possibility produced by the great intercourse with Hindostan, Indo-China and Burmah, to which you seem to attach much importance, and those *huacos* potteries, on which Dr. Muniz thinks he found leprosy representations. Have you ever seen any indications on any of the works of art of Yucatan of any representations which you might consider as relating to leprosy? Have you ever seen any representation of mutilated hands or feet? Did you ever see any corpses with such mutilated hands or feet? Upon what do you base your belief in the existence of leprosy in Yucatan, before Columbus, beside the intercourse of that land with leprosy countries?"

The following is his reply: "As I have told you in my former letter, I have not investigated in my studies if a particular kind of disease existed on this western continent before the arrival of the Spaniards, but I regard it as probable, in view of the communications that certainly existed between its inhabitants and those of all other countries, that diseases existing in said countries were propagated among

them, as they are to-day. Leprosy no doubt existed, since they had a word to designate it, and their relations with Southern India were quite frequent. In my book soon to appear, "Queen Moo and the Egyptian Sphinx," you will see the nature of their relations. The ceramics of the Mayas, at least the pieces I have seen, were ornamental, of a very different character from the Peruvian; on them were never, as far as I know, represented any of nature's deformities. The Maya ethics were of a more refined nature than those of the Peruvians. No representation on them recalls any infirmity to which the human body is subject. Their paintings and sculptures portray battle scenes, domestic life, religious and other rites and ceremonies, historical events, etc.

"I repeat, I do not know that leprosy existed among the Mayas in pre-Columbian times. I suppose it did, because they had a name for it, *Naycam*, which would not happen unless they had some knowledge of the disease."

Here we see that Dr. Le Plongeon has two foundations for his assertion that leprosy existed here before the Conquest: first, the probability of its having been introduced by the various relations of the country with Southern India; then the traditional name for it, which was *Naycam*, from the word *Nay*, to eat away, or rot. As to the first, we may say, it does not hold water. New York has a thousand times more communication with all parts of the world than Yucatan had with India, and yet it is not a leprosy city. As to the second argument, Dr. Gustave Brühl has shown in his studies on pre-Columbian syphilis in America, that the Mexicans and the Mayas, and also the Quechuas and Aymaras, of Peru, had names for syphilis before the Spaniards came. He argues that diseases introduced by the Conquerors were designated by the Naturals, as a rule, by some reference to the characteristic symptom, and that therefore syphilis especially was of pre-Columbian origin, as its name was *not* so designated by the Mexicans, Mayas, Quechuas and Aymaras. Now the name *Naycam*, which means an eating away, rotting, would have to be considered as the name of a disease introduced by the Spaniards, and beside it might be applied as naturally to lupus and syphilis as to leprosy.

I addressed also a letter to Mr. Clarence B. Moore, whose archaeological work in Florida is so well known and appreciated. The following is his reply:

"My mound work has been almost entirely confined to Florida, where I have opened about one hundred and twenty-five mounds, nearly all of which I have totally demolished. My experience, then, relates only to Florida.

"I have found a considerable number of pathologic specimens during my five years of exploration. In referring to these specimens I shall exclude all cases of fracture, as I take it you are especially interested in diseased conditions of the bones.

"I have never seen any atrophy of the finger bones, such as was indicated in your photograph, but it must be remembered that in nearly all the Florida mounds the form of burial is of the bunched variety, *i. e.*, skeletal remains of bodies previously exposed until the flesh had left the bones were buried in little piles, or scattered throughout the mound. In these interments the long bones and crania figured principally. Bones of the hands and of the feet, the vertebrae, etc., are seldom met with. Nevertheless, in some of the largest mounds, burials in anatomical order were found.

"The question which principally interests archaeologists is as to the occurrence of syphilis in pre-Columbian times. Dr. Joseph Jones in his 'Antiquities of Tennessee,' published by the Smithsonian, writes at considerable length to prove the existence of this disease among the men who made the stone graves and as these sepulchres are, I think, admitted by all to be pre-Columbian, he virtually argues in favor of the existence of syphilis among the aborigines previous to the coming of the whites.

"Dr. Jones wrote some time ago, and it has been shown that the specimens from which he drew his conclusions did not show positively the ravages of syphilis, but might have presented the same appearance through changes arising from other causes.

"Dr. Hyde, *American Journal of Medical Sciences*, 1891, has treated in an interesting and sensible way

tumuli. These burials, however, are never over three feet below the surface and by careful observation as to depth all chance of basing conclusions on late burials may be excluded.

"The question of pre- and post-Columbian mounds is warmly debated by archaeologists. The Smithsonian, all of whose work is done by agents while conclusions are drawn at desks one thousand miles away, believes in the existence of many post-Columbian mounds of importance. On the other hand all independent field-workers, such as Professor Putnam, Cushing, Moorehead, Fowke, Thurston, of Tennessee, and, in an humble way, myself, have yet to find any thing in a mound of importance, much below the surface, which in any way indicates contact with the whites. I am not speaking now of Florida, but of the entire country. Articles distinctly European are glass, glazed earthenware, iron, lead, pewter, brass, bronze, etc., etc. The Smithsonian has maintained that the copper of the mounds must be largely European and the mounds consequently of a late date. A recent writer, however, has pointed out that it is



Huaco pottery, evidently an amputated foot. Wine or water bottle, exhumed with Peruvian mummy, said to be pre-Columbian. Bandelier collection, American Museum of Natural History.



Mutilated foot of leper, two toes remaining. From Dr. Morrow's collection of photographs of leprosy deformations.

the occurrence of this blood disorder, under the heading, (I think) 'Pre-Columbian Syphilis.' Dr. Hyde arrives at the conclusion, as I remember the paper, that it would be absolutely necessary to show they were unmistakably syphilitic bones encountered in the mounds, that these mounds were of unquestionably pre-Columbian origin. To this I might add (I do not recall whether Dr. Hyde refers to it) that in mounds of great age are often found intrusive, or secondary burials. Within the past week I have exhumed a body with remnants of clothing and feathers belonging to a pillow. Later Indians, as for instance the Seminoles, who were doubtless infected, may have been buried in mounds, while to my knowledge negroes and whites have been buried in ancient

untenable to suppose that aborigines having intercourse with Europeans and obtaining copper from them should bury this copper, with a great variety of objects all distinctly aboriginal, and has, moreover, by a cloud of analyses shown that the copper of the mounds is pure native metallic copper, to which the aborigines had access and which is highly malleable and that this mound copper has nothing in common with the products of the imperfect smelting processes of the highly arsenical European sulphides, used during the fifteenth, sixteenth and seventeenth centuries.

"In Florida, in mounds of considerable size, a number of feet below the surface, beneath undisturbed strata, associated with objects of aboriginal art only, I have found a considerable number of long bones which had suffered from periostitis and osteitis of both the rarefying and condensing forms, as shown by general enlargement of the bone with irregularities of the surface, local nodular swellings, roughening

and spiculation of the surface, etc. None of these bones have been submitted to thorough examination by experts, and it is therefore impossible to say positively whether any show the marks of venereal trouble.

"At the present time, both archæologists and physicians are inclined to attach little credence to the existence of pre-Columbian syphilis.

"Most of my specimens are at the Academy of Natural Sciences, 19th and Race Streets, Philadelphia, where Dr. Dixon, the Curator, would doubtless be happy to have you examine them. I have written at considerable length as I have always maintained that the opinion of any one is valueless unless it is based upon substantial facts."

Dr Prince A. Morrow, ex President of the American Dermatological Association, who examined personally and very carefully the lepers of Molokai, Sandwich Islands, and who is, I believe, the highest authority on leprosy in this country, does not remember seeing a leper who had lost his upper lip, nor does he think that such a loss is a leprosy manifestation. He thinks, as I do, that if the authors of those *huacos* potteries had intended to represent leprous phenomena, we should find in their work mutilated fingers and toes. In the American Museum there is a *huacos* pot<sup>1</sup>, a wine bottle in the shape of a naturally sized foot, with circular flap removed from the top of the bottle, the bone representing the top of the bottle. The foot is represented swollen, with toes placed on the end in a peculiar way, but with nails showing naturally. Evidently some disease is meant which required amputation. Dr. Morrow kindly allows me the use of one of his photographs that of a leper foot (not requiring amputation, however). You will find side by side here the photographs of the bottle and that of Dr. Morrow, the latter belonging to a Sandwich Island leper. The only difference is, as will be seen, the presence of every toe on the bottle, while the photographed leper foot shows but two toes remaining. This lack of mutilation and the amputation show to me that it was not leprosy which the potter wanted to represent.

(To be continued.)

## SOCIETY PROCEEDINGS.

### American Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine,  
New York, Sept. 25, 26, and 27, 1894.

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 726.)

#### DR. ROBERT NEWMAN, of New York, read a paper on SUPPLEMENTARY REPORT ON THE SUCCESS OF ELECTROLYSIS IN THE TREATMENT OF URETHRAL STRICTURES.

Up to date, electrolysis in the treatment of urethral strictures has been successful in the same manner as practiced by me for over a quarter of a century and reported last in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, April 15, 1893.

Therefore, I have nothing to retract but only to confirm former statements. In addition, I published in the *Times and Register*, Jan. 21, 1893, the statistics of one hundred successful cases treated by Dr. F. S. Crossfield, of Hartford, who wrote the following: "I have practiced electrolysis for the treatment of stricture of the urethra upward of eight years with success. My synopsis of one hundred cases and obser-

vations coincides with the published statistics of Dr. Robert Newman, of New York. My cases were all seen in private practice. Those reported were not selected cases, but taken in order of occurrence . . . taking the cases as a whole, together with those of Dr. Newman, it establishes the practical value of the method."

In the same number of the *Times and Register* appeared separate reports of successes of electrolysis in urethral strictures by Drs. W. H. Walling, F. H. Wallace, Wm. F. Hutchinson, Wm. R. D. Blackwood, J. B. Greene, Chas. G. Cannaday, O. S. Phelps and R. G. Nunn.

More communications have been received by Dr. E. L. Stephens, Fort Worth, Texas; Wallace, of Boston, and Dr. A. R. B. Booth, of Shreveport, La., who reports one hundred cases, with a complete cure of 80 per cent.

The theory of electrolysis is based on sound scientific principles; it causes a galvano-chemic absorption of the stricture, through the mucous and submucous tissues, by the direct action of the negative pole with weak currents of from 3 to 5 milliamperes.

Practical experiments have demonstrated the electrolytic action beyond a doubt. The theory has been practically applied with good results in thousands of authentic cases.

In the *Times and Register* of Philadelphia, of April 8, 1893, I reported a compilation of 1,755 successful cases by 54 different operators, all of whom vouch for the correctness of their statistics, which proves that the electrolysis under consideration is widely practiced.

The same number of the *Times and Register* brings additional successful cases by Drs. G. Howard McFadden, F. H. Wallace, W. R. D. Blackwood, C. A. Bryce, and from the following editorial is quoted: "The statistics accumulated by Dr. Newman if all were reported, would cover a list of over 2,000 cases of urethral stricture treated by the electric method. In the face of such a mass of positive evidence, one is tempted to explain the dissent existing by the application of the personal equation. Still, every one has his right of opinion and free expression; and if the opponents of this method desire it, the columns of the *Times and Register* are equally at their service."

Dr. F. B. Bishop, of Washington, D. C., has reported more successful cases in the *Virginia Medical Monthly*, June, 1893, in which he says: "After a constant experience of eight years, I am thoroughly convinced that the treatment of the urethra by electrolysis is the best method now known to the profession."

In another part of that article Dr. Bishop says: "Dr. Newman, of New York, has used this method about twenty-six years, and during that time, according to his statement, he has treated numbers of cases with uniform success. Leading surgeons throughout the country have been severe in their criticisms of the Newman method, and have cast a shadow of doubt upon the claims of Dr. Newman. On the other hand, he has been supported by many men of prominent standing in the profession, both in this country and in Europe, who have taken the trouble to master the method, and have practiced it successfully. Some of the critics, I think, have been rather unfair to Newman, inasmuch as they are hardly inclined to give him credit even for sincerity in the report of his cases cured, but content themselves with a wholesale condemnation of his method, because they have tried it a short time and failed to cure their cases."

This most candid statement of Dr. Bishop only proves that some of my critics are unjust in doubting statistics without having any proof to the contrary. My statistics are given in good faith, most of them based on documentary evidence, which consists of publications in medical journals by well-known authors and of original letters in my possession, as well as the evidence of patients, and concurrent opinion of their family physician, either by witnessing the operation or examining the patients before and after the operation; by the final results, no relapses having occurred after patients have been discharged as cured. Some patients have been under observation and re-examinations for eleven years.

Some of these documents are here for inspection, and one particularly will be of interest to show what means have been used to mystify facts.

Permit the introduction here in brief of only one fact: Dr. K., the staff editor of *Genito-Urinary Surgery*, in the annals of the *Universal Medical Science* for 1890, vol. III, Sec. E, pages 15 and 16, tried to make believe that a Dr. Sanders, whose letter I had published, did not exist or was incorrect. That letter was written and published in 1885. With apparent design, after the death of this physician and a lapse of about four years from the date of the letter, Dr. K. wrote a

<sup>1</sup> Bandeller collection.

"polite note" (as he styled it) to that physician. This note, as could be expected, was as politely returned by the postmaster, who evidently declined to assume the responsibility of forwarding it to its destination, and the critical investigator closed his report with the triumphal words: "If the testimony of all the letters in support of electrolysis is no more accurate than that furnished by the letter of F. F. Sanders, it is poor indeed. The inference is obvious, etc."

Now, Mr. President, in answer to this editorial mystification, I am pleased to produce here the original letter of Dr. Sanders, attached to a sworn affidavit acknowledging its genuineness and Dr. Sanders' handwriting. That affidavit is subscribed by a notary public, and the latter's standing as such and his signature is certified by the county clerk, who has affixed his official seal. Next I produce here a letter from the sister of the deceased, who also acknowledges Dr. Sanders' writing and recollects the case he cited. And last, here is a letter from the Secretary of the Medical Society of Morris County, N. J., saying, that Dr. Sanders was well known in Morris County, had been one of the founders of the said Society and in 1885 was elected an honorary member. Now what was Dr. K.'s motive? Is the inference obvious?

All the letters quoted as original are now in my possession as documentary evidence, as well as other evidential matters, but it is impossible to show the same to every member of the medical profession, neither can I have every one certified to by notary publics and county clerks. Therefore I was pleased that the matter has been settled by a committee of this Association, which was appointed to investigate my statistics. This committee have pursued their investigations for nearly a whole year, very carefully and impartially examined the documentary evidence, read the letters concerning it, corresponded with former patients and their physicians in America and Europe. The final report in the transactions of the American Electro-Therapeutic Association for 1893, page 40, was verbatim: "We have examined the records of Dr. Newman's cases and regard his conclusions as well sustained by the statistics, and as far as our experience in this line of work adds further testimony, it is confirmatory of the value of the continuous currents in resolving a large class of urethral strictures, etc."

This report is signed by Drs. A. H. Goelet, Wm. J. Morton and W. J. Herdman. That under some circumstances some medical critics throw doubt on the correctness of the statistics, appears almost as a willful libel.

To succeed with electrolysis in urethral strictures the operator must be a good physico- and physiologic electrician as well as a genito-urinary surgeon. Operators using old methods naturally can not be successful. If some do not succeed with electrolysis, that proves nothing else than the individual failure, which may be due to the operator, false diagnosis, to faulty instruments, and such failures or negative results do not invalidate the records of successes, all perhaps due to ignorance. The old methods in genito-urinary surgery are too severe, and it is to be hoped that the future handling of these cases will be more gentle, with less blood pools, less pain, and less or no cutting.

The principal points in managing urethral stricture are: a correct diagnosis, gentle handling causing no pain; and for the operation of electrolysis, a galvanic battery, good electrodes, the negative electrode used to the stricture, weak currents, long intervals, using only one instrument at a sance, and never to operate while the parts are in a state of acute inflammation.

I can not approve nor adopt some alterations of my method which some electro-therapeutists have proposed, which consist of stronger current, different pole to the stricture, frequent sances and severe measures.

Some have reported good results from faradic currents. My experience is, that the faradism rightly applied may act as an anesthesia and relieve spasm, but it never had any action to absorb or cure a stricture of the urethra.

If operators follow this advice we will hear of less failures, and electrolysis as a chemic action is a fact which can not be denied. Therefore, electrolysis must be a success.

#### DISCUSSION.

DR. BEAVER said that he had used the conical bougie and also the steel sound. He had invariably found on questioning the patient carefully that the current was felt at the spot where the sound entered the stricture. He had been unable to see why there should be any difference in the physiologic effect between the conical bougie and the steel sound, and indeed his experiments had led him to believe that he had obtained cures even more rapidly by the use of the steel sound than by the instrument recommended by Dr. Newman.

On motion of DR. WALKER, the courtesies of the floor were extended to DR. FRANK W. ROSS, of Elmira, N. Y. DR. ROSS said that for eight years he had employed electrolysis for urethral stricture and with success. His attention had been first called to it by a paper read by Dr. Newman before the New York State Medical Association. In the first case, one of acute stricture, he had succeeded with the static current in obtaining relaxation of the stricture and evacuation of the bladder, although he had been unable to pass the smallest catheter into the bladder before this. Since then he had employed Dr. Newman's method of treating urethral stricture by the galvanic current. He thought the medical profession were well aware of the success of this method, and that many physicians were using it. He had tried both the conical bougie and the steel sound and had been more than pleased with the results obtained with both. In conjunction with Dr. Squire, of Elmira, he had treated a number with the steel sound, and he believed the results were better than those obtained by the use of the olive-pointed instrument. The reason appeared to be that all neoplasms offered less resistance to the passage of the current and the tissue was readily absorbed. He also believed a cure obtained by electrolysis was a physiologic cure, while the cure by cutting was not physiologic. He felt positive that the steel sound could be used, although Dr. Newman objected not only to the cure of stricture of the urethra by this means, but to curing them so rapidly.

DR. F. B. BISHOP, of Washington, D. C., said that he thought that Dr. Newman had conferred the greatest blessing on humanity by his method for the cure of urethral stricture. He had employed the method for about ten years, and was well aware that it required experience in the use of electricity as well as in the manipulation of instruments in the urethra. Much care was necessary to avoid causing irritation and spasm, and great caution should be exercised to avoid employing too strong a current. At first he had met with numerous failures, but within the last two years he had been pleased to have those same individuals return to him and be cured. He had never used the steel sound, for it had not seemed to him that there would be a proper concentration of the current on account of the large amount of surface exposed in the urethra.

DR. WALLACE, of Boston, said that he wished to say a word in corroboration of what Dr. Newman had said. He had been using this treatment for the last five years, and could not recall any cases in which he had had better success. He had not used the sound at all. The only difficulty he had found was in cases where it was impossible to get any electrode through the stricture. In cases of stricture of crescentic form, he had found it advantageous to allow electrolysis to take place on the *withdrawal* of the electrode. He had treated some cases in which there was still quite a little inflammation present. Using a current of about 1 milliampère he had found that a few treatments would relieve the irritation and enable him to pursue the treatment more vigorously in the course of a few days. Within the past year he had treated a patient who had been previously treated by urethrotomy twice. Only a No. 7, French, could pass at first, but as a result of electrolysis he was now able to pass a No. 27, French, there was no perceptible sclerosis and he was able to control urination, which he had not been able to do when the treatment by electrolysis was begun.

DR. BEAVER said that the statement which he had made about the use of the sound was not theory but was based upon facts given by the patients, and any one present could verify them. They had all, without exception, stated that the sensation produced by the current was felt at the *location of the stricture*.

THE PRESIDENT said that the physical facts would be rather against the localization of the current in that way. One could not always place much reliance on the statement of patients, especially as regards localizing sensations, and it would seem strange if the current should concentrate itself at the stricture when a large surface of electrode was exposed.

DR. ROSS remarked that it had been demonstrated very clearly that all neoplasms offered such resistance that the current was concentrated in their locality.

DR. DICKSON said that in cases of goitre, if the edges of the clay pad pressed more firmly than the rest of the electrode, a greater effect would be produced by the current at that point. This might possibly explain the patient's localizing the sensation at the seat of stricture. Where there was the closest apposition there would be the greatest concentration of the current.

DR. BEAVER said it had often been his experience that one



edge of an electrode could press more firmly than the rest, and so cause blistering. Although he had treated cases in which the strictures had occupied very variable positions, the sensation had always been localized by the patient as stated.

DR. NEWMAN, in closing the discussion, said that a stricture was a pathologic condition, and if a sound were introduced into the urethra and through the stricture, the pressure that it made against the stricture would be sufficient to explain the fact of the patient localizing the sensation there. One of the speakers had admitted that this method placed in our hands the means of curing by rapid dilatation—this was just what he did not want. The electrical current would be diffused over the whole surface of the ordinary sound instead of being concentrated at the seat of the stricture. What we desire is an electrolytic and absorbent action. With the instrument he devised and employed, the current was not only applied to the stricture, just where it was wanted, but he was able to feel the exact position of the instrument, and without making pressure could ascertain when the current had sufficiently dilated the stricture to admit of the further passage of the instrument. It was this that he desired; it was mechanical pressure that he wished to avoid. The conical sound would pass through and beyond the stricture, and electrolysis would be exerted beyond the stricture and not simply at the stricture.

DR. R. J. NUNN, of Savannah, Ga., read a paper on  
**BEHAVIOR OF CANCER UNDER MILD GALVANIC CURRENTS.**

It is undoubtedly a fact that benign tumors can be absorbed to a greater or less extent through the influence of galvanic currents, although the manner in which the absorption is brought about is still debatable ground among electro-therapists; but observations on the action of mild galvanic currents upon malignant tumors are sufficiently rare to induce me to place before the Association the narrative of the following case:

The patient, a lady of 60 years of age, had had a tumor in the left mamma for about five years before she came under my care. Upon examination, a nodular tumor measuring about two and a half inches horizontally by about two inches vertically was found in the outer side of the left breast. The axillary glands of the left side were enlarged and those of the right side were likewise implicated. The tumor had increased in size very rapidly within the last few months, certainly doubling its size within the last two or three. The patient was cachectic and her general appearance conveyed the impression of grave constitutional disturbances. The kidneys were not involved. It was quite evident that in such a case any course of treatment which would deplete the system or subject the patient to shock was utterly out of the question, and hence surgical interference of any kind, whether by the knife, electric or other cauter, was decided to be inadmissible. Under these circumstances it was determined to try the effects of mild percutaneous galvanic currents applied frequently and in as large quantity as possible.

A sheet-lead electrode with a lint pad extending about an inch in all directions beyond the tumor was prepared, to be used for the negative pole, while a foot bath for the feet and a lint-covered lead electrode for the hands served as positive. Thus arranged, such a current as the patient could bear, varying from 50 to 100 milliamperes, was passed daily. The negative was also applied by the hand electrode to the axillary glands, the whole treatment occupying less than half an hour. Daily for some months this treatment was kept up, and there was then a marked improvement; the axillary glands had almost disappeared and the mammary tumor had not increased in size one particle; it had lost much of its nodular character and the edges instead of being hard and sharply defined were now softened and shaded off into the sound tissue around. But unfortunately my patient could not estimate the progress of the case as did her doctor, and in an evil hour yielding to the glittering promises of a "faith curist," discontinued her galvanic treatment. Again five months, during which the "faith curist" got in her fatal work of inaction and the case returned to me. Now mark the change; the tumor ( $2\frac{1}{2} \times 2$  inches) which had rather diminished and changed in character by five months of galvanic treatment, had now increased to the enormous dimensions of  $13 \times 9$  inches, with an ulcerated surface in the center exceeding in size the original tumor; the left axillary glands were greatly swollen and the whole left arm and hand tumified until it was practically immovable. A small tumor a little more than an inch in diameter

had also appeared in the right breast, and the glands of the right axilla were quite enlarged. The pelvic organs were also involved, and micturition was difficult. The patient now despaired of relief, and was content to make herself as comfortable as possible until the end, which came a few months later.

The conclusion which has forced itself upon my mind through the observations made on this case is, that carcinoma can be benefited by mild galvanic currents of large quantity frequently applied percutaneously.

DISCUSSION.

DR. WALLACE asked if Dr. Nunn had used cataphoresis in connection with the galvanic current. During the past year he had himself employed mild currents with cataphoresis on a case which had been diagnosed by two surgeons as carcinoma. He had used cataphoresis with iodide of potassium, passing the iodine through the tumor. After twelve treatments the tumor began to diminish, and it had now entirely disappeared.

DR. LUCY HALL-BROWN said that probably many of the members had from time to time dispersed tumors of the breast which gave evidence of being carcinomatous, and yet because they had disappeared there had been a doubt thrown on the diagnosis. In the case reported in the paper, the fact that electrical treatment had been interrupted and the condition finally proved fatal prevented any such doubt being thrown upon the case.

THE PRESIDENT said he had had two cases in point. Formerly, he had been of opinion that by the use of from 15 to 20 milliamperes of current these tumors of the breast could be removed. At one time a patient had come to him from Kansas with a tumor of the right breast about the size of an English walnut. The treatment, as outlined, was tried, and he had had the satisfaction of seeing that tumor entirely disappear within two months. From the stinging in the breast and the retraction of the nipple he had felt that it might be malignant. She was told to return if there was any recurrence, and she did so in about six months, with a tumor of about the same size as the first one, and in the same location. A second trial was entirely unsuccessful, and the tumor went on and involved the entire breast. The breast and axillary glands were removed by operation, yet within a year she died of carcinoma of the liver. Recently he had had a second case, which he had at first looked upon as benign. The family history was excellent. The tumor involved the left breast, and was not adherent to the muscle or the skin, and the glands in the axilla were not involved. The electrical treatment was tried almost daily for four or five months, using a current of 20 milliamperes. The only effect was an interference with the circulation about the growth, and the production of slight absorption surrounding the growth, but not of the growth itself. Removal of the breast was advised, but the patient would not consent for two or three months, and at the time of the operation it was found that the axillary glands were involved and that the growth was a carcinoma. He felt that the first tumor in the first case was not malignant, but was perhaps a temporary obstruction of the ducts.

DR. NUNN, in closing the discussion, said he had not used cataphoresis in this particular case. The only value of the paper was to show that the tumor really was a carcinoma, as had been so well appreciated by Dr. Brown. It was because of the certainty of the diagnosis that it was interesting to observe the effect of the electrical treatment.

(To be continued.)

## SOCIETY NEWS.

The American Pediatric Society will hold its seventh annual meeting at the Virginia Hot Springs, May 27, 28 and 29, 1895. The society will be the guests of the Virginia Hot Springs Company.

Address by the President, F. Forchheimer, Cincinnati, Ohio.

Cerebro-Spinal Meningitis in an Infant six days old, by T. M. Rotch, Boston, Mass.

Purulent Otitis Media, which ended fatally (three cases), by Wm. F. Lockwood, Baltimore, Md.

Pyo-Pneumothorax (case), by Walter L. Carr, New York City.

Traumatic Aphasia; Scarlatina Anginosa; Croupous Pneumonia (case), by Samuel S. Adams, Washington, D. C.

Hyperpyrexia (cases), by Henry D. Chapin, New York City.

Sarcoma of Kidney in an Infant (case and specimen), by J. Henry Fruitnight, New York City.

Lympho-Sarcoma of Spleen (case and specimen) by George N. Acker, Washington, D. C.

Tetanus Neonatorum, by J. Lewis Smith, New York City.

Infantile Tetany, by M. P. Hatfield, Chicago, Ill.

Tetany (two cases), by Floyd M. Crandall, New York City.

Amyloid Disease in Children, by B. K. Rachford, Cincinnati, Ohio.

Typhoid Fever in Infants under 2 years—Is it frequent? Wm. Perry Northrup, New York City.

The different forms of Eruption which Simulate Scarlatina, and their differential Diagnosis: *a*, Some forms of Eruption Simulating Scarlatin, by A. D. Blackader, Montreal, Canada; *b*, Scarlatiniform Exanthem, by Charles G. Jennings, Detroit, Mich.; *c*, Scarlatina, with intensified Eruption and poorly marked Constitutional Symptoms (several cases), by Louis Starr, Philadelphia, Pa.; *d*, Extensive Gangrene following Scarlatina, by James C. Wilson, Philadelphia, Pa.; *e*, Difficulty in Differential Diagnosis, by J. P. Crozer Griffith, Philadelphia, Pa.; *f*, Local Treatment of the Skin in the Eruptive Fevers of Children, by A. Seibert, New York City. General discussion.

Case of Adherent Pericardium in Children, with Enormous Heart Hypertrophy, Chronic Proliferative Peritonitis and Recurring Ascites, by William Osler, Baltimore, Md.

A Rupture of the Bladder (case and specimen), by John Dornig, New York City.

Cardiac Anomalies: *a*, Cor biloculare; *b*, Pulmonary Veins opening into Right Auricle; *c*, Imperfect Ventricular Septum in a Man, aged 45 years, by William Osler, Baltimore, Md.; *d*, Aorta arising from the Right Ventricle, by George N. Acker, Washington, D. C.; *e*, Patent Ventricular Septum, by A. Jacobi, New York City.

The Characteristic Features of the recent Epidemic of Grippe—1894-95: *a*, Pulmonary Manifestations; *b*, Aural Manifestations; *c*, Glandular Manifestations. Discussion by L. Emmett Holt, Wm. Perry Northrup and Henry D. Chapin, of New York City, and A. D. Blackader, of Montreal, Canada.

Antitoxin in Diphtheria: *a*, Results in Laryngeal Cases; *b*, The Cause of Death in Fatal Cases; *c*, Efficiency for the purpose of giving Immunity; *d*, Immunizing Effect of Antitoxin in Diphtheria, by F. Gordon Morrill, Boston, Mass.; *e*, Personal Experience with Diphtheria Antitoxin and Blood-Serum Injections, by Augustus Caille, New York City; *f*, the value of the Antitoxin of Diphtheria and its Toxic After-Effects, by A. Seibert, New York City.

Cases Apparently Diphtheria, but in which the Diphtheria Bacillus is not found, by E. M. Buckingham, Boston, Mass.

Cases of Scurvy, by A. Jacobi, New York City.

**Chicago Ophthalmological and Otological Society.**—Regular meeting held at the Saratoga April 9, 1895, Dr. Hotz in chair. There were eleven members and visitors in attendance.

The minutes of the last meeting were read and approved.

The applications of Drs. W. R. FRINGER and A. B. HALE were referred to the Committee on Membership.

DR. GRADLE showed a man of 40, who in February, 1895, contracted a severe cold in the head but had no symptoms of grippe. A few days later he had vertical diplopia which, however, disappeared shortly, and the lateral diplopia appeared. When first seen, March 26, with the exception of a slight lagophthalmus, there was no evidence of any paresis of the facial nerve. There was slight ptosis; complete paralysis of the external recti but other muscles all right. To-day he can move eyes outward somewhat. March 26, there was marked vertical nystagmus, now gone, but lateral nystagmus on looking to the side. Some dimness of vision March 26, now gone. Both knee jerks are exaggerated; there is decided fibrillary twitching of the orbiculars; color vision and fields are normal; pupils and fundi normal. Is taking large doses of potassium iodid.

DR. HOLMES had a case, a woman 50 years old, who had very severe paralysis with diplopia following grippe. She recovered under tonics.

DR. MONTGOMERY has a young man, healthy, who had, without apparent cause, paralysis of all external muscles except superior oblique of right eye. He took 700 grains potassium iodid a day without effect, but is now improving under galvanic treatment.

DR. BETTMAN reported two cases of grafting by combined pedicled flap and Wolfe flap. Both cases were very large flaps but adhered nicely with good appearance.

DRS. WILLIAMS, MONTGOMERY, and GRADLE had found that any kind of graft shrank very much in time.

DR. HOTZ prefers Thiersch grafts because they do not leave so much thick skin, except where it is possible to use scar tissue with a pedicle.

DR. COLEMAN reported a case of hemianopsia. Woman, 18 years old, good personal and family history. Seven weeks ago, on awakening in the morning, noticed she could see but half an object; also noticed an appearance as of a lighted match waved before the eyes, producing silvery waves. This was followed in about an hour by pain through the temples and then vomiting of greenish fluid. Had been under medical treatment for a cold or grippe for five weeks and had to stop work. Has had no headache for seven weeks, no loss of memory, feels very well, works as well as before attack. Fundi normal; fields right, up, down, and in, normal; out, contracted to 10 degrees; left, up, down, and out, normal; in, contracted to 5 degrees. V. in each eye 20—15. Wernicke's "hemipic pupil" reaction more marked in right eye. Diagnosis: lesion in visual center posterior to oculo-motor nucleus.

DR. GRADLE spoke of the significance of the odor of the discharge in chronic suppurative catarrh of the middle ear. He had noticed that the disappearance of odor is the first evidence of benefit of treatment. He begins with thorough cleansing, inflation and insufflation of boric acid. If the odor has not disappeared after these treatments he feels sure that the case can not be cured by this method. He then syringes the middle ear by canula if possible; if this does not suffice, he syringes through Eustachian catheter. If necessary, alcoholic or ethereal solutions of iodoform are used and then scraping of carious spots with spoon. He has found peroxid of no more value than water.

DR. WILLIAMS spoke of a case recently examined for color vision, where the man could pick out all the greens, if told to pick out green, but could not pick out all to match the Holmgren green when no name was given. This man also could name a light red lantern without a mistake but called a dark red one, green. This case shows the value of different tests and also of standard colored glass. Dr. Williams also showed a modification of Buissen's photometer.

Society adjourned by limitation.

C. P. PINCKARD, Secretary,

103 State Street.

## NECROLOGY.

JULIUS KAENMERER, M.D., of Atlantic City, died May 13, in the sixty-sixth year of his age. He was a native of Germany, was educated at the University of Heidelberg, studied and practiced at Paris, but came to this country about 1880. He lived in Philadelphia twenty-four years, going thence to the above-named city about twelve years ago. The fatal illness was referred to pneumonia.

JOHN CONDIT HALSEY, M.D., of Brooklyn, died at the ripe age of 80 years, from infirmities due to old age. He was a native of the city named and was educated there and in New York City. In 1834 he graduated in medicine at the College of Physicians and Surgeons, after which date he was for a half century an esteemed family practitioner in the city of his birth. He retired from practice about ten years ago, being led to that step by reasons referable to physical disability. He was one of the oldest living members of the Kings County Medical Society and of the Physicians' Mutual Aid Association.

J. HENRY LEONARD, M.D., of Chicago, May 19, aged 28.—M. H. Henry, M.D., of New York, May 20, aged 59.—G. W. Cooper, M.D., one of the founders of Garnett, Kan., May 16.—F. E. Crosby, M.D., of Jackson, Mich., May 16.—W. H. Winter, M.D., of Princeton, Ill., May 15, aged 69.—G. W. Talbot, M.D., of Denver, Colo., May 15.—J. W. Larrabee, M.D., of Skidmore, Mo., May 10.—Oren T. Maxon, M.D., of Evanston, Ill., May 9.—William Waite, M.D., of Kappa, Ill., May 17, aged 80.—J. H. R. Wolfe, M.D., of Baltimore, Md., May 14, aged 65.—M. S. Coffman, M.D., formerly of San Francisco, at Solomonville, Arizona, May 5.—W. N. Green, of Webster City, Iowa, May 9, aged 39.

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:  
PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,  
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.  
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, MAY 25, 1895.

A WELCOME ALLY.

What another esteemed contemporary journal<sup>1</sup> styles "the mother of all journals of medical associations," to-wit, the *British Medical*, devotes a leading article in its issue of the 4th inst., to a discussion of the subject of a Department of Public Health for the United States and of the action of the AMERICAN MEDICAL ASSOCIATION to this end. The article is judicious, well-timed and gratifyingly appreciative of the situation. After reciting the various preliminary steps that the ASSOCIATION has taken in this matter, and recognizing the excellent work done in the field of public hygiene and preventive medicine through the agency of different medical departments connected with the public services and scientific bodies, it is contended that the Government can, in a wider way, promote the public welfare by creating a Department of Public Health, "the head of which should be a physician, a member of the Cabinet and on a position of equality with the heads of the Government Departments."

It is shown that the work of such a Department, as set forth in the bill advocated by the ASSOCIATION, may be regarded as covering all that is done by the Medical Department of the Local Government Board in England, by the Registrar-General's Department, and by the Factory Department of the Home Office; and that it is intended to be provided with the machinery for compiling information for the purposes of the various State and other bodies on a multitude of social and health subjects, including the questions of food supplies, intemperance, prostitution, elementary education, etc. The *Journal* adds:

"It is not to be wondered at that the AMERICAN MEDICAL ASSOCIATION and the leading members of other learned bodies in the States should regard this question as one of prominent importance. However the matter may be explained—and we do not doubt that there are certain political explanations—the fact remains that the great nation across the Atlantic is distinctly behind the times in not having a central Public Health Department. Almost every year such departments in older and much smaller countries are being either created or re-organized on such a footing as to make them of real service for the purposes of the public and the State. These departments are also placing themselves more and more in evidence every year by means of annual reports on their proceedings. In the United States the place of such reports has hitherto been largely taken by the annual volumes of the various State Boards of Health, but these vary very much in character, and many of them are coming to be mainly concerned with matters of local interest. It would, however, be otherwise were the vast amount of information available through the State Boards and other bodies sifted and formulated in a form for general use. The States would, under such circumstances, have material at their hand such as few other nations possess."

MR. ERNEST HART recently went to India and stirred up the red-tape animals in that country to good effect in the interest of the profession. Still later—in the last issue of the *Journal* received, that of May 11—he roundly scores His Royal Highness, the DUKE OF CAMBRIDGE, Commander-in-Chief of the British forces, for the manner in which he referred, in an after-dinner speech, to SURGEON-MAJOR ROBERTSON, one of the most heroic of the heroic defenders and relievers of Fort Chitral, as "that brave civilian." MR. HART does not hesitate to characterize the phrase as "a wanton affront to the medical officers of the Army," and boldly warns H. R. H. that the matter will not be allowed to rest, that his dictum shall not pass unchallenged. MR. HART has long been credited with the courage of his convictions, but nothing less than the most profound conviction of the lofty character of the profession, the keenest jealousy for its honor and zeal for its advancement could inspire the courage necessary for this outspoken censure of a Royal Personage. MR. HART may paraphrase the utterance of the poet TERENCE and say:

MEDICUS sum: MEDICINI nihil a me alienum puto.

On behalf of the AMERICAN MEDICAL ASSOCIATION, its JOURNAL welcomes him as a potent ally in our battle for a Department of Public Health.

THE SOCIAL POSITION OF THE MEDICAL PROFESSION.

Every now and then some medical journal gives us a dismal editorial about the social position of the medical profession; about the lack of influence of the doctor in public affairs; about the inferior rewards of a medical career; or about the over-production of doctors; and then each writer falls to wondering why young men will still insist upon studying medicine. The most plaintive and doleful of these lays appear in certain of our contemporaries on the Eastern fringe; and they are pitched in so dismal a strain that one unconsciously feels that the writer must have chronic dyspepsia or a twinge of colic. The British journals have always been the

<sup>1</sup> The Provincial Medical Journal of Leicester, England, May 1, 1895.

loudest croakers on this score—because forsooth the Queen, when she is making peers does not make her PAGETS, and her CLARKS, and her LISTERS, lords or cabinet ministers instead of ordinary knights and baronets, like brewers and bankers and other common cattle—as if the class to which ISAAC NEWTON and HUMPHREY DAVY belonged was not good enough for anybody, or as if it could add anything to the fame of a JOSEPH LISTER to be a cabinet minister or belong to the “PRINCE OF WALES set.” Perhaps our home journals, with just a suspicion of anglomania, take their cue from their British confrères.

These lamentations are as weak as they are indiscreet, and it is hard to find any other reason for it than the inherent tendencies of men to complain. It is hard to get rich in medicine, or to gain social or civic recognition, or to become intellectually prominent, just as it is in every other walk of life. There are too many doctors, as there are too many lawyers, engineers and architects; but in comparison with all these, we trust our modesty will be pardoned, when we say that it has always seemed to us that the doctor had a little the best of the bargain, both in a material and a social way.

As to the doctor's social position, it is not evident that he ever had to sit at the lower end of the table. Great medical men have continually occupied positions commensurate with their abilities. Even in England, where every one, like “little Tommy dearly loves a lord,” it is hard to see where the doctor has failed to hold his own. Going as far back as HARVEY, we find that he was a rich man, the favorite brother of rich London merchants and the associate of his king. Rough JOHN HUNTER was the friend of the courtly SIR JOSHUA REYNOLDS, and RICHARD MEADE a favorite of CHARLES II. SIR ASTLEY COOPER, throughout life a man of commanding social position, when 23 years old married a belle and an heiress—indeed, marrying heiresses has been a favorite avocation of doctors from the earliest times, one which, by the by, shows no sign of abating, and it is nowhere recorded that women, particularly rich women, are careless of social position. SIR HENRY HOLLAND was the acquaintance of all the great men and women of his time and the intimate friend of not a few of them. And coming to the present time in England, MORELL MACKENZIE seems to have stood pretty well with royalty itself. The DUKE OF EDINBURGH and SIR JAMES PAGET have been patrons, side by side, of all the notable charitable functions for twenty years. ANDREW CLARK was the intimate friend of GLADSTONE, who came almost from a sick-bed to give loving testimony to the memory of his dead friend and to the character of the profession which his friend had so highly adorned. And, considering for a moment the continental Europeans, every one at once remembers that BARON LAR-

REY—he of the hip-joint amputation—was the intimate friend of NAPOLEON, who in his last will gave evidence of his sincere friendship by an appreciative message and a bequest of 100,000 francs. In Germany, ESMARCH's wife is aunt to the present Emperor.

As for the social position of the medical profession in America, it would seem that little need be said. As we have intimated, the doctor has usually seemed to us to have a little the best of it. He has certainly held his own from the beginning. DR. JOSEPH WARREN was the greatest loss of the battle of Bunker Hill. Old BENJAMIN RUSH was a signer of the Declaration—and if that isn't simon-pure American aristocracy, will some one please tell us what is? We have never seen any one who had the temerity to question the social position of the WARRENS or BIGELOWS of Boston, or of the DRAPERS, or JANEWAYS of New York, or of the WISTERS, or WOODS, or MITCHELLS, or PANCOASTS, or PEPPERS, of Philadelphia. And, coming down to individuals, take for example, VALENTINE MOTT, or ALONZO CLARK, or WILLARD PARKER, or MARION SIMMS, or FORDYCE BARKER, or POLK, or McLANE, or the FLINTS, father and son, or DRAPER, of New York, or S. D. GROSS, or WM. PEPPER, or H. C. WOOD, or S. WIER MITCHELL, of Philadelphia, or OLIVER WENDELL HOLMES, or HENRY I. BOWDITCH, or J. COLLINS WARREN, of Boston. If there are any gentlemen whose standing in the community is better than these it ought to be made known.

One of the VANDERBILTS married a hospital interne, and we have no doubt that she could not have done better. And—if anything else is needed to make our happiness complete—the brilliant editor of the *Medical Record* was at the GOULD wedding.

But our pessimists say in reply to this, that this is all very nice, but fine words butter no parsnips, and all this has nothing to do with the rank and file of the profession. The fact is the average prosperity of the rank and file is the best answer to these imputations. The rank and file of the medical profession in this country hold a most powerful position. Some of the most enviable places in life that one ever sees are held by family doctors in good towns—and not always in large towns either. The first man in emergencies, the adviser in physical and in the most intimate domestic affairs as well, the one upon whom all depend, at the childbirth and at the bedside of the sick, the equal of any social position and the superior of most in mental and moral endowments, such a man, with his family, leads a life of the most solid satisfaction. His material prosperity is sufficient for his comfort; his surroundings are conducive to independence and happiness; his sons and daughters have good advantages; he himself has the inestimable satisfaction of knowing that he plays a large part in his community; and when he dies he



leaves a void, that if any gap in life were irreparable, would be irreparable. All doctors can not occupy positions like these, but the point we are making is, that in comparison with other men, the doctor has fully his share of these positions of influence and of reasonable prosperity.

We all know full well that the doctor's life is not all rosy; but the lack of social position or influence is not one of its objections. Like other men, the doctor is what he makes himself, socially and otherwise. His profession, if it has any weight as regards his social position is, we believe, rather in his favor. In fact, when one remembers some of the doctors of the type of MARION SIMMS and S. D. GROSS and FORDYCE BARKER—men of their type in large communities and in small—he is inclined to say, paraphrasing Sidney Smith on the strawberry, that doubtless God might have made a better man than a good doctor, but doubtless he never did.

#### THE EDUCATION OF THE JAPANESE HOSPITAL CORPS.

There is no reason why the Hospital Corps men of the Japanese Army should not be thoroughly educated, for ample provision in the way of books has been made for them. Three text-books on military nursing have been issued, and one on the use of the stretcher. The three are apparently graded and are probably intended for those who in Japan are the equivalents of our private, acting hospital steward and steward, as one consists of only 140 pages, while the second has 280 and the third 600 pages. To the professional eye, educated in the medical lore of our western civilization, the text of these volumes, consisting of pot hooks, hangers, gridirons, harps and other complicated hieroglyphics, conveys no suggestion of the subjects discussed.

Indeed a casual observer might consider the end of each book to be its beginning; but they are all so profusely illustrated that the said professional eye experiences no difficulty in following the whole subject from its beginning where we usually print "finis," to its end, where we usually have our title page. Most of the illustrations show their western extraction in the facial characteristics of the individuals represented, and on some are to be found our familiar Arabic numerals on points calling for explanatory text. There are, however, some original Japanese cuts, particularly in the litter-drill book. The largest volume contains most of the illustrations found in the others, excepting some of those relating to stretcher drill. First, we find full page front and back views of the male figure, with western numerals over the swelling masses of the well-developed muscles. Then follow the skeleton; the teeth showing crowns, bodies and fangs; the *écorché*, or flayed figure, teaching the location of

the superficial muscles; the circulation through the heart and through the body, pulmonary and systemic; vertical sections of the eye and ear, and the thoracic and abdominal viscera *in situ*.

Thus far anatomy and physiology have evidently been discussed; but now we come to matters of practical interest: hemorrhage controlled by forced flexion at the elbow; digital pressure on the femoral, brachial, subclavian, carotid and facial arteries; the tourniquet on the brachial, ESMARCH's tubing on the femoral and a handkerchief twisted by a sword bayonet over the same vessel. Dressings follow: the arm sling; four-tailed bandage for the chin; the triangular bandage with its pictures which ought sufficiently to explain its use, but these are supplemented by special cuts showing its application to the shoulder, elbow, hand, ankle, groin, scalp, etc.; the roller and its reverses on various parts of the body.

Next, fractures come in for consideration as evidenced by a wire cradle, metal leg splint with foot piece, extension by weights and SMITH's anterior applied. SYLVESTER's method of artificial respiration is illustrated, both at inspiration and expiration; but if MARSHALL HALL is mentioned his name must have been translated into unrecognizable hieroglyphics.

Field work follows: litters extemporized of poles and cords, rifles and overcoats; carrying patient to litter; two- and four-handed seats. After this, for nearly three hundred pages, the only illustrations are a spring scarificator and a cupping glass; military nursing is no doubt being discussed. The litter drill book repeats the anatomic illustrations and those relating to hemorrhage bandaging, etc. It shows the position of the squad at the open and closed litter and the wheel of the litter in changing direction. From the illustration showing the squad placing a patient on the litter, it is manifest that the Japanese Hospital Corps have not learned the best way. They rise with the patient to the erect attitude, in order to lay him down on a litter almost on the ground level. Truly, a doctor can gather much information from these volumes, although not a single word is intelligible to him.

#### THE HORNED MEN OF AFRICA.

For many years reports have been current of the existence of horned men in West Africa. In 1883 PROFESSOR MACALISTER, then of Dublin, now of Cambridge, collected the evidence accessible at that time.<sup>1</sup> At first the growths were thought to arise from the superior maxilla, and as this region is well known to be a favorite site for exostoses, it was supposed this so-called horned condition was caused by symmetrical exostoses. MR. JONATHAN HUTCHINSON has published in his "Illustrations of Clinical Surgery" a

<sup>1</sup> Proceedings Royal Irish Academy.

figure of a male European thus affected which closely resembles that of a horned man furnished by MACALISTER.

A great deal of light has been lately thrown on this condition by M. MACLAUD, a French naval surgeon serving on the Ivory Coast. In the *Archives de Médecine Navale et Coloniale* this author gives an account of seven cases he has observed. The affection is termed by the natives *Goundou* and *Anakhre* (big nose) in the Aquí language. His cases ranged from 8 to 65 years in age, and the tumors had existed from a few years up to thirty years. M. MACLAUD had one man under observation for several months, and describes the tumors as being symmetrical, as large as a hen's egg on one side and as a large nut on the other; they were ovoid, hard—a hypodermic needle would not pierce them—circumscribed, and occupied the lateral walls of the nose, extending from the root to the canine fossa, making part of the nasal, lacrymal and superior maxillary bones. There was no trace of tuberculosis, syphilis, leprosy or glandular swellings. Examination of the nasal fossæ showed the tumors to encroach on them. Smell was intact, but nasal respiration was embarrassed. Percussion of the tumors showed them to be hollow. This individual was a slave 20 years of age, who had been captured and carried to the Aquí country when about 8 years old—the tumor beginning to grow in a year's time after his arrival. The author mentions another case as being a horrible sight; this was an old man with a tumor on one side as large as an ostrich egg, on the other as a large orange; vision on the side of the larger one had been abolished for years, and the right eye had been forced from its orbit by the growth.

The affection begins in late childhood by epistaxis, cephalalgia and sometimes a muco-purulent discharge from the nostrils. At first the tumor is no larger than a bean, but, slowly increasing, is as large as an almond at 15, a pigeon's egg at 20, and so on. It never suppurates, and apart from the destruction of vision does not seem to occasion any inconvenience. M. MACLAUD thinks it probable the condition arises from lesions produced in the nasal fossæ by the larvæ of flies. He points out that the disease is not hereditary, and that it is confined to the forest region where flies abound. On his way home he saw a chimpanzee affected in a similar way, but lack of time prevented an investigation. The natives account for its origin by attributing it to the malevolence of a fetich *Jero* or *Zoré*, a statue of which carved in wood bears similar swellings; if appealed to too often the fetich, becomes irritated and inflicts these horns upon the annoying supplicants. Owing to this supernatural origin they use nothing save the usual remedies for all diseases—cataplasms of pimento or aromatic plants, bathing with pimento, etc.

In concluding his highly interesting paper, DR. MACLAUD states that one or two cases may be found in any village of 100 or 150 inhabitants.

#### A NEW ARMY STRETCHER.

A board of which COL. CHARLES H. ALDEN is President was convened at the War Department some time ago to investigate and report upon the form of litter found to be best suited for Army use, having in view economy, simplicity of construction, durability, lightness and adaptability for the services required. The board has submitted a new model for the consideration of the Surgeon-General, who, it is understood, will bring the specifications and a litter constructed in accordance with them, to the notice of the U. S. Military Surgeons at their meeting in Buffalo, N. Y.

The main object of the board was to lessen the weight of the litter without impairing the strength of any of its essential parts. The present regulation litter weighs twenty-four pounds; but the new model weighs only sixteen and one-half pounds, and if adopted will be the lightest military litter in any service.

The litter poles are made one and a half inches wide instead of one and three-quarters; but the depth on which comes the greatest strain remains one and three-quarters as formerly. The canvas is practically the same as that of the regulation litter, but it is so fastened to the poles as to be flush with the wood and thus less exposed to be ripped off. The feet are stirrup-shaped, of malleable iron; the cross braces of well-tempered steel. The pole plate of each foot is fastened by a single bolt and it is turned up at the sides to grasp the pole. The foot plate, which is slightly convex in every direction, raises the under surface of the pole four inches above the ground level. The braces play on the pole plates of the foot pieces and are hinged in the middle, with a fenestrum behind the joint to prevent clogging with mud or dirt. They are grooved longitudinally on four aspects to lessen weight, and provision is made for keeping them in place beneath the poles when the litter is closed. The sling is of strong webbing, the color of the bearer's blouse, and is to be worn by him as part of his equipment when on litter service. It has a leather-lined loop at each end to catch the handles of the litter and is adjustable to the height of the bearer by a sliding buckle.

The new model has been tried by CAPTAIN CABELL, of the Hospital Corps Company, at Washington Barracks, and has given satisfaction. The present sling is attached to the handles of the litter. The adoption of the new model litter and sling would necessitate a revision of the Drill Regulations of the Hospital Corps, as most of the intricacies of the present drill are provisions for getting into and out of the attached sling and for preventing its bight from doing harm

when not over the shoulders of the bearer where it always ought to be.

#### NOMENCLATURE OF PREGNANCIES.

DR. GEORGE M. GOULD, the erudite philological editor of our valued contemporary, the *Medical News*, protests against the terms: ii-para, iii-para, iv-para, v-para, etc., used to designate a multi-para in her second, third, fourth or fifth pregnancy, and thinks it strange that the remarkable fecundity of the medical lexicographers has not been equal to the emergency of devising names for these simple facts instead of designating them by a set of unpronounceable monstrosities. With what he calls "proper fear and trembling," DR. GOULD suggests the substitution of coinages made upon the same plan as similar words accepted and in general use. "Possibly this has already been done. We now have the words, nullipara, primipara and multipara. Why should we not also have duipara (or deutipara), tripara, quadripara, quintipara, sextipara, septipara, octipara, nonipara, decipara?" Why not, indeed? Unless medical language, like the language of diplomacy, is to be used to conceal and obscure, there is no occasion for timidity in offering these valuable substitutes for the impracticable cacophonies now in use. DR. GOULD has made another distinct addition to clearness and simplicity in medical terminology, and the JOURNAL promptly accepts it.

#### A MISAPPREHENSION.

Some of our lay contemporaries have animadverted on the clause in the report of the Trustees which gave the net cost to the ASSOCIATION of the JOURNAL as \$12,000. The explanatory fact that over one-half of this amount was expended in new machinery, seems to have been overlooked, although it was plainly stated in the report.

But the great point that nearly the whole edition was *given* to the members without additional cost was nowhere stated, as it was supposed the members knew that. Subtracting the cost of the new machinery from the total cost to the ASSOCIATION Treasury, it is apparent that the net cost of the JOURNAL to the members was less than \$2 each, for a JOURNAL worth \$5.

No journal has published more material during the year; few have been better on the whole. Taking therefore the facts as they stand, it is seen that the members have every reason to congratulate themselves on the financial showing made by their JOURNAL.

If we could only raise the list to 10,000, the proportionate drain on the treasury would be infinitesimal. Let every true friend secure one new member by application, or one new subscriber, and the JOURNAL will not only be a still better JOURNAL, but it can be given to every member, at an even less cost.

## CORRESPONDENCE.

### The U. S. Pharmacopœia.

SHELBYVILLE, IND., May 16, 1895.

*To the Editor:*—In the JOURNAL of April 13, I notice a letter from Dr. W. P. Whery, of Fort Wayne, Ind., under the title, "Of What Use is the Pharmacopœia?" I have waited this long, hoping some one more able to do so than myself would reply to it.

While I do not, for a moment, think such an excellent work as our present Pharmacopœia needs any defense at my hands, I shall point out a few of the most glaring inaccuracies in the article referred to. I shall also attempt to show that the U. S. Pharmacopœia has, at least, *some* excuse for its existence, and that it is *the* authority upon "questions pharmacæutic." In the first place, the U. S. Pharmacopœia is a work of great value and is *the standard* from which *all pharmacists* work in making their various preparations such as tinctures, fluid extracts, syrups, solutions, etc. Does not the Doctor know that when a prescription is written for tincture iodine, tinct. gentian, syrups, etc., that it calls for a preparation of a definite strength and prepared in a certain way, and that the *standard* by which those preparations are made is the U. S. Pharmacopœia? If not, how are we to know anything about the strength of any preparation we may prescribe or about the *dose* of the same? Does he not know that the pharmacist uses the Pharmacopœia in making his preparations? and that it is his *sole guide* in so doing?

I know that during my experience as a prescription clerk, I always strictly adhered to it as my guide in making up the various preparations. I would also like to ask if the Pharmacopœia is of no use, as the Doctor says, why is it so universally used in this country?

I do not mean to say that I think the book is perfect, for no such book can be made so. If physicians, generally, would study their Pharmacopœia more, and the literature sent out by manufacturing houses less, they would be far better off and could serve their patients better.

In answer to the question, Of what use is it? I will say, a Pharmacopœia is a book containing a selection of medicinal substances with formulas for their preparation. The necessity for legalized standards to define the character, establish the purity, and regulate the strength of medicines is recognized by all civilized nations. Remington's Pharmacy (page 26) says: "The official pharmacopœias are all issued under the authority of the respective governments, with the exception of the U. S. Pharmacopœia (which has, however, been accepted by the government as a standard in some of the departments), the policy of the nation having been against interference in matters which relate to restrictions upon professional practice. This course has not prevented the acceptance of the work by physicians and pharmacists as an authoritative guide, while it has probably encouraged a greater freedom in criticism, and thus developed more general interest in a standard, and a stronger desire for improvement than could have been obtained through compulsory legislation."

Dr. Whery begins his letter: "I do not wish to disparage the United States Pharmacopœia in the least, nor to detract from the great merit of a work involving so much conscientious care and science and labor on the part of its authors, but I think I voice the feeling of the profession generally when I ask the question written above."

In another portion of his tirade he says: "Under these circumstances the Pharmacopœia seems to be out of gear with the times, and is to be looked on as a kind of survival from the past, like the great auk and the woolly rhinoceros. Yet it is quite possible that there is still a place for a United

States Pharmacopœia, provided that the book can be made to suit the conditions of these days. Until then, it is only an expensive luxury, and an unnecessary imitation of works that—under the different laws of European countries—may have some good right of existence.”

Now let us look at these two statements. Dr. Whery does not wish to “disparage,” and then *attempts* to do so. Let me ask *why* the U. S. Pharmacopœia is an “expensive luxury?” *Why* is it “out of gear with the times?” In what way is it so? Please specify. *Why* does “it not suit the conditions of these days?” Perhaps he has been reading an edition thirty or forty years old. He intimates that the U. S. Pharmacopœia is an “imitation.” If so, *of what?* Again, if it is an “unnecessary imitation” of some foreign pharmacopœia *why* is it “a work involving so much conscientious care and science and labor on the part of its authors?”

During the past eight or ten years, I have had an opportunity of examining a number of pharmacopœias of different nations, and I believe ours is *second to none* and, above all things, it is *original*.

The Doctor would also like to know, “what number of physicians use it in their practice?” I am sorry I can not inform him as to the exact number, but I believe that *all* of the educated physicians who have a conscientious desire to be good physicians and to benefit their patients use it as their guide. As for myself, I have the latest edition and use it frequently too.

The Doctor would also like to know “what drugstore confines itself to the U. S. Pharmacopœia or cares for it as an authority?” I believe the pharmacists *all* use it as their *sole guide* in making up the various preparations such as tinctures, syrups, etc. For any information on this subject I would respectfully refer the Doctor to Mr. Otto Gross, of his own city, whom I know to be one of the best as well as one of the most progressive pharmacists in Indiana. I would like to ask the Doctor what the pharmacists use as their guide if they do not use the U. S. Pharmacopœia? They *must* use some guide, and I would like to know *what it is*.

Dr. Whery is evidently attempting to place the pharmacists on a level with the grocer, hardware merchant and other tradesmen, instead of elevating them to their proper position as a profession. As for myself, I have too much respect for pharmacists in general to believe that they *buy* such things as tinctures, syrups, spirits, waters, etc., instead of preparing them in their own store.

The Doctor, evidently, has not been keeping in touch with progress in pharmacy, as the following will clearly show: “In the United States there is no legal control of pharmacy.” In reply to this assertion, it is only necessary to say that *every State* in this broad land of ours (except Indiana), has a pharmacy law; Indiana is now the *only exception*, and it is to her lasting disgrace that it is so. The Doctor asks: “What medical college uses the Pharmacopœia as a text-book for teaching *materia medica*?” While I do not know of any medical college that uses it as the *exclusive* text-book upon this branch, I do not know of a medical college that does not use it as *one of the text-books* upon *materia medica*. I would like to ask the learned (?) Doctor *how* “the profession—including pharmacy—has emancipated itself from the Pharmacopœia?” If all he says is true, *why* should “we regret to give it up?” In *what way* should it be “recast?” What is the matter with its “present form?”

The Doctor says: “More regard must be paid to the convenience of prescribers; the confusion between waters, liquors, and solutions, syrups, elixirs, and glyceroles, tinctures, wines and spirits, and so on, should be abolished.” How pay “more regard to the convenience of prescribers?” What *does* he mean? I am sure that if there is any “confusion” between these preparations it exists only in the addled

brain of the writer. I shall here give a concise definition of each of these preparations in order that he may know what each is and there need be no more “confusion.” However, before proceeding further, I want to quietly give the Doctor “a pointer” or two. Don’t ever again make the mistake of saying “liquors *and* solutions,” for it is two names for the same thing. You should say liquors *or* solutions. I also want to call his attention to the fact that there is no such class of preparations in our Pharmacopœia as “glyceroles.” I suppose he means, *glycerita* or *glycerites*. They are mixtures of medicinal substances with glycerin. In regard to the difference in name, I quote the U. S. Dispensatory, 17th Ed., page 654: “The solvent and preservative properties as well as agreeable taste and permanent consistency of glycerin render it useful as a menstruum in pharmacy, and a class of preparations consisting of medicinal substances dissolved in it has come into extensive use. The British Pharmacopœia has adopted such a class under the name of *glycerina* or *glycerines*. This title is not now available because these terminations are reserved for alkaloids, while the term *glyceroles*, adopted by the French, is objectionable, as the termination has been used as a designative of certain proximate principles. But the United States title *glycerita*, or *glycerites* is satisfactory.”

“Aguas” or “waters” may be simply defined as aqueous solutions of volatile substances. “Liquors or solutions” (not “liquors *and* solutions”). Under this head the U. S. Pharmacopœia places all aqueous solutions of non-volatile substances, except such as naturally form separate distinctive classes, as the syrups, infusions and decoctions. Solution of gutta-percha is the *only one* in the class which is not prepared with the solvent, water. Syrups are concentrated solutions of sugar in water or aqueous liquids. When water alone is used in making the solution of sugar, the preparation is called syrup or simple syrup. When the water contains soluble principles from various medicinal substances, the syrup is called a medicated syrup. Elixirs are aromatic, sweetened, spirituous preparations, containing small quantities of active medicinal substances. Tinctures are alcoholic solutions of medicinal substances. They differ from “spirits” in being made from non-volatile bodies, there being but one exception to this rule. Wines are liquid preparations containing the soluble principles of medicinal substances dissolved in wine. Pharmaceutically they most resemble “tinctures,” differing from them merely in the character of the menstruum. Spirits from a pharmaceutic point of view are simply alcoholic solutions of volatile substances. Like the medicated waters, the active ingredient may be solid, liquid or gaseous.

Dr. Whery says: “Powdered extracts, tablets and troches should be recognized.” If he will examine his Pharmacopœia he will find troches *are* recognized under the name, trochisci *or* troches. As for powdered extracts, they are not recognized and *should not be*. It is a well-established fact that they can not be made of a uniform strength and are consequently worthless. Tablets should not be recognized, as they are a passing “fad,” and I venture the assertion that ten years hence they will be practically unknown, as they possess no feature that is an advantage over the old-time preparations.

I do not believe “we want a more extensive list of remedies,” as there are already too many. In conclusion, allow me to quote a few more lines from the Doctor’s remarkable letter: “A third use would be to reinforce the decimal system of weights and measures in medical usage; and to accomplish this, a new weight, the deci-milligram, should be added, and the system must be made to conform to the teaspoonful until the domestic and convenient measure can be eliminated.”

This surely caps the climax. It seems to me that the decimal system of weights and measures *has been enforced to its fullest extent*, as it has been adopted as the *only* system in our Pharmacopœia, the old system having been *entirely elim-*



inated. What more can be done to enforce it? Why not make the teaspoonful, etc., conform to the decimal system, instead of the opposite course? Why derange the decimal system? I do not see the connection between a deci-milligram (?) and a teaspoonful. In the metric (or decimal) system the meter is the unit of length, the liter is the unit of capacity, and the gram is the unit of weight

A gram is . . . . .	15.43	grains.
A decigram is . . . . .	1.543	"
A centigram is . . . . .	.1543	"
A milligram is . . . . .	.01543	"

A deci-milligram would be .001543 grains, or expressed in fractions it would be 1543-1,000,000 of a grain.

A teaspoonful is a measure of capacity, not weight, and is usually given as 1 fluidrachm. Now what I fail to detect is the connection between 1543-1,000,000 of a grain and a teaspoonful or 1 fluidrachm. Will the Doctor explain himself? And, beside, to be in conformity with the metric system, would it be proper to say a deci-milligram, when the unit of weight is a gram, not a milligram? I am of opinion that deci-milligram will not do, but that it would take another word to express what he means.

I am very sorry the Doctor wrote his letter, as the U. S. Pharmacopœia is now completely annihilated and we shall hear of it no more!

SAMUEL KENNEDY, PH.G., M.D.

### To Bacteriologists.

MINNEAPOLIS, MINN., May 14, 1895.

To the Editor:—Will you kindly state in your next issue that a vacancy exists in the Chair of Bacteriology in the College of Medicine and Surgery of the University of Minnesota. Applicants for the vacancy can apply to Prof. Thos. G. Lee, chairman of the committee to nominate a person to fill the vacancy.

PERAY H. MILLARD, Dean.

## PUBLIC HEALTH.

**Disinfection of Localities.**—MM. Laveran and Vaillard announce that from their experiments they believe the best method of disinfecting the walls of habitations consists of first washing the walls with soapsuds, then with a 5 per cent. carbolic acid solution or 2 to 1000 of sublimate, acidulated. In all localities which are exposed to frequent soiling—hospitals, barracks, schools, hotel rooms, etc., the walls should be of impermeable material, easy to clean and disinfect. If sprays are used the liquid should be made to stream along the walls, but in this way the disinfection is often imperfect. The carbolic solution is preferable to the sublimate it seems.<sup>1</sup>

**Fencing from a Hygienic Standpoint.**—According to Lecomte fencing is a hygienic exercise of the first rank and even a curative means for certain deformities. This exercise should be practiced in a well ventilated room, under the direction of a *maitre d'armes*, who insists on the correct execution of the movements and unrestrained postures. It is indispensable to use the left hand also, in order to develop the two sides of the body equally. Under the influence of this exercise the muscles develop, the joints and spinal column are suppld, the respiratory, circulatory and digestive functions are rendered active; nutrition and the nutritive changes are stimulated at the same time as the cutaneous functions. Fencing has given excellent results in hysteria, chorea, migraine, hypochondria, insomnia, obesity, gout, rheumatism, constipation, and chlorosis. It assures recovery from scoliosis and from stiff joints following immobilization, and corrects certain cachectic deviations of the lower limbs.<sup>2</sup>

**Sanitary Climatology.**—Circular No. 4, of the Weather Bureau, containing information relative to the investigation of climate on health, previously noted in the JOURNAL, furnishes blank forms of the reports desired. They seem to be

simple, compact and yet sufficiently comprehensive. Supplies of the forms and of the blank envelope may be obtained by those interested on application to the Bureau. It is intended to collate the vital statistics thus obtained with the meteorological statistics by general averages and by particular and selected events, as the comparison of the general mortality with the average conditions of the weather for the week, and the passage of storms and cold or hot waves, the appearance of epidemics, etc. Also, in instances of well-defined weather disturbances, comparisons of vital and meteorological statistics will be made by daily periods. For example, a storm appearing in the western part of the country, will be followed day by day, as it passes eastward across the country, and the illness and deaths reported for these days from the localities traversed will be compiled and compared with the same kinds of facts reported both before and after the storm. The same plan of treatment will be pursued in dealing with hot and cold waves. By these methods it is hoped to be able to give in time, definite information as to how and how much the accidental and constant variations of the weather affect the sick and well, and in what way the present forecasts and weather charts can be used in both curative and preventive medicine.

**Health Reports.**—Sanitary reports to the Supervising Surgeon-General, Marine-Hospital Service:

#### SMALLPOX—UNITED STATES.

Arizona: Nogales, May 12, 1 case.  
Missouri: St. Louis, May 4 to 11, 11 cases, 2 deaths.  
New Jersey: Hoboken, May 4 to 11, 1 case.  
Ohio: Cincinnati, May 10 to 17, 5 cases, 3 deaths.  
Pennsylvania: Philadelphia, May 4 to 11, 2 cases, 1 death.  
Wisconsin: Milwaukee, May 4 to 11, 8 cases, 1 death.  
Virginia: Staunton and vicinity, to May 19, 59 cases.

#### SMALLPOX—FOREIGN.

Belgium: Antwerp, April 13 to 27, 3 cases, 1 death.  
China: Hong Kong, March 31 to April 1, 1 case.  
England: London, April 27 to May 4, 1 case, 1 death;  
Manchester, April 20 to 27, 1 case.  
Germany: Prague, April 20 to 27, 4 cases.  
Holland: Rotterdam, April 27 to May 4, 3 cases, 3 deaths.  
Ireland: Dublin and suburbs, April 27 to May 4, 17 cases, 2 deaths.  
Russia: Moscow, April 20 to 27, 2 cases; Odessa, April 20 to 27, 5 cases; St. Petersburg, April 20 to 27, 7 cases, 2 deaths;  
Warsaw, April 13 to 20, 1 death.  
Scotland: Edinburgh, April 20 to 27, 5 cases.  
Turkey: Constantinople, March 1 to 31, 97 deaths.

#### CHOLERA—FOREIGN.

Japan: Hiogo, April 13 to 20, 1 case.  
Turkey: Constantinople, March 1 to 31, 60 deaths.

#### YELLOW FEVER—FOREIGN.

Mexico: Vera Cruz, May 2 to 9, 3 deaths.

**Yellow Fever.**—A dispatch of the 18th inst. from Havana says that the stories circulated in regard to the prevalence of yellow fever among the troops operating against the insurgents are greatly exaggerated. According to the official records there were only 27 deaths therefrom reported up to May 18, although 200 soldiers had been treated for various diseases. *Per contra*, Surgeon-General Wyman, of the U. S. Marine-Hospital Service, on his return from a tour in the South which was extended as far as Havana, reports that yellow fever is quite prevalent on the island, especially about Santiago. Dr. Wyman personally visited several of the United States quarantine stations along the Gulf of Mexico and along the Atlantic coast north of Florida. Arrangements were perfected all along the seaboard as far as possible for a rigid enforcement of the United States quarantine regulations. Dr. Doty, Health Officer of the port of New York, confirms the assumption that the deaths on the steamship *Hogarth*, from Santos, were from yellow fever, and the disease, of a severe type, is epidemic at that Brazilian port. The action of Dr. Porter, State Health Officer of

<sup>1</sup> Jour. de Pharm. et de Chim.

<sup>2</sup> These de Paris.

Florida, in enforcing quarantine regulations upon the Spanish cruiser *Infanta Isabella*, recently arrived from Havana, has excited considerable discussion and the Secretary of the Treasury was finally compelled to issue an order for the warship's release.

**Secret of Long Life.**—The *Journal d'Hygiene* recently commented upon the habits of life and the regimen by which three doctors—Drs. Baynes, de Boissy and Salmon—have reached or passed the centenary of existence; one of them at least, still in the practice of his profession, in his hundredth year, and the two others said to be still hale and hearty at the ages of 103 and 105 respectively. M. Jules Hoche, a French humorist, has analyzed the *Journal's* report with a view to discovering the secret of this remarkable longevity, and finding nothing definite therein, offers a few rules of his own as follows: First, never be sick; that is an essential condition; because sickness is, in principle, hostile to good health, which is the mother of longevity, by the same right that prudence is the mother of certainty. Secondly, never have any bile, because bile is the vehicle of all unhealthy humors, as the world knows since the time of Hippocrates. Thirdly, fall in love as little as possible. This is a very important point, because all the definitions that people have given of love up to the present time are inexact. To love is to give a little of one's life to somebody else, a liberality all the more absurd because the donor has no title to that which he gives, and it is evident that to waste one's life is to reach bankruptcy in short order. In this matter avarice is legitimate, because it is a matter of self-defense. From the elementary point of view, the only possible indications are presented by themselves: never eat except when you are hungry and never drink except when you are thirsty. As for sleep, it is beyond a doubt that one should never resist it, even through politeness. The essential is to sleep soundly as many times as you can, because to sleep is to economize vital force. Therefore, it is plain that to live long, we must in the first place be in good health; that to be in good health we must never be sick; and that in order to avoid sickness, it is absolutely indispensable to be in good health.

**The United States Public Health Department.**—For some years past it has been a prominent aim of the AMERICAN MEDICAL ASSOCIATION to secure for the United States a central Government Department of Public Health, and preliminary steps have from time to time been taken to memorialize Congress to create such Department, together with a State-paid Medical Secretary. Once again the ASSOCIATION brings the matter forward in the form of a memorandum to the Senate and the House of Representatives, prepared by the Chairman, Dr. C. G. Comegys; and appended to this document is a draft Bill to give effect to the object referred to. It is admitted that much excellent work is performed through the agency of different medical departments connected with the Army, the Navy, and different scientific bodies; but it is contended that Government can, in a wider way, promote the public welfare by creating a Department of Public Health, the head of which should be a physician, a member of the Cabinet, and on a position of equality with the heads of the Government Departments. Under Section 2 of the proposed Bill the work of the department is set out. It may be regarded as covering all that is done by the Medical Department of the Local Government Board in this country, by the Registrar-General's Department, and by the Factory Department of the Home Office; and it is intended to be provided with the machinery for compiling information for the purposes of the various State and other bodies on a multitude of social and health subjects, including the questions of food supplies, intemperance, prostitution, elementary education, etc.

With regard to the organization of the Board, we believe the ASSOCIATION is right in demanding that its head and its

executive officers should be medical men. Indeed, we have heard only one valid reason for a change in the same direction in this country. It is said that if a new department in Public Health were created it would be the youngest department in the State and would have to rank as such. But the Local Government Board, which has public health functions in addition to a multitude of other duties, is gradually becoming a Ministry of the Interior, and it is assumed that when its position as such in the State is fully recognized it will probably absorb one or two functions still performed by other departments, and its chief will be raised to the position of a Secretary of State. This is the ambition of the secondary State departments in this country, and there are those on the permanent staff of the Local Government Board who would resent the severance from the board of its public health functions, for such severance would diminish its importance and cut adrift a staff which, to say the least, has brought them some credit in the eyes of the public. In the States no such considerations as these arise, and it is to be hoped that the new department when created will be mainly in the hands of those who best know what is wanted for the control and the improvement of the health of the public.—*British Medical Journal*, May 4, 1895.

## MISCELLANY.

**Change of Address.**—Dr. Edwin J. Kuh to 3415 Prairie Avenue, Chicago.

**They Understood the Language.** (From *Judge*):—HE—"Doctor, every time I raise a hand I'm completely knocked out with pain."

DOCTOR—"Then you had better play some other game."

**Sunstrokes in England in May.**—On May 14, while Americans of the northern tier of States were taking again to their overcoats, the English suffered from a hot wave. We learn by cable that, at Portsmouth, where four thousand troops were on parade, the heat was abnormally intense, and ten men were sent to hospital on account of sunstroke.

**A New York College Commencement.**—At the thirty-second graduation exercises of the New York Medical College and Hospital for Women, held May 14, ten degrees were issued, and eight or more prizes awarded to the graduating and inferior classes. The addresses were nearly wholly by the female friends of the school.

**An Aluminum Canteen.**—The military journals announce that the Ordnance Department of the Army has had submitted to it for test a canteen made of an alloy of aluminum. The canteen, in shape, is somewhat like the one at present in use in the Army. The authorities are said to be much pleased with it, and there is therefore a strong chance of its adoption.

**Michigan in Line.**—A bill to regulate the practice of medicine in the State of Michigan and to create a Board of Registration therefor has become a law. The Board, which is to begin operations July 1, is to be composed of four regular physicians, two "homeopaths," two "eclectics," and two "physio-medicals." The law is not retro-active, all physicians in practice in the State July 1, and all having diplomas from reputable colleges, being entitled to registration.

**Jenneriana.**—With the approach of the Jennerian centenary, and concerning the discoverer and his discovery are beginning to multiply. The celebration of the seventy-sixth anniversary of Queen Victoria's birthday, on the 24th of the present month, has led one of her biographers to unearth the fact that she was vaccinated in September, 1819, being then about four months old, and that she was the first member of a royal family to be subjected to the operation.

**A Too Radical Improvement.**—From the *Toronto Truth*:—The physician was surprised to find the head of the household at the door with a shotgun.

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, JUNE 1, 1895.

No. 22.

## ADDRESSES.

### ADDRESS ON STATE MEDICINE.

Delivered at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

BY HENRY D. HOLTON, A.M., M.D.

BRATTLEBORO, VT.

*Mr. President, Members of the American Medical Association:*—Hygiene is as old as the profession of medicine. But "State Medicine" is of comparatively recent origin. We find the leader of Israel promulgating sanitary regulations for his people that can hardly be improved to-day. Greeks and Romans honored the sanitarian and gave much time to the study of subjects connected with matters pertaining to public health. Pure air, pure water were deemed by them to be a great desideratum. The Aztec erected aqueducts to supply the City of Mexico with pure water long before Columbus sailed from Palos. But amid the wreck of the Dark Ages the little that had been taught regarding the necessities of hygiene to public health was buried, and only in the last sixty years has its resurrection and reestablishment upon a firm and more enduring basis been attempted. The early pioneers of our profession in this country were alive to the importance of hygiene; especially was this true of the Sydenham of America, Dr. Benjamin Rush. With the pressure resting on him of the multitudinous and arduous duties of practitioner in hospital and family, as statesman, lecturer and author he found time to investigate and write upon epidemic diseases in a way that showed the most accurate observation and current discrimination of facts bearing upon sanitary science. His work in this direction was recognized all over the world and caused the Czar of Russia to present him with a diamond ring, as a token of appreciation for the valuable service rendered the world by his observations. Yet the profession of America have so far failed to avail themselves of the high privilege accorded them to contribute a sufficient sum to erect a suitable monument to commemorate the virtues, statesmanship and professional ability of this first American sanitarian. May we not hope the movement inaugurated yesterday for immediately raising the necessary funds will be carried to a successful issue, so that in the near future we shall see the consummation of this most desirable work? Following in the wake of this early and eminent sanitarian, zealous workers in our profession, earnest men from other walks in life filled with philanthropic desire to improve the status of their fellows, have worked together to diffuse the knowledge they have gained by careful research among the people until our whole nation is permeated with the leaven of preventable medicine—and although it has been generally conceded that the people by their representatives have the right to enact laws which will protect them as individuals or as

communities against all influences which are harmful to the person, property or health of the individual separately, or collectively as a community; yet it was nearly thirty years after the pioneers in this work attempted to improve the hygienic status of the poor in some of the manufacturing parts of the larger English towns, before the first State Board of Health was established by act of legislation in this country, that of Massachusetts.

So luminous was her example and so active, thorough and faithful in their teachings were the missionaries of this gospel of cleanliness and prevention that now every State in the Union, except three, have their Health Department established by legislative act, each of which is doing its own peculiar work, diffusing to a greater or less extent in their respective States a knowledge of personal hygiene, and exercising the powers delegated to them to prevent the spread of epidemic and contagious diseases, with the result that the citizen finds himself less liable to the contagion of pestilential disease, and with a prospect of added years to his average of life. I desire to call your attention to the great and good work these State Boards have done and to commend them for their enthusiasm, their patience and their perseverance in the varied and often delicate duties which have devolved upon them.

Not in every instance have they been composed of men familiar with the rudiments of sanitation, but too often political considerations have entered into the choice that an executive has made. This can not be too severely condemned, and an enlightened public are demanding that these boards shall be composed of experts thoroughly trained by education and experience in the best and latest sanitary knowledge, and the methods of applied hygiene. But the best of those boards have at times felt that the inadequate pecuniary provisions which have been made for work by even the most liberal Legislatures have hampered them in so many ways that the results of their labors have fallen far short of what they might and ought to have been, not alone for the sake of science itself, but for the best and highest welfare of the States themselves.

It is the part of wisdom and good statesmanship that in each State the militia should be equipped and drilled for service as conservators of domestic peace, and as a reliance for protection from a possible foreign invasion. It is interesting and stirs one's patriotism to observe with what alacrity and unanimity, legislators vote generous appropriations for these purposes. How painful the contrast when asked for a comparative pittance for carrying out measures to protect the same people from the invasion of an army of microbes which threaten more lives than the invading army of any foreign foe. My own State spending annually \$20,000 more upon its one regiment of National Guards than upon its Health De-

partment, and the great and good Commonwealth of Massachusetts, pioneer in sanitary science as she has been in so much that has been for the benefit of humanity and the advance of our higher civilization, appropriates annually \$187,000 more for maintaining her efficient military establishment than for her Board of Health. New York, the Empire State, with its large port of entry, and consequently its especial liability to invasion by any and all forms of pestilence, appropriates nearly \$800,000 more for its splendid military department than for its health organization. These will suffice as examples of all the other States. The explanation of all this is not a difficult task; it is summed up in the state of "public opinion." The masses are pleased with, and have no criticism for, expenditures made for the gay trappings, the brilliant equipments, the pomp and grand display of their martial hosts. On the other hand, this same public, while they have become so far enlightened as to believe that some provision is necessary for their protection "from the pestilence that walketh in darkness and the destruction that wasteth at noonday," yet they do not appreciate the quiet, unostentatious work which is done in the laboratory and the quiet methods used to prevent the spread of different epidemics. These State Boards have had their efforts cramped and much circumscribed, as a result of State lines and a want of coöperation with the boards of other States, and this leads us to consider the necessity and desirability of a National Board of Health presided over by a Secretary of Public Health. It seems hardly worth while to discuss in this presence either the necessity or desirability of a National Health Bureau, when we recall that upon more than one occasion this ASSOCIATION has by unanimous vote put itself on record as being most thoroughly in favor of national sanitary supervision. We know, however, that all progress and especially innovations in the habits and methods of discharging national duties, are only brought about by "agitation"; we would therefore stir up your minds and hearts on this subject, not only as an ASSOCIATION but as individual workers, believing that if you all become thoroughly aroused to the great importance of this matter and put into its agitation at home the earnest work which you do into those things that you make mount the stairs of success, we shall not be discussing the desirability of this Bureau, but shall at our next meeting be rejoicing over the accomplishment of our purpose and the fulfillment of our desire. The bill introduced by Mr. Gray into the last Congress and known as Senate Bill 1840 was, I believe a child of this ASSOCIATION; it was a good measure and ought to have become a law. But, alas! it came to an untimely death in the hands of the Committee on Epidemic Diseases. It was prepared and presented as were many other worthy measures, with enthusiastic hopes that the LIII Congress would rise to its high privilege, and embrace the great opportunities that presented themselves for beneficent and practical legislation. But those hopes were

"Like Dead Sea fruit that tempts the eye,  
But turns to ashes on the lips."

Before this bill is introduced into the LIV Congress, it would be wise, we believe, to amend it, by providing for an advisory board of one member from each State, from the Medical Corps of the Army, Navy and Marine-Hospital Service. This would render it more practical and more popular. This advisory

board would only meet on the call of the Secretary of Public Health, and would discuss and advise upon such questions as he might propose. They would be his correspondents in different parts of the country, and would be required to render such service as he might demand. In order, however, to secure the passage of any bill it will be necessary to educate the press and through them the people and their representatives in Congress. This can be best done by the members of this ASSOCIATION, each in his own State. The facts that demand attention are numerous and convincing, and it would seem that they need only to be presented to carry conviction to the mind of the ordinary person. Let the attention of congressmen be called to the records of the War Department, which show that during our Civil War the number killed in battle and of deaths from wounds was 93,443; the deaths from preventable diseases were 108,666. If to this vast number who perished, we add those who were disabled and broken in health by the infliction of preventable diseases that did not kill, as instance the 1,700,000 cases of diarrheal diseases, and we have the startling fact that no foe which could give us battle would decimate the active population of the country like the preventable diseases. At the same time, millions upon millions are appropriated, and rightly too, to give the nation a Navy that will protect us from attacks of foreign armies, but only a few paltry thousands to protect our nation from the greater scourge of preventable disease.

If we desire and expect to obtain satisfactory legislation, either by the enactment into law of this or any other bill, this ASSOCIATION should not only appoint a committee familiar with the subject and its requirements, who are able to present to the congressional committee to whom it is referred, and to other members of Congress the reason for asking and the results reasonably to be expected from such legislation, but a committee who will stand as sponsors for the bill, to see that it is not unduly delayed or entirely smothered in committee. Any one who has had any experience with legislation, knows that unless a bill is known to have behind it some responsible party, who is earnestly watching its fate, that it is very likely to be forgotten and superseded by some measure that has a friend to watch its interests. The ASSOCIATION should further show its earnestness in this matter by making an appropriation from its funds of such a sum as will pay all reasonable expense incurred.

The subjects which would present themselves for study, investigation and regulation to this National Health Bureau are so numerous that we can only call attention to a few of them. It may be true, as suggested in a recent work on degeneration by Nordau, that we are living in an age when degenerates are to the front, forming public opinion and educating the masses by a literature which emanates from the brain of a degenerate, who is so well described by this author as a person who "finds it easier and more convenient to allow his brain centers to produce semi-lucid, nebulously blurred ideas and inchoate embryonic thoughts, and to surrender himself to the perpetual obfuscation of a boundless, aimless and shoreless stream of fugitive ideas; who rarely arouses himself to the painful attempt to check or counteract the capricious and, as a rule, purely mechanical associations of ideas and succession of images, or brings under discipline the disorderly tumult of his fluid presentations. On the contrary,



he rejoices in his faculty of imagination, which he contrasts with the insipidity of the Philistines, and devotes himself with predilection to all sorts of unlicensed pursuits permitted by the unshackled vagabondage of his mind; while he can not endure well-ordered civil occupations requiring attention and constant heed to reality." If it is further true, as is claimed, that the number of these degenerates in this country are being rapidly increased in number by reason of the use of narcotics and stimulants, of tainted, adulterated or contaminated foods, the absorption of organic poisons, the sapping of vitality by the constant nervous excitement under which we live; is it not time that there should be some authoritative branch of the government, to inquire into the causes of this degeneracy and advise some means of staying the tide of national destruction?

It is certain that the safety and welfare of the people of this country, and the interests of commerce, demand the establishment of a uniform system of quarantine, under the control of the Federal Government. It has been well said that in times of danger it is of equal concern to the entire country—to the people of the interior States as well as those on the seaboard—that quarantine should be national in character. It is not just to throw the expense and responsibility of the defense upon any one class of the State, nor is it just to deprive those living in an interior State, from a voice as to the method and degree of protection along the seaboard and frontiers. Furthermore, to render all lines of defense effective, every point must be fortified when the invasion of disease is threatened or possible. Neither is it wise or safe to trust the defenses to chance or to a quarantine system varying at different points, as now exists under the separate regulations of the various States. While safety should be secured, as little interference and inconvenience with commerce and individuals should be allowed as possible.

The efficient Health Officer of Canada has well said, "that from the long period of incubation of some of the infectious diseases and the relative shortness of the voyage from many ports outside the country, and from the possibility of disease lurking in imported clothing and effects, it is evident that unless there could be a routine quarantine detention of all vessels arriving at every port and a routine disinfection of all clothing and merchandise from abroad, there is always the possibility of exotic disease passing the quarantine barriers in an invisible and unrecognizable stage and condition, and first declaring itself in the interior of the country. This can not be avoided without such detention of vessels, passengers and merchandise at the ports of arrival, and such consequent interference with trade and commerce as would be quite unjustifiable and impracticable." Hence the necessity of a central, harmonizing, governing board to bring into coöperation the various local Health Boards—and at the same time to secure the necessary coöperation of all foreign nations; in fact, the adoption, in some form, of the recommendation made at the meeting of the National Quarantine and Sanitary Association by a committee of which our venerable associate, Dr. A. N. Bell was chairman: "That of the adoption, by the commercial nations, of a sound and well-digested code of marine hygiene, and of the necessary measures for insuring its strict enforcement." While we would urge with all zeal the necessity of national quarantine, we would hold

in grateful remembrance the work of local boards in our large ports of entry, and the able and thorough efforts in this direction of the Marine-Hospital Service. But we must bear in mind that this service was rendered in default of any national organization that could do this work.

We recognize how much of our safety depends upon the thoroughness with which proper quarantine regulations are enforced by the sanitary authorities of Canada. It is a pleasure to speak with some personal knowledge of the faithful and painstaking work done in the Dominion under the watchful care of the Medical Superintendent of Canadian Quarantine Service, Dr. Frederick Montizambert. By this efficient service the danger of imported diseases from this source is infinitesimal.

Standing as we do on the verge of the centennial of the first successful demonstration of secured immunity from disease, by the use of an antitoxin, it is pertinent for us to inquire if we are, in the light of our present scientific knowledge, carrying out carefully and faithfully, vaccination, as Jenner gave it to us. It only requires the announcement that small-pox has appeared in any community, to learn how large is the number of adults who have never been vaccinated, not because of any objection to vaccination, but from neglect in having their attention called to it. Could we honor the memory of Jenner, and celebrate the discovery of this great boon he gave to the world, in a more fitting manner than by seeing to it that in all the families we enter, this royal deliverance from a most loathsome disease is placed at their disposal? It is unnecessary to discuss before this body the usefulness, the desirableness, the imperative necessity of this wonderful protection to the human family. Each year of the century has demonstrated it. Millions of people have testified to its beneficent powers. In this country, and in most of the countries on the continent, animal lymph is used in preference to humanized. England is now adopting it in some measure; but the Jennerian method of arm-to-arm vaccination has had so strong a hold that it has been slow in adopting the use of bovine lymph.

In nearly all foreign countries the production and distribution of calf lymph is under control of the government; in this country, however, only two States maintain vaccine establishments for the propagation of vaccine lymph. The general government does nothing at all. As a result we have the production and distribution of lymph in the hands of commercial men. Dr. Abbott remarks that, "the private producer conducts his operations in such a manner as to secure the greatest possible returns with the least possible outlay of money. Vaccine lymph is bought and sold, and competition in prices naturally leads to deterioration in the quality of this important article, which should be freed from every influence which may in any way lead to its impairment." But the danger lies not only in the fact that it is an article of commerce, but still more in the methods of its sale. Druggists and middlemen act as agents for its sale; as a consequence this vaccine lymph often remains for weeks or months in the drawers of these agents, and when needed for use the guarantee of the producer is disregarded, the lymph of several weeks or months ago is sold, and finally used for vaccination. As a result it proves inert, and the consequence is charged to the insusceptibility of the infant or vaccinated person.

As a matter of fact, when vaccination is conducted under the best conditions of fresh lymph, insusceptibility is found not to exist, or to be a matter of rare occurrence. If such vaccinations are being made during a brisk epidemic of smallpox, and in families which have been exposed to the disease, it may happen that some children will take the disease and die, during the delay occasioned by waiting to ascertain whether the lymph of uncertain source and age will prove successful or not, and thus life is jeopardized and the practice of vaccination falls into disrepute. Again, the commercial producer is very likely, in his haste to become rich, to take less time and to become careless in his technique—in consequence the lymph becomes contaminated with foreign microbes which may produce either abscess, septicemia, or other pathologic states. For these reasons we would urge that a most imperative demand exists for the establishment of a National Health Bureau, one duty of which would be to produce a pure vaccine lymph under the most careful aseptic conditions and furnish it to State Boards free or at cost.

It is a serious question if the time has not arrived when the medical profession should study from a purely scientific standpoint the great practical question of the effects of alcohol as a beverage.

Dr. Crothers, in an address before the Public Health Association, asserted that, "Inebriety is clearly more prominent as a cause of disease and degeneration than all other factors known at present. The various authorities who have tried to tabulate the number of defectives due directly and indirectly to inebriety, have varied widely in their estimates, showing that the facts are not yet all grouped and studied. These estimates have placed inebriety as the active cause of from 10 to 60 per cent. of all insanity; from 30 to 80 per cent. of all pauperism; from 60 to 90 per cent. of all criminality; and 30 per cent. of all idiocy. These are the highest and lowest estimates made by various authorities in this country and Europe, and bring unmistakable evidence of the influence of inebriety, not only over public health, but over all growth and civilization." Here is a subject for investigation in which our profession should, as guardians of the public health and as conservators of the country's good, take the lead, and not trail in the rear of public opinion as we are now doing. It is not only our privilege, but our duty, as members of the only profession who by training and experience are prepared to enter upon a thorough scientific study of the questions which it involves. If scientific workers in the medical profession, with the authority of this ASSOCIATION, should examine this question from a purely scientific and practical standpoint, taking facts and not theory as a basis, we should soon be in possession of accumulated knowledge which would enable the medical profession to speak with authority upon a problem which has been agitated and considered from other standpoints, without being able to lay down positive and incontrovertible propositions as to its effects, and the best means to remedy the various resultant conditions. It is true that for many years a committee of the British Medical Association have had the subject under consideration and, in connection with the British Social Science and Public Health Associations, have done much to place this question upon a scientific basis, and have furnished data from which an effort has been made to restrict and alleviate the various phases of trouble that have

resulted from its general use. Yet as diseases in general are modified or intensified and their sequelæ changed by climate and environment, in how much larger measure shall we find that the effects of alcohol are different in our climate, with our natural characteristics and the different forms or methods of using it. Let a National Bureau of Health take this matter in charge, and pursue an exhaustive investigation upon the lines indicated, calling to their aid and utilizing the work done by committees of this and other organizations, and it would soon be in possession of positive facts with which to elucidate this great problem.

At the present time the whole world is roused and stands with bated breath listening for the scientist to announce the discovery of a new therapeutic or preventative serum. It is believed that we are possessed of a serum or antitoxin by which the mortality of diphtheria is apparently very much reduced; while we are in the stage of demonstration of the effects of this serum in preventing and curing this disease, it is necessary that we should exercise great care in securing fresh reliable antitoxin, and caution in its use. In this matter we are again indebted to Massachusetts for an example of what the general government should do; prepare under suitable conditions the antitoxin of undoubted purity and supply, under proper regulations, free to such communities as might desire it. Investigating experimentation is going on in many laboratories which promises to give us other valuable curative and preventative serums. Although disappointed in the curative value of tuberculin it has proved of great value in the diagnosis of bovine tuberculosis. In the older States, where great attention has been given to dairy interests, every method has been adopted that would in any way increase the product of milk, regardless of the health of the animal; as a result, we have under these conditions what is practically unknown on the prairies of the West, a corresponding increase in diseases affecting the dairy cow, the principal one being tuberculosis.

James Law in a report on tuberculosis remarked: "Few, if any, diseases maintain a sway over a more numerous genera of animals than tuberculosis. All must, therefore, be considered as possible bearers and disseminators of the infection, and no such animal can be left out of account in any systematic attempt to root out the disease. Some are, however, justly held to contribute more than others to the maintenance of the affection and in this sense, in addition to man himself, we must consider as preëminently bearers of this disease cattle, fowls and pigs. It is doubtful if any observation or study has been sufficiently thorough to enable any one to make an accurate table of the prevalence of this disease among the cattle of this country. As already indicated it is hardly known in the West, as in over two million beeves examined in the packing centers it was present in only two-tenths of 1 per cent., while in cows in this city (Baltimore)  $2\frac{1}{2}$  to  $3\frac{1}{2}$  per cent. showed its presence, and in at least twenty thousand examined in the State of New York it was present in nearly 2 per cent. In Massachusetts it was present in 7 per cent. During the last five years various investigators have been at work upon this subject, and have arrived at conclusions more or less correct regarding some of its phases. These conclusions are of a most startling character and certainly demand and are receiving at

the hands of the profession most serious consideration; among the laity these decisions have produced a state of great alarm and an apprehension of danger from the use of dairy products as well as meat. Time will not permit us to enter upon a full discussion of this subject; we may, however, briefly consider some of the conclusions arrived at after a careful and thorough clinical study, as well as biologic experiments, post-mortem examinations and microscopic investigations of the flesh and milk of a large number of animals. Dr. P. H. Bryce, Secretary of the Provincial Board of Health, Toronto, having made a most careful study presents the following deductions:

1. That tubercular infection has existed in greater or less degree in man, according to post-mortem evidence in a percentage, in some groups of cases, to the extent of from 25 to 50 per cent.

2. That it produces fatal results at different life periods after the first year to an almost equal degree.

3. That the tubercular process, fatal in so large a degree, may nevertheless exist in man and in animals, according to the localization, condition and extent of the tubercle, the constitution of the individual, the environment, as of climate, etc., for an indefinite length of time, the individual finally dying from other disease.

4. That the infection may, however, be present in such instances to an extent sufficient to transmit the disease through the air passages, and possibly in cattle through the medium of the milk.

5. That in many cases the disease may remain in an inactive condition, the man continuing in a fair condition of health, and being able to pursue his ordinary avocation, and the cow appearing well nourished and giving milk in apparently normal quantities; but that in all such cases there is an ever present danger of cold, or other occasion of inflammation setting up general infection of the system with fatal results.

6. That the seat of the disease will largely determine the degree of danger of infection and the direction of its transmission.

7. That in cattle, while the bacilli are probably always present in the milk when the udder is tubercular, yet the bacilli may be present in the milk in a considerable percentage of cases where even post-mortem examination reveals no tubercles of the udder.

8. That in woman, tuberculosis of the mamma is but seldom found.

9. That in cases where tubercle is present in lymphatic glands, in lungs, liver and other organs, the juice of the muscles has been found in some instances to produce infection, even where no tubercle of muscular tissue could be discovered.

9a. That the inoculation of either men or cattle, when not experimental, takes place in practice always by way either of the respiratory or of the alimentary tract.

10. That such inoculation is dependent upon the extent and frequency of the passage of infective materials into either tract, and largely upon the receptive condition of the mucous membrane in both cases. A healthy mucous membrane offers much resistance to the passage of bacilli.

11. That the infection may begin in the epithelial surface of the air cells of the respiratory tract, and probably, in some instances, also in that of the mucous membrane of the intestinal tract.

12. That when bacilli pass into the system they do so by way either of the blood capillaries or of the lymphatic vessels in the walls of the air passages and the villi of the intestines.

13. That when they have passed into the blood capillaries they may produce localized tubercles at the point of inoculation, or may, by passing into the blood current, produce infection at points and in organs distant from the same.

14. That inoculation into the lymphatics, while capable of producing localized infection, tends to transmission of the bacilli to the neighboring lymphatic glands and to the prevention of the progress of tubercular infection of the system.

15. That while inoculation by means of the blood vessels of the intestines may result in tubercles in the liver, spleen, etc., yet inoculation by the chyliferous lymphatic is likely to result in tubercles localized in the lymphatic glands, especially of the intestines and mesentery.

16. That both in man and cattle, by far the most common seat of tubercles is in the lungs and adjacent lymphatic glands; and that this fact, along with the statistical evidence of the frequently repeated cases of pulmonary tuberculosis in persons exposed to the infected air of sick rooms and in cows to that of infected stables, points to the inference that the great proportion of cases of tuberculosis are the results of aerial infection by way of the respiratory tract.

17. That while the great number of deaths from tuberculosis in children, as from *tabes mesenterica* or consumption of the bowels, points to the probability of frequent cases of infection through milk and other food by way of the alimentary tract; yet the still larger number of cases of lung tuberculosis in children, the relatively small number of calves and young cattle infected with tuberculosis and the comparatively few instances of tuberculous cattle in which the intestines, mesentery or other abdominal organs are found on examination to be exclusively tubercular, point very strongly to the conclusion that infection by way of the intestines is relatively seldom in cattle, and that where it does take place in children it most probably is dependent on the previously unhealthy and congested state of the mucous membrane of the walls of the stomach and of the intestines.

After the most careful experiments, Drs. Ernst and Peters arrive at these conclusions concerning the infectiousness of milk: "First and emphatically, that the milk from cows affected with tuberculosis in any part of the body may contain the virus of the disease.

"That the virus is present whether there is disease of the udder or not.

"That there is no ground for the assertion that there must be a lesion of the udder before the milk can contain the infection of tuberculosis.

"That, on the contrary, the bacilli of tuberculosis are present, but with no discoverable udder lesions."

It will be noticed that these investigators, although working in widely different fields, have made one point in common which seems to be of great significance so far as its propagation is concerned, that is "that the juice of the muscles has been found to produce infection when no tubercle of muscular tissue was found, but when it was found in other structures of the body." The milk of cows suffering from tubercle in the lungs but without any lesion of the

udder or the presence in the milk of any bacillus, will by inoculation produce tuberculosis. This would seem to add weight to the question already raised, whether the disease is caused by the bacilli, or by a virus of which the bacillus is only an incident. The prevention and cure by anti-tubercle serum as advocated by Dr. Paul Paquin and others, if efficacious would do much to save life and prevent the destruction of property. Should further data be needed to show the important place this subject would hold in governmental investigation, it is only necessary to call attention to the commercial importance of our beef and dairy products, the market for which is now in jeopardy by reason of the exaggerated fears of people lest they gather to themselves the seeds of disease.

The subjects which would demand attention from a Department of Public Health, are exceedingly numerous. The question of proprietary medicine which interests every family in the land, is an evil which in spite of the continuous maledictions that have been hurled against it by all scientific medicine, both as organizations and as individuals, has continued to thrive, until at the present time it is intrenched behind millions of money and is held in high esteem by the people because of its ability to hide its worthless character or possible dangerous combination behind a trade-mark. If the manufacturers of these nostrums were obliged to deposit with the Public Health Department, under certain restrictions, as suggested by Dr. Stewart, the formulæ from which they are prepared, it would do more to eradicate this stupendous swindle from the land than all the fulminations that could be hurled at it for centuries; it would have an equally elevating effect upon the science of pharmacy which is so indispensable to our success.

The question of pure unadulterated foods, pure drugs, pure water; the cause and prevention of the degeneration already alluded to and the resulting increase of insanity; the effect of our varied climate upon the diseases we suffer from, and many others all press for solution, until we are ready to echo the sentiment of the Norse legend:

"Labor with what zeal we will,  
Something still remains undone,  
Something uncompleted still,  
Waits the rising of the sun.

"By the bedside, on the stair,  
At the threshold, near the gates,  
With its menace or its prayer,  
Like a mendicant it waits;

"Waits, and will not go away,—  
Waits, and will not be gainsaid.  
By the cares of yesterday  
Each to-day is heavier made,

"Till at length it is, or seems,  
Greater than our strength can bear,—  
As the burden of our dreams,  
Pressing on us everywhere;

"And we stand from day to day  
Like the dwarfs of times gone by,  
Who, as Northern legends say,  
On their shoulders held the sky."

**A Quadruple Birth.**—A case of this nature is reported from Brooklyn, in the family of a tailor named Lowenstein. The mother died with the delivery of the fourth child. Two of the four—the two first born—survived. They are males; one of these has since succumbed. The two juniors, a boy and a girl, were born dead. The combined weight of the four children was sixteen pounds.

## ADDRESS OF WELCOME,

TO THE AMERICAN MEDICAL ASSOCIATION, AT THE MEETING IN BALTIMORE, MAY 7, 1895.

BY S. C. CHEW, A.M., M.D.

BALTIMORE.

*Gentlemen of the American Medical Association:*—The medical profession of Baltimore tenders to you a most cordial and fraternal greeting. Eight and twenty years have passed since this city was last honored by your presence here, and the changes which in that time have taken place in the Association, and in the world around us, are a measure of the changes—happily advances in knowledge,—which have occurred in medical science. For though our organization has enjoyed a continuous and vigorous existence in its corporate capacity from its last sojourn here to the present time, yet it may be suspected that comparatively few of those who were then members of this body are with us to-day. Since then a whole generation of physicians has largely passed away. Another generation has come into existence, so that of those active and strenuous workers in the profession who are here to-day, many had then not entered it, and some, no doubt, were unborn.

"The old order has changed and yielded place to new."

And if such difference exists in our Association, how different, too, were our surroundings at that time. In 1866 the population of the United States was 35,000,000; now it is nearly, if not quite, 70,000,000. Baltimore, when you were last gathered here, was a city of about 250,000 souls; and now it numbers 500,000. But a more important change in its interest to our profession than mere increase of population is found in the fact that this city has become one of the chief centers of medical education in the country, and as such attracts here about a thousand medical students every year.

Again, at your former meeting here, the swell of the storm of civil conflict had not yet wholly subsided; some of its sad results were in many places still manifest and flagrant, and among them was the retardation of medical progress. For, if in the midst of arms the laws are silent, so too the voice of science is hushed or lowered. Peace is the atmosphere in which she flourishes and achieves her greatest triumphs; and in that long and blessed peace which our country has enjoyed, how great are the advances which medical science has made. And perhaps the greatest of all these advances—greater than the discoveries of specific methods of treatment, though these have been great and most important;—greater than antiseptics, and antitoxin, and the other additions to our therapeutic resources, though these have been numerous and most beneficial;—greater than the devising of operative procedures which thirty years ago were hardly dreamed of, but which have already added thousands of years to the general sum of human life;—greater than any of these, "by the all-hail hereafter," because having the "promise and potency" of results exceeding any that have yet been achieved, is the elevation of the standard of medical education and attainment, which has been effected of late years, and which is continually being raised higher and higher. For what may not be expected from the future when we consider what an increasingly large number of accurately trained minds are devoting themselves to medical work?—of minds trained thoroughly, both in those preliminary branches of science



which bear directly upon medicine, such as biology, histology, bacteriology and chemistry, and also in those which are of the very center and essence of medicine itself, such as pathology and experimental therapeutics. Many are now entering our profession every year, equipped with a knowledge of scientific methods of research and practice which not long ago were entirely or in great degree unknown.

This is what the higher medical education is accomplishing, that wherever civilization extends, medicine is prosecuted by multitudes of earnest workers in the spirit of that inductive philosophy, of which it has been finely said that: "It never rests; is never perfect. Its law is progress. A point which yesterday was invisible, is its goal to-day, and will be its starting-post to-morrow." The attainments of this present time will hereafter seem but faint beginnings in comparison with what the future will achieve. For,

"Though much is done, much more remains to do."

A broader light will surely illumine much that is now obscure. More delicate methods of examination than any we now possess, will foreshadow impending diseases, or detect them at earlier and more remediable periods of their courses. The histologic changes in which inflammations take their rise, will be more clearly made out in their very beginning, and their train of consequences arrested. The ptomaines and other poisons by which "the life of all the blood is touched corruptibly," and zymotic diseases produced, will be more thoroughly investigated, and more efficiently guarded against, neutralized or expelled. Epidemic diseases, the nature and origin of which are involved in obscurity, the pestilence that now "walketh in darkness," will be set in clear light, to be blotted from the sum of human ills forever. The great subject of neuro-pathology, now almost in its infancy, will receive immense development, not only through increased knowledge of the special functions of different portions of the brain and cord, but by the power which may then be possessed of tracing the earliest disturbances in vascular and glandular action to altered innervation. All these gains which the future may have in store, and countless others of which we do not now even dream, will be the results of the higher medical education.

And if, hereafter, those of the present day shall be regarded as

"the ancients of the earth,  
And in the morning of the times,"

yet it will be looked back upon as a morning not clouded over with the mists of error, prejudice and superstition, but bright with the promise of those good things which then will be blessed realities.

This is what the higher medical education is effecting, that every year a greater number of earnest workers are entering the profession of medicine better qualified for its labors and duties. And what are those duties? We are perfectly familiar with them, and yet, perhaps it is well from time to time to regard them steadily in order to deepen the impressions which they should make upon us. What are the great objects to which our medical science is devoted? Are they not these? First, on its practical side, briefly this,—“that they may have life, and that they may have it more abundantly.” The prolongation of life, the mitigation of the evils of life, the assuagement of the pains of life, are what it seeks to accomplish. And on its ideal side it has no other object than the search for truth,—the pure and perfect

truth. It is never concerned in making the worse appear the better reason; it admits no *stare decisis* doctrine; it is not guided in its conclusions by authority as having value in itself apart from the evidence it offers. It seeks for truth and for truth alone in the spirit of those great words, "The truth shall make you free;" words, which, as in the highest sense in which they were first spoken, so in every subordinate sphere in which truth is earnestly sought for, will be found to justify themselves. Freedom in some form is ever gained by a knowledge of truth. Freedom from the shackles of ignorance; freedom from the physical ills of pain and disease, with which human life is envired; freedom from the follies of charlatantry and false systems,—the countless *isms* and *pathies* of the day,—those "oppositions or *antitheses* of science falsely so called," from which rational medicine is separated as by the barrier that divides order from confusion, light from darkness; these are the good gifts to be imparted by a knowledge of those truths for which we, as physicians, are striving.

Gentlemen of the Association, in welcoming you here to-day it is our earnest wish that the counsels which you take together may be instrumental and effective in promoting these high objects.

## LECTURES.

### LECTURES ON INTRACRANIAL SURGERY.

XI.—THE SURGICAL TREATMENT OF INSANITY.

BY EMORY LANPHEAR, M.D., PH.D.

ST. LOUIS, MO.

Every extensive insane asylum in the world contains scores of patients whose minds might have been saved by timely and proper surgical treatment. Nor do I include in this statement those numerous cases which apparently depend upon peripheral irritation; patients who might be greatly benefited, and some perhaps cured, by the removal of irritating scar tissue, hemorrhoids, diseased uterine appendages, etc.; for in the work of such men as Robè, of Baltimore, we have seen too many instances of improvement after operation, to allow us to longer doubt the assertion that there are some insanities due to, or at least aggravated by, the long-continued irritation of peripheral nerves; even in my own limited field, I have seen mental aberration of very severe degree disappear almost as by magic under repair of lacerations of the cervix, removal of diseased ovaries, and the cure of rectal disease—hence my plea for closer physical examination of every insane patient, for the discovery of conditions which may be removed by surgical means. May be removed? Nay, *should* be, even in the face of the objections of many neurologists who violently oppose every effort of the surgeon to invade the field they have so long held sacred to themselves; and at any stage of the disease—just as soon as the local trouble is discovered. Even some asylum physicians are recently acknowledging the truth of this assertion. Thus Dr. L. A. Weatherby, Physician to Bailbrook Asylum, in an article which has been severely criticized by some psychiatrists, says: "I am myself satisfied that the surgical treatment and cure of hemorrhoids, contracted sphincters and tumors and fissures of the rectum, displacements and other diseases of the uterus often—by removing the exciting cause—brings to a happy termination many a case of melancholia and hypo-

chondriasis. Cases under my own personal observation have proved this beyond question." The followers of Pratt, in the line of official surgery, though carried to an extreme by their enthusiasm, are calling deserved attention to a kind of work that may yield good results. But, enticing as is this line of thought, it can not be considered in a lecture limited to intracranial surgery, so my remarks must be confined to insanity dependent upon trauma, tumors, softening, abscess and like affections. Nor are such cases rare, as I have intimated in my opening statement. Upon the contrary they are very common—far more so than alienists of the not remote past have led us to believe; it is one of the blots upon the pages of modern surgical history that so many cases of epilepsy and insanity have been allowed to develop subsequent to head injuries.

Upon careful search I can find little in medical literature upon the subject of trephining for insanity; and nothing that is very definite or satisfactory. Indeed, it is quite probable that nothing of great importance, save here and there the report of single cases with comments, is to be found anywhere since Weatherby in the *International Medical Annual* for 1889 says: "Surgery has so far played an exceedingly small part in the treatment of insanity; and yet we are beginning more and more to believe that surgical interference may do good in many cases of mental disease. Latterly, operation has been found to give great relief in cases where intracranial pressure was suspected, and on operation found to be present. We may well be justified in the belief that in time, as our knowledge of the localization of brain diseases becomes more definite, the use of the trephine will be a more constant factor in the treatment of some forms of insanity."

At the outset of our study of this subject it may be said that osteal and dural disease, as well as both structural and functional disturbance of the cortical and subcortical tissues, may occasion every variety and degree of mental aberration. We must, therefore, study each case that we meet, not so much with the idea of distinguishing the particular form or variety of insanity with which the patient is afflicted, as to determine the cause of the trouble and to decide what is the pathologic condition which gives rise to the morbid manifestations. For while we hope that the time may soon come when we can boldly open the cranium and correct certain abnormal conditions by means not yet discovered (and which we may not understand when found—as is true of the cure of tubercular peritonitis by simple laparotomy) we must at the present time confine our work to cases in which we are sure gross lesion exists; it would be manifestly absurd to open the skull for an insanity of toxic cause, whether of extrinsic origin or due to auto-intoxication; or to operate for a purely functional disturbance (if there be such) of the thought centers. The question, Is this case one for operation or is it not? is a most important one, and one which requires the most careful consideration, for we must bear in mind the fact that "insanity from gross lesions of the brain (tumors, new growths of all kinds, enostoses, spicules or portions of depressed bone, embolisms, hemorrhages, softening, cysticerci, etc.) is attended with the same indications as those conditions which arise from diffuse disorders of the brain; that is, giving rise to any of the symptoms of the various psycho-neuroses and cerebro-

psychoses. The lowered moral and mental tone after cerebral hemorrhages, for example, is a matter of common observation, as after one an individual is rarely observed to be himself again." (Pepper's "System of Medicine".) The necessity for a most careful investigation to discover the *cause* is at once apparent.

The classes of cases thus far subjected to operation are:

1. Traumatic.
  - a. Hemorrhage.
  - b. Abscess.
2. Organic.
  - c. Tumor.
  - d. Meningitis.
  - e. Softening.
  - f. Chronic hydrocephalus.
3. Epileptic.
4. General paresis.
5. Syphilitic.
6. Paranoiac.

1. *Traumatic Insanity*.—Mental disturbances the result of trauma may assume the form of (a), mania; (b), general affective degeneration—changes in character or moral nature; (c), general pseudo-paresis; (d), dementia. Fracture, with depression, is a very common cause of insanity, but it is not even necessary that there should be depression. Shaw ("Mental Diseases," page 130) says: "While fractures of the skull, with depression, are most likely to lead to serious mental mischief, yet even simple concussion may induce chronic, incurable insanity, or the disposition to it." Hence no blow upon the head of a person of neurotic tendency can be deemed insignificant; and trephining should be done at the time of accident if there be the slightest indication therefor. We must not follow the old pernicious doctrine that fractures of the skull should be left alone if not attended by symptoms of serious compression.

Garmany asserts that more than 50 per cent. of severe injuries to the frontal region, when untrephined end in epilepsy and insanity; so far as I can discover from the meager literature of the subject, less than 10 per cent. operated upon have a disastrous termination—so it may be said that fully 80 per cent. of cases of traumatic insanity might be prevented by appropriate treatment at the time of accident. As a parallel to my remark upon the prevention of epilepsy, I may then well observe that:

The way to cure traumatic insanity is to prevent it!

The significance of this remark is at once apparent when we consider the fact that only too oft the chance of recovery vanishes with the passing years, since late operation for traumatic insanity, like that for epilepsy, does not promise brilliant results because the persistent irritation of brain produces such organic change in the brain substance that nature is unable to effect complete regeneration after the source of irritation has been removed. The lesson is, therefore, to operate upon every case of insanity dependent upon demonstrable lesion amenable to surgical treatment at the earliest possible moment after development of the mental disturbance; and in serious injury to the skull to elevate depressed fracture, etc., at the time of accident, in order to prevent the appearance of this formidable condition.

The words of Agnew in his last paper are peculiarly appropriate at this point: "Whenever the medical profession can, in my judgment, accept the doctrine that *every depressed fracture, however small the*

depression and irrespective of pressure symptoms, is a proper subject for trephining, then will traumatic epilepsy and insanity largely disappear."

But the mere lapse of years need not prevent surgical interference in cases where there can be little doubt as to the connection between the head trouble and the insanity, for some most brilliant results have been obtained from operative measures even many years after the mind appeared totally shattered.

A case which shows what may sometimes be accomplished in the treatment of this form of insanity, even a long time after the development of the disease is as follows:

*Traumatic Insanity—Trephining After Three Years—Complete Recovery.*—P. G., was 52 years of age at the time of operation. Some four years before he came under my care he was kicked upon the forehead by a mule. There was a marked depressed fracture of the frontal bone in the median line just at the margin of the hairy scalp; but as he fell into the hands of a "conservative" surgeon who believed that a depressed fracture should not be operated upon unless profound symptoms of pressure are present he was not trephined, because he was unconscious but a few moments and very soon went about his business as if the injury were of no consequence. If a progressive modern surgeon had been called, who believed that every depressed fracture of the skull should be subjected to operation at the time of injury, however slight the depression and irrespective of pressure symptoms, the most disastrous consequences might have been averted; for very soon a most remarkable change occurred in the patient. Before the accident he was an exemplary husband, and devoted father; a strong opponent of intoxicating liquors and a Christian gentleman; noted for his integrity and excellent character. But soon it was seen that his character was totally changed—he deserted his wife and sought the companionship of prostitutes; he was so abusive to his children when at home that they fled from him in terror; he became so addicted to the use of whisky that he soon wasted his property and sunk to the level of the drunken sot, as often found in the gutter as in bed; he cursed and swore and seemed to lose all sense of manhood and decency—he was obscene, vulgar and debased. This condition continued for a period of more than three years with occasional intervals in which it was thought he was going to "reform"; finally after a long debauch suicidal and homicidal impulses became predominant, and at last the relatives consented to operation. Upon removing the depressed bone a large fragment of the vitreous plate was found projecting through the dura an inch or more into the frontal lobes. The superior longitudinal sinus was crushed and filled with organized blood clot, and much of the middle frontal convolutions showed signs of pressure but no decided degeneration. There was little shock and no meningitis following this extensive operation. A marked quietness instead of constant restlessness was the first change noticed in the mental condition; the countenance became more serene, the voice less coarse. As convalescence progressed it was found that the patient was more like his former self—he greeted his wife and children with a pleasant smile and kind words instead of scowls and curses. And when bodily health was completely restored he became his old self once more; gentle, affectionate and trustworthy. This improvement was not temporary. More than two years have elapsed, and his mental condition is as good as before the accident. He recalls the incidents of his mad career as one remembers a vivid dream, shuddering at the horrid recollection and trying to forget the terrors in the pleasant realities of the present.

Here, gentlemen, was a triumph of surgery, a human mind restored even after all hope seemed gone. It was a case which followed closely the history outlined by Spitzka ("Text-book of Insanity," page 371): "The subjects of this disorder are noticed to undergo a change of character, to exhibit a tendency to alcoholic excess, to become morally perverse, suspicious, brutal and quarrelsome and to manifest murderous and other violent impulses, occasionally associated with fits of maniacal exaltation or furor. This condition is remarkable for its long duration

and its frequent and sudden changes. As a rule, dementia terminates the history of the case."

A number of successful operations are mentioned in the *Annual of Universal Medical Sciences* for 1888, by Horsley, Price, MacDonald and Fletcher. The latter operated upon eight cases at the Indiana Hospital for the Insane. All of the insanities developed some years after the accident and all were subjected to operation a long time after the disease was manifested. In all but one, strong adhesions of the brain to the dura were liberated. All were melancholic, suicidal and profane, and four of them destructive to clothing. All were relieved. In none had the cortex undergone any decided pathologic change. Commenting upon the reports Senn observes: "When we consider that under strict antiseptic precautions trephining can now be done with hardly any risk to life, it must become apparent that in cases of insanity following fracture of the skull, this operation holds out a ray of light in otherwise hopeless cases. The success which has attended the operation thus far is sufficient to warrant further trial."

But such remarkably favorable results as those mentioned and as obtained in the case just related are not often possible long after the injury, as I have found in more than one attempt at restoration of mind in old trauma. A marked case may be briefly summarized thus:

*Traumatic Insanity—Operation—No Improvement—Death by Suicide.*—Wm. W., a young man of much promise fell and fractured his skull in the fronto-parietal region. He soon after became morose and sullen, abandoning his studious habits and deserted his refined companions. He became addicted to the excessive use of whisky, associated with gamblers and courtesans, neglected his business and family, and finally degenerated into a high-grade imbecile, typical terminal dementia—irresponsible, epileptic and sometimes maniacal; throughout markedly hysterical. After some three years of this kind of life he became my patient. I trephined him, corrected the difficulty fully, as I thought, and expected a brilliant result. Recovery from the operation was prompt and satisfactory so far as his bodily condition was concerned, but a melancholia followed and he committed suicide a few weeks after his discharge from the hospital.

Had this patient been properly treated at the time of injury this disastrous result would have been averted. More than this—I am of opinion that had I had an opportunity of operating soon after the development of the insanity, before such changes occurred in the brain as to prevent regeneration after removal of the cause, I might still have saved the life and mind of this young man. The case emphasizes the necessity for operation soon after the onset of mental symptoms, but still more strongly teaches that all injuries of the frontal region, of serious degree, imperatively demand operation at the time of accident; regardless of the teaching of the past.

Quite a number of successful results have been obtained in this city from trephining in cases of traumatic insanity of recent development, by Drs. G. W. Cale (two cases), F. J. Lutz, T. F. Prewitt and W. H. Mayfield. It is unfortunate that all cases of insanity operated upon have not been reported, giving results, whether favorable or unfavorable.

2. *Organic Dementia.*—"Organic dementia is the insanity which results from cerebral hemorrhage, embolism, thrombosis, ramollissement, tumors, hydatids, pachymeningitis and a few other affections. These cerebral diseases are not necessarily accompanied by mental alienation. Still they cause delirium or coma and certain other psychical dis-

turbances very frequently, and it is but natural the mental disorder should have the nature and often the permanency of positive insanity." (Kellogg, "Reference Hand-book of Medical Sciences," vol. iv, page 129.) These intracranial lesions produce the insanity: 1, by direct pressure on the brain convulsions; 2, as irritative lesions, in a reflex way; 3, by obstruction of blood supply; 4, by inflammation and abscess formation; 5, by non-inflammatory softening—as in embolism. Some focal diseases may act in not only one but several of these ways. The most common character of the psychical manifestations is a progressive impairment of all the mental faculties, ending in more or less complete loss of mind; in one of my cases (Wm. K., presently to be mentioned) this amounted to total and permanent idiocy. From what has been said, the necessity for early operation is obvious.

(a.) Insanity due to hemorrhage. I can find no account of any operation done for mental trouble due to cerebral hemorrhage, except the case of McBurney, of New York, who trephined and removed an irritating clot four months after the rupture of the vessel; with complete cure of the mental disease. But the excellent prospects of cure make me advise operation in every recent case of insanity following accessible meningeal or cerebral hemorrhage.

(b.) Insanity due to abscess. As a general thing abscesses of the brain are too rapid in their progress to give rise to chronic insanity; yet occasionally the diseased condition may exist for many months unsuspected or at least undetected. I believe that in every case of insanity preceded by chronic otitis media with suppuration, exposure of the favorite seat of cerebral abscess is justifiable. And where abscess is believed to be present elsewhere, exploratory trephining should be done. It will be remembered that one of my cerebral abscesses of the frontal region (Case 3, JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, April 13, 1895) was accompanied by serious affection of the mind, and that all the mental symptoms disappeared immediately after evacuation of the accumulation of pus.

(c.) Insanity due to tumor. Here the symptoms are exceedingly changeable and often chronic. At first they consist chiefly of headache, giddiness, and sleeplessness, together with irritability, restlessness, loss of self-control and hallucinations of the special senses; later, progressive failure of the mental faculties occurs, sometimes ending in total obliteration of all sense. This was typically shown in a case I operated upon, viz:

*Durhematoma (Cyst of the Arachnoid), with Insanity—Operation—Death.*—W. K., of the Indian Territory, was first seen by me Jan. 8, 1892. A satisfactory previous history was not obtainable, but it seems that he was as intelligent as other boys until about the age of 14 years, when he began to have epileptic convulsions of the right side, followed by temporary aphasia. The spasms finally became general, partaking of all the characteristics of *huit mal* including the mental deterioration. Finally, partial paralysis of the right side gradually made its appearance, accompanied by difficulty in remembering names and other nouns. As the epilepsy increased in severity this paralytic influence deepened until at last he was completely paralyzed in the right upper extremity, the use of the lower was so greatly impaired as to prevent walking, and language became totally obliterated. For a time he read the papers for a little while daily and seemed to understand much of what was said, though his intelligence was evidently greatly impaired. Finally he became so nearly imbecile as to require constant watching, particularly during violent outbreaks which were quite common and full of danger to those around; at the time of my examination his

mind was a total wreck—he was a typical idiot in his mental condition, though his face showed nothing abnormal.

Owing to the fairly clear, though not wholly satisfactory evidence, that the convulsions invariably began in the right hand, then spread until the whole body was involved, and also to the existence of the aphasia after the convulsions and before the dementia appeared, I had him sent to the hospital where I opened the skull, assisted by Drs. Krueger and Maxson. Upon cutting through the dura a cyst of the arachnoid was found, much larger than a hen's egg, lying over the speech and arm centers. This I tried to remove entire, in doing which I exerted too much pressure upon the brain, for the patient ceased breathing (although no chloroform had been given for several minutes) and only revived by long-continued artificial respiration. I hastily cut away the cyst and closed the dura; while doing the latter work another suspension of respiratory efforts was noted and again artificial respiration had to be instituted. The wound was quickly closed and dressed and the patient placed in bed as hastily as possible, when every possible means to combat shock were employed—to no avail; he died within a very short time.

Another case of insanity dependent upon tumor, I have already described under the title, "Osteoma—Operation—Recovery," in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, May 4, 1895. As I stated in my lecture on brain tumor, this disease is much more frequent than generally believed—particularly in insane patients; Clouston found brain tumor in 7 of 36 cases of organic dementia in his post-mortem work, and in 1,000 autopsies upon insane patients, taken without selection there were 28 tumors of the brain, mainly accessible. So operable cases must be comparatively frequent.

(d.) Insanity due to pachymeningitis. That certain forms of insanity are due to inflammation of the dura (and of the pia also), has been known for long, as post-mortem work has often demonstrated the fact that as a result of chronic pachymeningitis externa, the dura is frequently so adherent to the bone as to defy separation, with many fine osteophytes and sometimes bony plates of some size; while thickening of the arachnoid is quite common in some chronic forms with enlargement of the Pacchionian bodies; and adhesion of the pia to the brain is usual in parietic, syphilitic and alcoholic insanities. Quite a number of cases have recently been operated upon by opening the skull widely (2½ by 4 inches) over the frontal region, opening the dura, carefully breaking up adhesions between membranes and brain, dusting in much iodoform to keep the surfaces temporarily apart and closure of the wound in such manner as to secure primary union. Results have not yet been published.

(To be continued.)

## ORIGINAL ARTICLES.

### NEW DEPARTURES IN THERAPEUTICS.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, May 7-10, 1895.

BY JOHN H. HOLLISTER, A.M., M.D.  
CHICAGO.

The trend of medical thought in any given age and the theories then accepted are best discerned by a study of its therapeutics.

Whether the doctrines of Solidism, Fluidism or Vitalism for the time prevailed, we discover the fact not so much by the nomenclatures which men gave to diseases, as by the impress which was left upon therapeutic teachings. And it will not be difficult to determine what are the theories now entertained,



when in other days the methods of treatment now proposed shall be reviewed.

It is a noticeable fact, and it could not have been otherwise, that in the past, in all its conflicts with diseases, medicine was compelled to conduct a defensive warfare. So long as essential etiologic factors were unknown it was only possible to deal with *results*, and that, in these procedures our methods should have been largely empirical. Along such lines we must have proceeded indefinitely, had not the improved microscope and the perfected laboratory been placed at our command. By reason of these and the services they were able to render, our methods of treatment are undergoing a signal and most wonderful revolution. Discoveries are already made and methods of treatment which they suggest are so radical and give promise of such before unknown results, as to stamp the closing years of the century with the impress of a new era, from which possibly will date the renaissance of medicine.

In connection with the investigations and discoveries which have been made during the last twenty years, by reason of which therapy is permitted to assume an attitude so markedly aggressive, two methods of treatment are brought prominently to our attention which, while they revive the old theories of cellular and humoral pathology, yet each give promise of favorable results in the cure of diseases.

The older one is designated organic therapy or the therapy of substitution.

The latter, which at this date, more than any other subject, commands in both hemispheres critical study by our most accomplished thinkers, workers and writers is that of sero-therapy.

The cell theory so ably championed by Virchow has still and in the present field an able following, while Behring more than any other, leads the van in the advocacy of humoral pathology and of a special method of treatment conformable thereto.

Organo-therapy is based upon the claim that all vital activities have a cell-genesis; that cells are possessed of definite organisms and environments; that they are the basis of all functional activities; that in the animal economy through their agency definite results are accomplished, such as those of nutrition, secretion, and excretion; that they are responsible both for constructive and morphologic changes, and that when a perfect equilibrium in their activities is established, the whole economy is in perfect health.

It is asserted that the impairment of health begins with the impairment of cells; that these are affected, favorably or otherwise by their environments; that each has need of special pabulum, the withholding of which will surely cause first, impaired functional action, and later, cell degeneration and death; that remedial agents are valuable or otherwise, as they favorably or unfavorably affect the ultimate cell organisms. It is asserted in connection with this theory that cells possess an inherent defensive power and that by reason of these, there exists in the animal organism an ever-present and pervasive *vis vite*.

It is asserted that, as the result of stimulation, the cells develop those substances known as albuminates, proteids and nucleins, and that these are resistant and destructive to toxins that may be introduced into the system; that by reason of the presence or absence of these antitoxins, animals are susceptible or immune to diseases, and that in proportion as cells are irritated by reason of an offending presence they are

able, within certain limits, to eliminate an increased amount of their protective substance.

That these are the defensive weapons of warfare, and that when the leucocyte embraces the bacillus, as does the octopus its victim, it is not in the capacity of a phagocyte, but for the purpose of bringing more immediately to bear upon the intruder the deadly power of its own toxic secretion, and that thus through the vital energies of the organic cell the antitoxic agent is furnished and immunization becomes possible.

Acting upon the presumption that the cells have the elective power in the selection of their foods, similar to that which is apparent in the growth of all the tissues, it came to be believed that the elements essential to the nourishment of particular organs may be supplied, when wanting, from those existing in other like organs, and that special nutritive results can be attained by the use of various organic extracts.

Thus the views of Brown-Séquard, at the time but little regarded, have more and more gained in favor, until now this method of treatment is becoming somewhat general and will continue, until by present and future observations its real value is determined.

Some of these extracts have been used to a limited extent by your reader during the last two years, particularly the preparation of red-boned marrow, and without a detail of cases, which might here be justly cited as original work, it may be said in a word that in the treatment of some conditions, notably that of simple anemia, by the use of bone-marrow better results seem to be attained than had hitherto been accomplished with either arsenic, oil or iron.

Much is just now claimed for the substance termed nuclein, although its discovery is not new. For the study of its physiologic properties and for its use as a remedial agent we are mostly indebted to recent valuable labors and to an able advocacy, on the part of Professor Vaughan, of Ann Arbor.

In a published address of which nuclein is the subject, he says, speaking of the proteids and albuminates in the same connection: "These substances when introduced into the body of animals in certain amounts and under certain circumstances have the property of stimulating certain organs in the animals, so that those organs produce and supply to the blood an antidote to the substance introduced; the glands that manufacture these immunizing agents being mainly the spleen, the thyroid, and bone-marrow."

For nuclein thus obtained much is claimed. It is believed to pervade the intestinal canal and by its antiseptic powers, to prevent there, as well as in the tissues, premature decomposition. It has power, it is believed, to stimulate brain and nerve centers and thus energize the system when those powers are failing, furnishing a needed stimulant alike to the invalid and to the aged. It is believed to exert an antidotal influence against the toxins of diphtheria and after repeated trials by Knapp, Auld, Bleyer and others, its use is strongly recommended in the treatment of this disease. The explanation being that when by reason of the invasion of the diphtheria bacillus and when its toxins are acting as a powerful cell irritant, that then by cell reaction an increase of nuclein is developed in the blood, the antitoxin power of which

destroys the specific poison. The remedy is on trial. Its use is strongly recommended. Its value is yet to be determined. Of its production and the method of its use it is not needful now to speak. Strongly as the organic extracts are recommended, we are not over-sanguine as to the good which they may be able to accomplish. Their use constitutes one of our new departures, the warrant for which requires further demonstration.

We pass now to a second new method of treatment, namely that of sero-therapy. The series of discoveries which paved the way for its use, as now recommended, and which are well verified is of interest, whatever may be determined as to their utility.

The serum treatment is a sequence of the germ theory of disease, to the development of which a number of most important discoveries contributed. It dates primarily to the discovery of cell agency in fermentation in 1836 by Caignard; then to that of Donne a year later, of living organisms in pus; to the discovery in 1838 by Adet and Beaupertuis that all forms of putrefaction are accomplished by the agency of living microbes; then to the fact announced by Schwan that the air is largely responsible for their conveyance. It was Pollander who in 1839 demonstrated the presence of bacilli in the blood. His statements were soon confirmed by Davaine, who also found them present in the tissues. The methods of development and the methods of culture of micro-organisms were next made known.

Then came that most important announcement that specific microbes isolated by culture are capable of producing specific diseases. At this point a serious difficulty was encountered. Systemic intoxication by their toxins could be accomplished independent of and beyond the location of the germs. They might not be able to accomplish their deadly work *per se*, but they could develop and diffuse toxins which could accomplish that result.

How to deal with the different poisons of microbic origin became the question of the hour. Happily, for its solution we were not long in waiting. It matters not, for the moment, whether to Richet or to Ortaga of Tokyo, or to Behring belongs the credit of the discovery. Most important of all, in its practical bearing, is the essential fact, namely, the *germicidal power of blood serum*. It were enough for each or either of them if, with reference to this discovery, honors were even.

But to Behring alone doubtless belongs its first distinct enunciation, in what henceforth will be known as "Behring's law." His words were these, namely, "that blood and blood serum of a person which had been rendered artificially immune against a certain infectious disease may be transferred into another individual, with the effect to render the latter also immune, no matter how susceptible he is to the disease in question."

This fundamental law of artificial immunization was first enunciated by Behring and Kitasato in 1890 when they demonstrated that the blood rendered immune against anthrax, but made so by repeated inoculation with the anthrax cultures had the power of destroying tetanus toxins, and also that the germicidal power was present in the blood after it was withdrawn from the animal, and finally, that its transfusion to other animals rendered *them* immune from the disease. Thus the possibility of artificial immunization became an established fact, not only against bacilli

themselves but against their toxins when injected in solutions.

The further fact was also demonstrated that the antitoxin potency of serum might be greatly increased by repeated inoculations. Then came the question for decision, as to what the serum-potency should be, and the amount to be used permissible with safety. These important facts having been first settled, with reference to tetanus, it became at once a question whether all infective diseases might not in like manner be amenable to treatment.

To this end, Haffkin is conducting his experiments now numbered by many thousands in connection with the cholera bacillus. But with us during the last two years the paramount attention of almost all investigators has been turned to the treatment of diphtheria. The methods now being employed are too familiar to require recital here. Serum culture is now so far advanced, both in Europe and in this country, that the means for its use are fully at command. Again and again it has been demonstrated that this disease may be propagated at pleasure by cultures of the diphtheretic bacillus. The timely use of serum can more easily be made in this disease by reason of the local manifestations which surely demonstrate its presence, and afford ample time for remedial interference.

Its bacteriology and pathology were admirably set forth by Dr. Simon Flexner of this city, (Baltimore) in an address before the Alumni Association of Jefferson Medical College, and the history of its various phenomena familiar to most of us is there admirably expressed. Our literature in fact upon this subject is ample and much of it admirable.

But the question that it concerns us now to answer is this, Does the serum treatment give results so favorable as to command for it a permanent place in our therapeutics? It would be an immense labor to tabulate the statistics already published, detailing results from serum treatment.

The consensus of opinion in Germany found guarded expression four weeks ago at the Congress of Medicine in Munich. It was there stated that in Berlin in connection with its use the mortality fell from 44 to 21 per cent.; at the same time Professor Bayinsky reported 525 injected cases. The previous fatality had been 21 per cent., while under this treatment it was reduced to 18 per cent. And he also stated that in July and August last, when the supply of serum failed, the mortality rose to 51 per cent. Others had failed of such favorable results and were eminently conservative as to the benefits which they had witnessed.

The views of this body at the close of the discussion were embodied in three resolutions: 1, that its use was harmless to patients; 2, that a majority of observers had seen good results; 3, that experiments concerning immunization were not yet sufficient. With reference to their first point taken—namely—that its use is harmless, notes of warning are already sounding along the lines. The cautions of Hussman of Berlin, ought not to pass unheeded, nor the recent statements of Dr. Joseph E. Winters, at a late meeting of the Academy of Medicine, in New York, detailing his experience at the Willard Parker Hospital. They should certainly lead us to cautious and critical observation of many cases and their results, before yielding ready assent to the claims put forth, and to an unqualified indorsement of the serum

treatment of this disease. The able and candid statements of Dr. Winters are worthy of most careful consideration.

Again, the globucidal power of serum, transferred from one animal to another, and the serious results which may follow therefrom is a subject which has not as yet been sufficiently considered by serum advocates, and in this respect the first resolution of the Munich Congress affirming its harmlessness will hardly prove defensible.

Another subject not yet considered in this connection, as it yet *must be*, is that of the effects and counter-effects of *mixed infections*. The final demonstrations needful for the settlement of *this* question will call for a devotion of time and of talent transcending that of any other which in medicine or in any other department of learning is asking for the *ablest* of investigation.

I close with the consideration of one other point. Conceding that infectious diseases are developed by microorganisms, and that germicidal treatment is requisite, *if* it shall be found that the use of blood serum is injurious in its effects, and not warrantable in treatment, it yet remains to determine whether there are not other and safer means yet untried which may accomplish the desired result.

The beginning of an answer to this question may possibly be found in the discoveries of a new antiseptic agent by Professor Edinger, of Freiburg. Knowing that mucous secretion and saliva in particular was possessed of decided antiseptic properties and that thiocyanate of potassium was present in a rather considerable quantity in that secretion, he obtained by its combination with quinolin a rhodanate of methyl-pyridin. With this substance he carried on a series of experiments with special reference to its effects upon diphtheria and cholera bacilli and upon pyogenic microbes. He found that a "1 to 200 solution of this compound kills the cholera bacillus within an hour; a 1 to 1000 solution kills the diphtheria bacillus within an hour; a 3 to 200 solution kills the staphylococcus aureus within an hour. The same result is obtained by exposing during ten minutes the cholera bacillus to the action of a 1 to 200 solution of this rhodanate; the diphtheria bacillus to a 3 to 200 solution and the staphylococcus aureus to a 2 to 125 solution. To kill the same microbes in a minute, a 3 to 1000 solution is required for the cholera bacillus; a 9 to 1000 solution for the staphylococcus aureus. Cultures of the comma bacillus are prevented by a 1 to 10000; of the diphtheria bacillus by a 51 to 10000; and of the staphylococcus aureus by a 1 to 400 solution."

It is evident therefore that in this substance we have a newly discovered and powerful germicide. The discoverer states that it is not in the least caustic and has that advantage over carbolic acid; that it is not in the least poisonous and is thus free from the objection which holds against the use of bichlorid of mercury. It is quite possible that in this rhodanate we have a new antiseptic agent which may next lay special claim to public favor.

The rhodanate of quinolin is already in successful use in the treatment of gonorrhea, and as this remedy is far more potent and perfectly harmless, its value will soon be made apparent.

Such discoveries are strongly suggestive of what is yet to be revealed. Enough is already known to require the recasting of all our former literature and

to greatly modify most of our former therapeutic teaching. It becomes us to be, to the utmost, diligent in the attainment of facts, to be justly conservative in the acceptance of extreme statements, but to welcome every new departure that gives reasonable promise of rendering benefactions to mankind.

#### DISCUSSION.

DR. QUINE, of Chicago—Mr. Chairman, there are two of the new departures in therapeutics to which attention has been directed prominently by the essayists; concerning these I have had a little experience, which possibly justifies me in responding to the invitation that I have just received. In regard to the use of the extract of bone marrow, I am glad to be able to indorse unequivocally all that has been said in favor of it, in connection with ordinary anemia, or chloralanemia, or even in the treatment of apparent cases of progressive pernicious anemia. An example has come under my observation, and indeed it has been reported, of splenic leukemia, in which the persistent administration of bone marrow, extending over a period of several months, had the effect of increasing the number of red blood corpuscles to the extent of 17 per cent. and the hemoglobin to the extent of 8 per cent., but notwithstanding this excess effect upon the red blood corpuscles, the multiplication of white corpuscles went on with still greater rapidity, so that the total volume of blood was greatly increased by reason of the multiplication of its organized constituents. I have had but little experience in the use of diphtheria antitoxin, but enough to enable me to say that I have witnessed some deleterious effects produced by that agent. I have witnessed examples of extraordinary eruptions on the skin, and a bloody and somewhat intractable albuminuria, which finally eventuated in recovery, but I have also witnessed very striking cures of threatened laryngeal diphtheria and threatened nasal diphtheria, as a result of two or three hypodermic injections of the antitoxin under circumstances in which it appeared certain, humanly speaking, that death would have occurred within a period of twenty-four or forty-eight hours if a remedy of this kind had not been at hand. Physicians of experience have witnessed infants struggling for their breath, and already cyanotic, under circumstances in which immediate resort would be had to tracheotomy, have administered a dose or two of the antitoxin, and next morning, in visiting the house of the patient, have peeped around the corner to see if there was crape on the door, and on entering have found the patient breathing freely and easily, and crying in a natural tone of voice. Under such circumstances a physician feels warranted in speaking very loudly in favor of the continued employment of this remedy, even if experience has shown that it is a "gift horse" whose merits need to be very closely inspected.

DR. SUMMERS, of New York—I have been for the past nine months almost exclusively experimenting on the subject of nuclein. At the Board of Health we have had some extended experiments, comparing it with antitoxin. I have a paper upon that subject which I propose to offer, but Dr. Hollister has largely "stolen my thunder." I have engaged also for this Section one of the most experienced microphotographers in the city of New York, to exhibit upon a screen the effect of leukocytosis, at some hour which your Chairman will appoint, and I have also an exhibit showing the direct action of this under the microscope. I shall not take any of your time in further discussion, but in the paper which I shall present, following the trend of Dr. Hollister's remarks, all of this will be elaborated.

DR. TURCK, of Chicago—Since the experiments of Dr. Vaughan, who demonstrated that beyond doubt the toxic effects are carried by the blood throughout the whole system, I have been led in my line, the stomach and intestines, to determine the effect of nuclein in those cases of auto-intoxication from the gastro-intestinal tract. Whether in fever, or in chronic gastro-intestinal diseases, the most marked symptom is the toxic effect. Whether it be the excitement which produces that nervous irritability known as neurosis and neurasthenia, or the depressed state leading to melancholia, we know that these are the results of the toxins of microorganisms growing upon the walls of the gastro-intestinal tract. We can not reach the intestines directly, but the experiments that I have made with these cases, combining local treatment upon the stomach, the dietetics and the treatment of the colon with the administration of nucleins has had a marked effect against these toxins that are produced in the gastro-intestinal tract. Especially in cases of excitement, the vasomotor changes in

which we have sometimes agrophobia, the fear of space, seemed to go hand in hand in improving, with the improvement in these symptoms.

It is a great addition to our knowledge that these symptoms are the result of toxins due to the developing and growing microorganisms on the wall of the gastro-intestinal tract, and that the nucleins have an antitoxic effect.

### CALOMEL.

#### A STUDY OF ITS PHYSIOLOGIC ACTION AND THERAPY IN GASTRO-INTESTINAL DISORDERS IN ONE HUNDRED AND FORTY-FOUR CASES—IS IT A DIURETIC PER SE?

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The physical properties of calomel are so well known to the profession that they need little consideration here. One point presents itself at this time and that is, Do you examine into the purity and quality of the calomel you use, or do you accept it as perfectly pure? Have you ever stopped to ask yourself the question why your large doses of calomel always caused griping and pain in the majority of cases?

Calomel is subject to adulteration; to improper purification in manufacture; and to chemic changes both atmospheric and in chemic mixtures. Bichlorid of mercury is the most common impurity found in it, and this varies from the smallest trace to comparatively large amounts. Many instances are on record where the usual large doses of calomel have produced violent griping, cramps and gastro-intestinal catarrh which were undoubtedly caused by the presence of bichlorid of mercury rather than "a special idiosyncrasy." In fact, instances of fatality are reported from the administration of large doses of calomel contaminated with this poison.<sup>1</sup>

On the other hand, calomel may contain such large amounts of barium, calcium, lead and other impurities that its action is greatly lessened and rendered almost inert. With these thoughts before us, and a thorough knowledge of making appropriate chemic tests for their confirmation, we can often explain many untoward actions which might otherwise be attributed to a pure preparation.

The methods of administering calomel have undergone a great change during the past ten years, and its general and special applications have been carefully studied and extended. It is an axiomatic fact that calomel should never be administered with acids or chlorids, and not at a time when the stomach is performing its digestive functions, owing to the danger of chemic change from the mild chlorid into the bichlorid, thus giving the effects of the latter drug. Until recent years, calomel has been administered in its purity, or in combination with other drugs, in doses varying from one to forty grains and in many cases the patient was an innocent victim to an overdose. To-day, calomel should be thoroughly triturated with sugar of milk and administered in doses of one-half to five grains. Why this change?

Calomel plain is a heavy drug; is very slowly assimilated and absorbed, owing to its extreme insolubility and the size of its isolated crystals. In this form it is not in its finest state of subdivision, and

is confined to a smaller area of distribution over the tissues of the alimentary tract. Calomel, when thoroughly triturated with sugar of milk, is brought into its finest state of subdivision and its presence can be readily demonstrated with the ammonia test in a trituration of 1 part in 1000, thus demonstrating the possibility of administering it in such small doses if desired. One grain of triturated calomel is capable of distribution over a wider area than the pure drug alone; is in a finer state of subdivision; is much more readily brought into a condition for absorption.

With a view of demonstrating the value of the pure drug and its trituration, I selected a number of cases in which both preparations were used at different times in the same subject, and under circumstances as nearly similar as possible. The dose selected was one grain of the pure drug and a one grain trituration with sugar of milk. The dose was administered at bedtime. In the majority of the cases where the pure calomel was given there was no evidence of a bilious stool until the next evening, and in many of them there was no apparent action at all. These same individuals some days or weeks later responded so violently to a one grain trituration that next morning one to five bilious stools resulted; and in one, who had not responded readily to the one grain pure, there was such a large number of evacuations produced that measures had to be used to check the bowels. This may be considered a mere matter of coincidence, but my clinical experience teaches me that one grain of thoroughly triturated calomel is worth an equivalent of five to ten grains of the untrituated drug. A simple mixture of calomel and sugar of milk will not produce any better results than the pure drug alone.

When given for its purgative effect, or for its action upon the liver, it is my custom to administer a one-tenth grain trituration every hour or half hour until free evacuation occurs or until one grain is taken; when, if necessary, liquor magnesii citratis is given in one ounce doses until free action is obtained. During the last four years of practice I have not found occasion to use more than one grain of the drug in the same individual for this purpose. A one-tenth grain trituration at bedtime will produce excellent results in small children, except in those who are habitually constipated, when the former method must be used. There is a certain amount of propriety in administering calomel with bicarbonate of soda, as it will prevent the formation of bichlorid and, as calomel is most readily absorbed in an alkaline medium it is synergic.

After administering calomel in a large number of cases and carefully noting the results upon the various organs, I have failed to appreciate the so-called diuretic effects of the drug *per se*. It undoubtedly acts *indirectly* to a slight extent, simply by its general stimulating action upon the emunctories of the entire body thus favoring secretion, excretion, and the elimination of intestinal ptomaines and systemic poisons, all of which act unfavorably upon the secretory and excretory organs when present. In a case of scarlatinal nephritis in a little girl of six years, with decreased amount of urine, calomel in both large and small doses produced no appreciable diuretic effects while the ordinary diuretics acted nicely. A man of sixty-five, showing mitral disease, chronic Bright's disease and edema of the lower extremities would not manifest diuretic effects from large doses of

<sup>1</sup> U. S. Dispensatory, 17 Edt., pp. 695.



calomel frequently repeated, but responded to alkaline diuretics readily. In giving the drug to over one hundred children, in varied doses, I have never noted diuretic effects which could be ascribed to it alone.

Dr. Wm. Pepper has recently reported<sup>2</sup> a case of Bright's, complicating aortic disease, where large doses of calomel were followed by diuretic effects, and where there were manifested no toxic symptoms from its prolonged use in doses of ten grains daily. His experience does not seem to point to its general diuretic action except in large doses, and then it is often uncertain in its effects. While I am still closely observing results in its use, yet I am not convinced that any diuretic action other than a very indirect one is produced by calomel. Typical biliary stools have almost invariably followed the use of the triturated preparation in doses exceeding one-quarter to one-half grain. In some cases there was a regurgitation of bile from the duodenum into the stomach, producing obstinate vomiting. Calomel undoubtedly increases the secretion and excretion of bile by its direct stimulating action upon the cells of the liver. To this cholagogue action is partially if not wholly due its beneficial results in treating diarrheas.

How does calomel act in diarrheas? When taken into the stomach in large doses it is slightly irritating; part of it is absorbed and the remainder enters the intestines where it is further absorbed and possibly may have a slight local antiseptic action. Systematically it acts upon the liver producing increased flow of bile, which enters the duodenum. Bile is nature's antiseptic and acts in neutralizing ptomaines, preventing germ growth, sometimes destroying germs themselves and aiding digestion. It increases peristaltic action and intestinal secretions and thus assists nature in cleansing the bowels by production of free biliary stools. The cause once removed, the cure is apparent. Small doses of calomel act more by a direct cellular impression, by which the cells of the stomach and bowels are stimulated to renewed physiologic activity. The action upon the liver is the same as in large doses, being proportioned to the size of the dose.

I desire briefly to report the results of treatment in one hundred and forty-four cases of all forms of diarrheas which I have noted in my work, all of which terminated successfully under the action of calomel alone and in combination. Seventeen cases in adults, all of which were due to the ingestion of improper food. Diarrhea varied from a mild to a very profuse type. Twelve powders were made from one grain of triturated calomel and one-half grain of podophyllin and one powder given every two hours until free bilious stools were produced. From two to six powders usually gave a curative result—dietetic measures being observed, as in all the cases here reported. No astringents or other medication was necessary.

Nine cases of the so-called bilious diarrhoea in adults responded rapidly to one-quarter grain triturate of calomel every four hours for two to four doses. Only one of these cases proved obstinate and it rapidly reacted to one grain doses of sulpho-carbolate of zinc every hour for six doses.

Sixty-eight cases in children from two months to ten years all received a saline cathartic of liquor magnesii citratis as preliminary treatment. This was followed by a trituration containing one one-hundredth of a

grain each of calomel and powdered ipecacuanha every one to four hours. The action of this combination in controlling the nausea and diarrhea in these cases was marvelous. The saline was often sufficient in other cases, but in those where it was not, the small doses of calomel and ipecac worked excellently. I have seen some cases so obstinate that all other forms of treatment failed, but the institution of this method, combined with strict dietetic and hygienic measures, brought about cures. It also gives me best results in treating adults suffering with diarrhea, nausea, vomiting, cholera morbus, dysentery, and the diarrhea of typhoid fever. One case of slight but obstinate dysentery in an old man of seventy-five years failed to respond to ordinary methods, but quickly subsided under this small dose of calomel and ipecac every two hours.

Twenty-five cases of obstinate diarrhea which had been running some days before consultation, all responded rapidly to a combination containing one-tenth grain of calomel and one grain each of lactopeptin and sulpho-carbolate of zinc given every two to four hours. Four cases of the diarrhea of typhoid fever responded rapidly to this same combination given every four hours.

I have met with twenty cases of diarrhea following excessive use of alcoholic liquors, and in every case have succeeded in getting absolute results in one to three days by administering a combination of one-fiftieth of a grain of calomel and one-hundredth of a grain of podophyllin every three or four hours as required. Two to four doses answered in several, while others proved rather obstinate but responded in the end.

In summarizing the results in these one hundred and forty-four cases, I am not presenting entirely new facts to you, but merely adding clinical testimony to the true efficiency of calomel and its eliminative power as contrasted with the evil routine methods of astringency and opium in treating diarrheas. These cases are not selective, but followed each other in succession. It is my general experience that diarrheas will respond more rapidly to doses varying from one-tenth to one-hundredth of a grain of calomel, thoroughly triturated, than to larger amounts. While these small doses may seem homeopathic to many they are not presented as such, but are given with a full knowledge that they will give certain clinical results which can not be obtained from larger amounts.

#### DISCUSSION.

DR. CHAPMAN, of Louisville, Ky.—I would like to ask Dr. Stewart if I understood him correctly; that is, if he considers calomel, in these small doses, one-tenth of a grain to one-fifth of a grain, as a germicide.

DR. STEWART—For the information of the Association I would be glad to answer it. I do not consider that calomel in this amount will act directly as a germicide, being entirely too small in amount. I am a believer, as I stated in the paper, that the small doses act more by a direct stimulating action upon the cells of the gastro-intestinal tract.

DR. DIDAMA, of Syracuse, N. Y.—May I also ask a question? Is it not possible, also that these doses are converted into bichlorid? Many of us have been treating these things with small doses of bichlorid every two or three hours with wonderful effects, such as the Doctor had with one-tenth grain of calomel. The large doses of calomel we would expect to have more effect than small doses.

DR. HARE, of Philadelphia—There are one or two points in the Doctor's paper which interested me. I think that the clinical results which the Doctor has had in the administration of calomel are just such results as we have all had. His paper is simply an interesting contribution confirming the experience of other physicians, summing up their experi-

ence. There are one or two statements which he made in the beginning of his paper which interested me, and I ask the following questions, not with the idea of criticising, but of being instructed. He stated that there was a possibility of a certain amount of the mercury being converted into the bichlorid of mercury. The results of my studies upon this question I have given in the columns of the *Therapeutic Gazette*. The laboratory investigations which I have made have established beyond peradventure that calomel is not converted into bichlorid of mercury. There is only two-tenths of 1 per cent. of hydrochloric acid in calomel, and it has been proved beyond all cavil that the amount which is changed into bichlorid is infinitesimal. On the other hand, clinical evidence would seem to prove that it is converted into bichlorid, because every investigation of very much note that has been made has proved, at least in the lower animals, that calomel is absolutely without effect in producing a flow of bile, but hydrochloric acid does produce a flow of bile. The question as to how calomel does act, whether it is changed by the alkaline juice of the intestine, or whether it acts as calomel or as mercury is unsettled.

The statement I am interested in is the statement of the Doctor that calomel is "adulterated" by bichlorid. I do not suppose he meant that bichlorid was employed as an adulterant. A very able chemist of Philadelphia, in the last few months, has carried out for me a series of studies in this matter. In no instance was he able to find that there was any contamination owing to the presence of bichlorid of mercury. We might have some oxid of calomel, but there was no single instance in which bichlorid of mercury was found, and I was particularly on the heels of bichlorid of mercury, because I wanted to find out whether it was the bichlorid of mercury which contaminated the mercury, or whether it was the calomel which produced the bilious stools in administering the drug.

DR. STEWART.—In answer to the first question that was asked, Is it not possible that the bichlorid was the drug which produced the results and not the calomel, I think in my paper I stated clearly that all that was theoretical. Together might be grouped the question, both of the gentleman who preceded Dr. Hare and that of Dr. Hare himself. My own belief is just as Dr. Hare has said, that there is very little of the calomel itself converted into the bichlorid in the stomach. That is all theoretical. Now comes up a question. Is there a difference between a chemic reaction conducted in the laboratory and that conducted in the stomach itself without outside interference? That is, is not a strict chemic reaction in all probability slightly different from that which is produced by what might be termed a chemico-physiologic action in the stomach? It is well known that if we interfere with the nervous supplies of any part we will have one of two results, namely, over-activity of that part or decreased activity of that part, and it is my own belief that in interfering with the stomach by operations, we interfere more or less with the active secretion of the stomach. Clinically, when I give calomel to my patients in one-tenth of a grain I do get the bilious stools. I can not say that the action comes from the calomel or the bichlorid; it may be one, it may be both, it may be either. In regard to Dr. Hare's other point, namely, in regard to the possibility of contamination of these different products by the bichlorid; my experience in the examination of these preparations has been different from those of the gentleman whom Dr. Hare quoted. I have found bichlorid present in calomel, due either to the improper drug being used or insufficient care being taken in manufacture, or else due to chemic change occurring afterward. I am not quite certain as to the authority quoted in a late number of the United States Dispensatory, in which facts are given which show us that calomel is subject to the presence of large quantities of bichlorid of mercury, and where one case is reported and the authority given for it where poisonous effects were presumed to occur from the use of calomel. This whole matter of the action of calomel in the gastrointestinal canal is theoretical.

## SOME POINTS IN THE ETIOLOGY OF PULMONARY TUBERCULOSIS.

Read in the Section on Practice of Medicine at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

BY FRANK S. PARSONS, M.D.

EDITOR OF THE TIMES AND REGISTER, PHILADELPHIA, PA.

In considering the subject of pulmonary tuberculosis, and in endeavoring to support a theory deduced

from etiologic facts, which tends to show that the almost universally accepted germ cause of this disease is quite secondary in its influence, it must be admitted that, while it is evident to my mind the ground taken is not irrelevant, much opposition is to be expected.

Most physicians recognize, in certain individuals, a pre-tubercular condition; meaning by this term that in such persons who subsequently develop tuberculosis an abnormal condition exists, which, while symptomatic or suggestive of consumption, does not give that evidence of the disease which renders the diagnosis absolute; *i. e.*, the demonstration of tubercle bacilli.

It can not be denied that the tubercle bacillus plays an important part in the phenomenal expression, if not in the etiology of tuberculosis, but facts are daily being brought to light which tend to prove that the bacillus alone is as inefficient as a grain of wheat is ungerminative without sunlight, air and moisture.

When one considers the impunity with which colonies of tubercle bacilli are probably taken into the system of the majority of persons, we must fall back on the certainty of a preëxisting condition, which, when present, offers favorable influence for the development of the bacilli, on which the latter depend for support, and without which the germ is rendered inert, even though it may exist in the blood.

Hardly an autopsy is made wherein it is not seen that some time during the life of the subject, tubercles had been present in the lung, or in other tissues of the body, which tubercles had resolved or had been discharged as evidenced by cicatricial repair. We know to obtain cicatricial repair of lung tissue a suppurative process must have coexisted, and that suppuration never takes place where there is not interference with, or stasis of the circulation of a part involved. In other words, there is a loss of normal correlation between the supply of arterial blood, carrying oxygen and nutrition to the part, and the venous blood, bearing away the carbonic acid gas and waste tissue elements.

Essentially, then, perfect tissue repair is one with perfect circulation, and conversely, any stasis to the circulation prevents perfect repair. Any suppurative action must have origin in an obstruction to circulation in the part affected, and resolution, occurring during any stage, depends on the reëstablishing of normal correlation in the entire circulation of such diseased tissue. Abscess formation is nature's way of ridding tissues of abnormal waste when the circulation is impeded.

Circulation in the animal system is a complex phenomenon, physiologically of two kinds: afferent and efferent; anatomically of three kinds: arterial, which is superabundantly generous for nutrition; venous, which is inadequate for the removal of all the excess; lymphatic, which supplements the office of the veins in removing waste. A vigorously active lymphatic system precludes danger from tissue stasis in rapidly wasting parts, while inactivity of the system implies obstruction.

We may logically distinguish the lacteals and lymphatics as belonging to different systems. It is true that both character of vessels hold pabulum, a fact which does not argue against the lymphatic as being a system, the office of which is purely emunctory; for the pabulum found in these vessels, that is

not excreta in the strict sense, is so in significance being an excess of nutritional material which would speedily assume the form of an irritant were it not removed to a new situation as implied in its restoration to the general circulation.

The lymphatic system, excluded from the lacteals being accepted as primal emunctory organs, it must follow that glands like the pancreas, liver, kidneys, etc., must be considered as secondary or excremental emunctories.

Tubercle is first met with where lymphoma or lymphangitis has altered the correlative relations of the lymphatic system, and its meaning is that obstruction exists.

It is to be argued that, primarily, tubercle is a thing having no objective nature and it can be similarly said of the tubercle bacillus. Tubercle not being an objective must be a subjective condition, the subjective lying primarily with a perversion of the lymphatic system.

We may now also see how default in lymphatic action is the starting point out of which may arise many phenomena of disease, and that tuberculosis is in reality not a disease but a symptom—a symptom of lymphatic disturbance or stasis. This fact is proved by the analogy between lymphoma or surgical tuberculosis and phthisis or tuberculosis of the lungs.

What, then, is the cause of lymphatic stasis leading to a condition which may result in tuberculosis?

We know that an irritation acutely expressed, as in the case of burns, induces active inflammation. We also know that irritation of a mild degree, applied continuously, induces chronic inflammation, as in the case of gastric catarrh from the alcoholic habit. We have seen how irritation, increasing the flow of blood to a part, tends to cause hypertrophy of that part; yet, that so long as the efferent vessels carry off the additional waste there is no tendency to ulceration, or retrograde tissue metamorphoses, other than that induced by the contraction of new tissue formation, and the secondary cutting off of the blood supply. But as soon as the correlation between the efferent and afferent vessels becomes interfered with, and the waste products are left in the part, ulcerative and suppurative changes take place.

The direct cause of lymphatic stasis may lie in an excessive amount of waste material in the blood, choking up lymphatic circulation. These waste elements may differ in character and only act as local irritants from the fact that they are in an incompetent position in the circulation for nutrition, as evidenced by the attempt nature makes to excrete them.

It is a fact that in phthisis the venous blood is brighter than normal. This gives evidence that oxygen imbibed by the red blood corpuscles in the lungs is not properly oxidized in the tissues, and passes over through the capillaries in a free state. We know that the blood contains phosphorus in an oxidizable form, and that oxygen has a great chemie affinity for phosphorus; hence it is not out of reason to infer that, in this disease there is a deficiency in oxidizable phosphorus. This statement is borne out by the results of phosphorus feeding to phthisical persons, when the venous blood soon assumes its naturally darkened hue.

It is on complete oxidation in the blood that the healthy cellular life of the animal depends. Deoxidation means death. Life is opposed to death, and

nature is continually striving to preserve the former by preventing deoxidation and ridding herself of such animal cells as have become deoxidized. As soon as deoxidation in a cell takes place, that cell becomes devitalized, and is crowded out of its relation with living cells. If it can pass out through the excrementory channels, as nature intended it should, no harm will result, even if many bacteria are feasting on the defunct cell. If it can not pass out, but is held by stasis, or obstruction, or overcrowding, in its relation with other cells which have become devitalized we soon have a collection of dead material causing irritation to the nerve elements of surrounding tissue, and inflammation results.

I incline to the opinion that we have: 1, a stasis of waste elements in the lymphatics; 2, a nerve cell paralysis due to the stasis; 3, increased blood supply to the part as a result of the paralysis, and which, owing to the existing obstruction, brings about the phenomenon inflammation. All this is prior to the introduction of a tubercle bacillus.

When the tubercle bacillus enters the system of a person presenting a favorable cultivation ground for its development (which cultivation ground may be recognized in a lymphatic stasis) the attack is directed only to devitalized cells. Of this point we may feel quite certain, inasmuch as oxygen destroys the bacillus, and a thoroughly oxygenized blood cell will resist the attacks of bacilli. Bacteria, when no obstruction to waste elements exists, pass out of the body through the various emunctory organs. Their products of toxins and toxalbumins are likewise eliminated without harm to the individual. Animal experimentation, for the production of tuberculosis by injections, I feel, is of little value, inasmuch as only such animals are affected by injections as would develop lymphatic stasis from any sort of irritation mechanically applied, and the cultivation ground is at once presented.

It must be rationally argued that the favorable medium for one kind of bacillus may not be identical with that of another and, hence, various forms of germs may appear in different diseases, not because the germs are specific, except as diagnostic phenomena, but because they develop and multiply in different media.

It is to be assumed that a cause for lymphatic obstruction may be found in an incompetent excrementory organ, which theory is perfectly in accord with the acknowledgment of the lymphatic origin of tuberculosis. Such organ may be the seat of congenital or acquired incompetency; hence our cases giving family histories of phthisis.

Acquired consumption may arise from a pneumonia, the frequent "taking of colds," a bronchial catarrh and other respiratory disorders in which the lymphatic circulation of lung tissue is obstructed to a greater or less extent, and the blood cells devitalized. Cure depends on the restoration of eliminative function in these lymphatics and in building up the general system by restoration of impaired oxidation.

The question whether pulmonary tuberculosis may be communicated by contagion, or infection, does not rest with the proving that a specific germ is found in this disease, for we must know that unless a favorable medium is presented such germ will not develop, and that to obtain this medium there must be a previous condition to be recognized as pathological.

The conclusions regarding the etiology of pulmonary tuberculosis which I have endeavored to show in so brief a paper may be summed up as follows:

1. Pulmonary tuberculosis should be considered as primarily due to a lymphatic stasis, of congenital or acquired variety, depending on incompetency of excretory function, and deoxidation of blood cells.

2. That the tubercle bacillus should be regarded as a phenomenal expression of the disease, only because a favorable medium exists in the lymphatic stasis for its cultivation, and, hence, symptomatic rather than etiological. Its development is often some length of time after the stasis is apparent, as evidenced by the so-called scrofulous condition existing in most phthisical persons.

The great danger in considering the etiology of pulmonary tuberculosis lies in the fact that we are too prone to lose sight of the chemic composition of man, and the fact that disease is but a chemic decomposition, in the universal furor after a specific germ, the phenomena of which may be observed in various media in and outside the body.

#### A REPORT OF THIRTY-FOUR CASES OF PULMONARY TUBERCULOSIS TREATED BY THE METHOD OF CARASSO OF GENOA.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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In the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for Sept. 1, 1894, is a selection from the *Cent. f. Bakter u. Parasitenk.*, by Carasso, of Genoa, in which occurs the following: "The author believes that *Mentha* exerts a direct bactericidal action upon the bacilli in the respiratory tract and that, by absorption into the circulation, it acts as a general disinfectant. Creasote acts beneficially in pulmonary tuberculosis by increasing the appetite and favoring nutrition. It also possesses some action on the secondary inflammatory exudates, favoring their absorption." Carasso's method of treatment in detail is as follows: a piece of linen cloth, ten centimeters square is folded to make a pad, five centimeters by two centimeters. By means of tape this pad is secured in contact with the nostrils. The pad is to be worn day and night and only to be removed at meal times. It is to be moistened with five or six drops of peppermint essence four or five times a day. The nostrils are to be greased with vaselin for the first few days to prevent irritation. The patient is instructed to take eight or ten deep inspirations with closed mouth; retaining the air as long as possible. After ten or fifteen minutes rest this procedure is repeated, and so on through the day.

The following mixture is given internally:

Pure beechwood creasote.....	8.
Alcohol .....	.550.
Glycerin .....	.250.
Chloroform .....	20.
Essentiæ <i>Menthæ pip</i> .....	8.

A teaspoonful every three hours in a half glassful of water. In certain cases the mixture may be further diluted with sweetened water, or the dose

may be reduced. The nutrition is favored by the method of overfeeding. Two or three liters of sterilized or boiled milk are given daily; together with plenty of meat cooked to taste; and with the addition of 400 or 500 grams of good wine.

All hygienic precautions are to be observed. The patients are instructed to carefully disinfect their expectoration, thus preventing re-infection.

The remarkable feature of Carasso's communication is the clinical report of the cases subjected to this treatment. In all cases the physical diagnosis was confirmed by finding the tubercle bacilli in the sputum. Many of the cases were well advanced in the disease, though no record is made of cases in which the lung destruction had advanced to the formation of cavities, recognizable by physical examination. In all, forty-four cases are reported. Of these there were six deaths and thirty-eight recoveries. The average duration of the treatment in these cases was sixty days. The recovery in all the recorded cases seems to have been permanent.

Although there are some points in his treatment which seem to me unphysiological and contrary to reason, nevertheless in view of the remarkable percentage of recoveries reported, I decided to give the method as fair a trial as I could and to report the result. I was the more readily inclined to such action because I have had the best results among the cases of pulmonary tuberculosis that I have treated in those in which has been combined the inhalation of menthol in petroleum oil and the internal use of increasing doses of creasote.

On Oct. 1, 1894, I took charge of the "consumption ward" of the Erie County Hospital. In the male ward there were at the time thirty-four cases of pulmonary tuberculosis in all stages of the disease. Most of them, however, further advanced than those reported by Carasso. In all but six cases, cavity could be demonstrated by physical signs. In four of these six there was infiltration of the upper lobe of the right lung; in two of the left. In all of these six the process was active and there was rise of temperature in the afternoon of a mild degree.

When I came on duty all of the patients were taking pure cod-liver oil, some of them whisky in addition to the oil, and two of the six mentioned above were taking gaining doses of creasote. No inhalations of any sort were in use. The two patients who were taking the increasing doses of creasote were gaining slowly in weight and had been doing so for three weeks previous to my taking charge.

I placed all thirty-four cases on the treatment outlined above, except that no wine was given. In some of the cases which seemed to require stimulation, whisky was used.

I intended to keep up the treatment for three months, but I have to report the melancholy result that at the end of two months all of the cases were doing so badly that I had to stop the treatment entirely or modify it markedly.

It is interesting to note that the two cases which were improving on the increasing doses of creasote continued to improve for a week, *i. e.*, continued to gain in weight but by the second week they were losing with the rest and continued to lose as long as they remained on the Carasso treatment. They both began to change so rapidly for the worse that at the end of one month I returned to their former mode of treatment, keeping up, however, the peppermint in-



halations. After the return to the creasote treatment these two cases began to improve again, and when I went off duty Jan. 1, 1895, they had gained, one four pounds and the other five. All of the thirty-four patients complained of the gastric distress occasioned by the medicine; several of them were forced to actual vomiting. One patient complained that the inhalation pad interfered with his breathing, even to the point of distress, so that we were forced to substitute deep inhalations three or four times daily without the constant use of the pad. The other thirty-three all spoke of the greater ease with which they breathed and the less frequent attacks of coughing. The sputum was not materially diminished in amount in any case, but the coughing spells were diminished in number. In the light of the result in these cases, let us review the treatment suggested.

In the first place, the inhalation of the peppermint seems to have a decidedly beneficial effect in relieving and improving the character of the cough. If continued for a sufficient length of time I do not doubt that it would change the character of the sputum and probably lessen the amount of the sputum. As to the rest of the treatment, let us examine it critically, especially in the light of the gastric disturbance that it caused in all of the thirty-four cases that I had under observation.

The directions are; 2 or 3 liters of sterilized or boiled milk are given daily, together with plenty of meat cooked to taste. The medicine is given every three hours in a half glass of water, *i. e.*, in about 125 c. c. If given every three hours in the twenty-four, that would be eight doses, but the sleep of the patients was not disturbed and they received generally six doses in the twenty-four hours, none being given between 9 P.M. and 6 A.M. Thus you see there will be given to the patient in the twenty-four hours, especially if the 400 or 500 c. c. of wine is also taken, from 3,250 to 4,250 c. c. of fluid, that means about a pint of fluid every three hours between 6 A.M. and 9 P.M., with an extra pint in the night. Now we are advised to add to this, "plenty of meat cooked to taste."

Such treatment would be apt to produce disturbance in a normal stomach. Supposing that two or three times in the twenty-four hours meat is given. Study of the gastric contents has shown among other things that the presence of lactic acid is very apt to overcome and destroy the normal hydrochloric acid of the gastric juice, therefore meat and milk are really incompatibles in gastric digestion.

Moreover, the administration of food in the amount proposed at the intervals suggested does not allow the stomach to have the physiologic rest that nature demands. As a matter of fact, in most tubercular patients the stomach is dilated, is slow in the digestion of foods and often requires the addition of hydrochloric acid rather than the administration of anything that would tend to overcome or destroy what may be already there. Thus we see in the food suggested, even without the medicine, there is reason for the gastric disturbance that occurred in all of my cases. Now let us analyze the prescription for internal use; of creasote and essence of peppermint each dose contains the small amount of 0.05 Gm., a little less than 1 minim, the daily amount administered being not more than 0.30 Gm. of each, that is about 5 minims. Each dose has combined with it 0.10 Gm. (about one and a half minims) of chloro-

form and 1.20 Gm. (about twenty minims) of glycerin and enough alcohol to make up the teaspoonful. Every one of the constituents of this prescription (with the possible exception of the peppermint) is irritant to the mucous membrane even when diluted with considerable water.

I tried this method of Carasso's with several private patients also. In every case except one, the gastric distress occasioned by the prescription was complained of.

The conclusions that I should draw from my observation of the trial of Carasso's method are: that the internal treatment is unphysiological and is very apt to cause disturbance of digestion, the very thing above all others that is to be avoided in the treatment of tubercular patients; that the inhalation of peppermint is valuable and deserves further investigation. There is now in process of erection at the Erie County Hospital a special building for the care and treatment of patients suffering with pulmonary tuberculosis. In this building we are to have two inhalation chambers so constructed that the patients are surrounded with air saturated with the agent to be used for medication of the respiratory passages.

At some future meeting I hope to be able to make a report that will show better results from a more rational mode of procedure.

#### DISCUSSION.

DR. AMOS of Baltimore—I should like to speak for a few moments on Dr. Rochester's paper. About fourteen months ago Dr. Osler, of Johns Hopkins Hospital, gave me the care of the treatment of the tuberculous patients in the out-patient department for the purpose of trying Carasso's treatment. In all I have had some eighty-five to ninety cases of tuberculosis, and in these cases about sixty have been treated now for twelve months. In all respects I may say that Dr. Rochester's conclusions tally with my own. I was startled by reading the extract from Carasso's article, in which he laid claim to the fact that under this treatment not only was there amelioration of all the symptoms, in no matter what stage of the disease the patients might happen to be, but that he also claimed that in thirty-nine cases, some of which had cavities, if I am not mistaken, there was a disappearance of the tubercle bacilli in all cases in from thirteen to sixty days. In all cases that I treated, the tubercle bacilli were demonstrated in the sputum. In only two cases I can vouch for the disappearance of the tubercle bacilli. One occurred after the patient had been in the Adirondacks for three weeks, and the other occurred in a working girl here, who had no sanitary surroundings, this last being really the sole case in which the treatment itself might fairly account for the satisfactory result. In over 50 per cent. of the cases there was an increase in weight for a short time, and then a diminution in the weight, so that in order to keep the weight up, the treatment was modified and increasing doses of creasote were given instead of stationary ones, these sometimes running as high as 14 to 15 minims three times a day. These cases were in the out-patient department, and it is very difficult to carry out any system of diet in a dispensary. The fact that the amount of liquid necessarily given in the twenty-four hours would disturb even the healthy normal stomach is a great argument against Carasso's treatment. We contented ourselves with trying to have super-alimentation, with more solids and less fluids. I do not see how it is possible for Carasso to verify his results in pulmonary tuberculosis, if the disease is the same in Italy as in this country, and I can not imagine how he can get such results as he claims to have obtained.

In all his cases there was tuberculosis only of the lungs. There was no tuberculosis of any other portion of the body. But in some of my cases there were lesions of other organs. I should say that in over 75 per cent. of the cases I have treated there was only pulmonary tuberculosis. The lesion occurred chiefly in those cases in which there was only a slight infiltration of one apex or the other. In one case there was a notable diminution in the number of bacilli in about three weeks, with a cessation of the night sweats, and improvement of the appetite, but no gain in weight.

In some of the cases that have now been on treatment for

fourteen months they still cling tenaciously to the inhalation night and day, although they are almost on the point of death. The oil of peppermint, however, seems to relieve them more than anything which I have been able to give them in the way of internal medicine. I am now trying to find the oil of peppermint in the urine or any other secretions. I have not done any active work on this, however, for the last three or four weeks.

DR. DENISON, of Denver, Colo.—I have a great deal of experience which leads me to indorse Dr. Rochester's conclusions for the use of creasote, and I have stopped a great many patients who were using creasote, because of the gastric disturbance which resulted. I came a great way to ask Dr. Paquin of St. Louis, what treatment he had carried out with his horse to get his horse blood serum in order to induce an immunity by its use in tubercular cases. I am sorry he is not here. He issued a paper in which the case was presented, a great deal like the play of Hamlet with Hamlet left out. The milk in the cocoanut was not there. What had been done to those horses to create the immunity-producing serum? We ought to acknowledge that we have come to the conclusion that there is no cure of tuberculosis except what is accomplished through strengthening the resisting power of the individual, or creating an immunity in the individual blood. So far as strengthening the power of resistance in the individual, there is no remedy equal to climate, and that connected with the lessened pressure of the air as we have it in the Rocky mountain region of this country. This question is settled in my own mind by the experience of twenty-two years with 3,000 cases.

I believe, gentlemen, that we are on the road to curing tuberculosis through the means of creating immunity in the individual. I have had 137 cases that I have treated with tuberculin; there were 27 cases of exsection, two or three of them cases of total exsection, who are now living and were treated two or three years ago on the average, and consider themselves pretty well. There are many of them claiming to be in perfect health. I have not had the bad experience that the fear of the profession would indicate that physicians would have in using that remedy. It is a severe remedy, and it needs discrimination, and the most careful diagnosis, in order to be successful.

DR. KARL VON RUCK of Asheville, N. C.—I have been very much interested in the two papers which have been read, and in regard to Dr. Parsons' paper I only wish to say that I do not believe that tuberculosis of the lymphatics and glandular apparatus as a rule precedes tuberculosis of the lungs. I do not think it is possible that suppuration can be produced by stasis of the blood, and do not think it is worth while to spend much time on that point. The production of tubercular tissue is not due to stasis, but is due directly to the tubercular bacillus, and the experimentation in this respect is so complete that this question is settled. I am glad to see that Dr. Rochester has so carefully followed up this work. I had preparations of peppermint and menthol made, several years ago, and I came to the conclusion that I would not take up this other treatment in their stead. Dr. Paquin is expected to be here, and I do not wish to say very much about his work, any more than that I have been in St. Louis, and have looked up his work, and he has given me every opportunity of doing so. The method of procedure followed, to produce what he calls "immunity" in the horse is simply the injecting of culture fluid of the tubercle bacillus in small quantities into the jugular vein, and then taking the blood serum and treating human beings with that. I do not think that this work has progressed so far as to justify any conclusions one way or the other. He has never shown his horses to be immune; indeed, I do not believe that there is such a thing as immunity to be induced by that treatment; it is simply toleration. The Doctor was kind enough to give me some of his serum, and I took that back with me and gave it to a doctor for experimentation, and he injected a number of guinea pigs that had been infected with tuberculosis. Our guinea pigs promptly died within forty-eight hours. We found upon bacteriologic examination that the serum was full of bacilli, which are now being cultured. We have thought best to venture no more guinea pigs on the experiment, but we are injecting a horse, and we propose to introduce a serum which will be at least safe upon animals.

I wish to indorse the statement of Dr. Denison as to the great value of climatologic influences. Many cases can not be cured no matter what we may do; but I would impress upon you the careful management of the cases, so that they may have the greatest benefit, not only from the climate, but also from the other treatment, so as to take advantage of all the means offered in the direction of health.

DR. PARSONS—It seems clear to my mind that the outline of my paper is perfectly justifiable and logical. I regret that it was not more in detail. Regarding the treatment, I wish to say a word. I think we should not forget that catarrh of the stomach is a coexisting trouble with tuberculosis, and is a disease which should be specifically treated. I do not think that creasote has any beneficial influence on catarrh of the stomach; in fact, it is inclined to produce it, and should not be given internally. I have had very little beneficial influence from creasote in my experience. Climate is an essential treatment, and above all a regeneration and re-oxidization of blood cells is necessary.

DR. ROCHESTER—Mr. Chairman, I should like to say a word, before taking up my own paper, in regard to the position taken by Dr. Parsons, though I think he has been thoroughly answered by Dr. von Ruck. He says that there is a condition precedent to the development of tuberculosis, and this he calls a "pre-tubercular condition." Where he has such a state, it will be found upon physical examination that there is already tuberculosis present, even although it is not possible to demonstrate the bacillus, or there be no cough. I think, moreover, in all cases of pulmonary tuberculosis there is associated therewith tuberculosis of the lymphatic system. That I think has been clearly proved by observations of Winthrop on the subject in the New York Foundling Hospital, when in 125 autopsies there were found tubercle bacilli in the lungs themselves, though some of these cases did not present any symptoms of pulmonary tuberculosis. The tuberculous poison is taken in by the respiratory tract. As far as regards any pre-tubercular state, I think the only pre-tubercular state is anything which in any way reduces the resisting power of the individual, any weakness, any anemia, whatever. Personally, I do not believe in heredity in tuberculosis, except that we may inherit a poor constitution, and excepting also those rare cases, of which I believe not more than one in ten have been recorded, in which the fetus is tubercular. There is inhalation from the mother, and the contraction of poison from nursing at the breast of the tubercular mother. If we examine cases of tuberculosis in children who are supposed to have inherited this disease, we find that in the majority of instances it comes from the maternal line. This means that the child is constantly present with the mother and subject to contagion from her. I was glad to hear Dr. Amos's report. There is one point I desire particularly to emphasize. Several things have been said against the creasote treatment. I wish to stand up here and defend the increasing doses of creasote just as strongly as I can. By gradually increasing the dose, starting with 1 minim, and giving particular attention to the patient's general condition, there should be steady improvement. As to the irritation of the stomach by creasote, this may result if it is given in water, but I have found that it can be administered in claret wine, or in some of the clarets of this country—the California clarets acting very nicely, and being cheap and within nearly everybody's reach—or we can give creasote in mucilage of acacia, and have very excellent results in spite of the slight irritation of the stomach.

### THE TREATMENT OF TUBERCULOSIS BY INJECTIONS OF IMMUNIZED BLOOD SERUM.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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Since the discovery of the specific nature of infectious and contagious maladies, many members of the medical profession have devoted their energies toward finding a specific treatment for each. Their efforts have been crowned with success in at least one of the most dreadful maladies of mankind, namely, diphtheria, and this was accomplished in the line of natural law. I have the pleasure to report that under the same law, I have obtained by experimentation and in therapeutics, very promising results in the treatment of tuberculosis.

Following the researches of various foreign and American authorities on the action of certain physi-

ologic products of the animal body on disease microbes, I have for some years experimented with blood serum of various animals on microorganisms in general, and more recently with horse blood serum on the bacillus of tuberculosis. The results of my experiments and the various tests which I have made in the human family, have been such as to warrant the expression that, in immunized horse blood serum, there exists the principle with which to fight tuberculosis in all its forms.

#### THE NATURE OF TUBERCULOSIS.

Tuberculosis is, without question, the most universal disease existing. It may affect anybody in any climate, and it is found sometimes to have existed in a mild form in people who die of other maladies. An Italian medical expert has demonstrated that a large portion of people living without any manifestations of tuberculosis whatever are, nevertheless, infected in the glandular system of some organ or other. I think it is Tizzoni, who has proved this fact by post-mortem examinations of a large number of people who had died from the result of accidents. This indicates that tuberculosis may have been a long time working in the constitution before any symptom can be detected, or before the patient can notice any trouble. We may conclude, therefore, that pulmonary consumption may arise from tuberculosis previously existing in the glands, and possibly it frequently begins thus instead of from direct infection by inhalation. Any way there seems to be no question whatever, that tuberculosis may exist in the system in a limited way, concealed for indefinite periods, and that the power which we call vital resistance, namely, the physiologic cellular property of the organization to resist the invasion of germs, prevents the bacilli from accomplishing serious disorganizations, until such time as certain parts of the being are weakened by some process or other, such as bronchitis, la grippe, pneumonia, typhoid fever, colds so called, etc., or when some organs are congenitally feeble in their cellular, germicidal (or defensive) powers, and thereby predisposed to succumb more easily to bacterial action. The nature of tuberculosis then is such, that in its incipency, when the first morbid process begins in the glandular system, in most of the organs except the lungs it can scarcely be detected, and even in the respiratory organs it is exceedingly difficult under most circumstances to be positive of its existence. Most minute, rigid and repeated examinations are necessary for even a doubtful diagnosis if we wish for absolutely clear symptoms for it. When we consider this fact in the presence of the usual clinical histories of the patients presented to the medical practitioner, it will be obvious to every one that the beginning of the treatment of this fatal malady is rarely when it is yet in its incipient form. It is almost always when some marked structural changes have already occurred in some important organ or several of them, that the opportunity for the diagnosis of tuberculosis is offered. Even if the bacilli are just making their appearance, it does not signify incipient tuberculosis as so many practitioners consider it; the disease is then already in an advanced stage of tissue alteration. The bacilli do not appear in the sputum before changes occur in tissue. Indeed, I feel sure that it scarcely ever occurs that a case of truly incipient tuberculosis, whether of the lungs or other organs, is purposely brought to a physician for

examination, and when it does occur, it is either not recognized or the physician fears to express his suspicion.

With these facts before our minds, we will be able to appreciate better whatever value or importance may be attached to the results that my colleagues and myself have obtained in the treatment of tuberculosis by the injection of blood serum, and what part, if any, the glandular system plays in this form of therapeutics. Every one of our cases were in a more or less advanced stage of the disease.

In January last, I presented to the St. Louis Medical Society, a report of twenty-two cases treated with immunized horse blood serum, in all of which there had been some improvement from injections practiced once a day on an average of two months. In some instances weight had increased to a remarkable degree, and the symptoms of the disease were greatly improved. It was, at that early period, the increase in weight was particularly striking, it having advanced rapidly to a degree beyond all expectations under the circumstances. These patients were at the City Hospital and the poor-house, where the diet is exceedingly meager, and for a time were treated against their will, and were discouraged in it by some one or other, so that there had been neither dietetic or mental influence playing favorably on their physique. All of them improved in weight, varying from one and one-half to twenty-two pounds in three to eight weeks. All of the twenty-two cases reported then are living to-day; all of them have improved more or less since, and more than half of them have been discharged from the City Hospital, considered sufficiently well to do work. These cases were in the second and third stages of the disease, had tubercular processes in one or both lungs, some of them with more or less infiltration softening spots, and some with large cavities. In several cases there had been, to the beginning of our treatment, more or less severe hemorrhages, and in every case emaciation was more or less pronounced. Bacilli of tuberculosis were present in all, and very numerous in the majority. The average number of consumptives in the St. Louis Hospital is between forty-five and fifty. We began with thirty cases, having taken one after the other in two rows of beds regardless of their respective pathologic conditions, which ranged from bad to hopeless. Two almost in the last gasp when we began, died within three or five days. Six were discharged because they rebelled the first or second week. Twenty-two we kept and treated almost daily from November 29 and December 1 to January 26, when I made my first report to the St. Louis Medical Society. The wards adjoining the patients treated with blood serum and where an average of thirty to thirty-five patients are constantly present, new cases coming in as the old ones die, were subject to the ordinary treatment. The number of cases in the latter wards between Thanksgiving Day, November 29, and April 15 was over thirty, while the deaths among our twenty-two patients were not only *nil*, but half of them have, as stated before, been discharged on their own request to go home or to work. These patients received no other treatment whatever than blood serum, and they were subjected to the most trying tests to see the actual results. In the first place, after the symptoms of tuberculosis had subsided to a positive degree and the health improved unmistakably, as will be explained farther, the serum

was stopped for two weeks, the weight began to decrease, and the symptoms gradually asserted themselves. On the renewal of the injections, the bad features again began to yield. During the course of three or four weeks more of serum treatment, smallpox occurred in the City Hospital. As a consequence, sulphur was burned in the consumptive wards, and repeatedly afterward for some weeks in the wards beneath. My experimental cases were in consequence forced to inhale the resultant acrid vapors, and to shift about in wards with open windows during the most trying, raw and damp weather we have in St. Louis. And yet, the improvement continued, interrupted, to be sure, by such a severe misfortune, but not arrested for any length of time in the majority. The results have been to diminish the germs in number, disintegrate them apparently, alter the morbid secretion materially, clear up infiltrations, arrest hemorrhages, increase the avoirdupois, improve the appetite, arrest the cough very materially if not totally, and induce restfulness and quietness. I have here three cases, two of which have undergone the above experience and one a long interruption of treatment.

In surgical tuberculosis also, sero-therapy is very promising. The following is a report of Dr. Cale, surgeon, on a case he treated:

"I inclose herewith, report of a case of knee-joint tuberculosis treated after operation with your anti-tubercle serum. Mrs. M., age 26 years, mother of two children, the youngest four months of age. History of two tuberculous in her family. Has enjoyed good health until one year ago, when she had some pain and stiffness in right knee. Was treated for rheumatism by some physician until two months ago, when she called another physician, who made the diagnosis of tubercular joint and advised an operation. I was called in consultation and found the right leg slightly flexed, joint swollen, but extremely painful on pressure; there was also ill-defined fluctuation. In fact, the knee presented a typical picture of tuberculosis. The patient had fever and some night sweats and could not sleep without morphin.

"I sent the patient to the Woman's Hospital, and found on opening the joint, the entire capsule in a gelatinous condition, also numbers of rice bodies in the synovial fluid; the cartilage almost dropped from the patella. There was a cheesy tubercular focus on each side of the head of the tibia, which was removed with a sharp spoon. An attempt was made to preserve the condyles of the femur to minimize shortening of the limb, but they were so degenerated that about one inch and a half had to be sawed off. As is my usual method, a drainage tube was inserted, the wound closed and dressed before the removal of the Esmarch. Patient slept well all night without a hypnotic. The dressing was not touched until the eighth day, when sutures and drainage tube were removed. Since that time (six weeks) the dressings have been perfectly dry and needed no change. She has had an injection of 20 drops of serum daily for five weeks, her appetite is good, she sleeps well and is gaining in flesh. The case was a particularly bad one, and had I not intended to use the serum, I should have made a thigh amputation, instead of an excision of the knee joint. While conclusions can not be drawn from one case, the use of the serum has undoubtedly greatly aided in the progress of this case. I have made a large number of operations on tubercular bones and joints and have seen hundreds of others made, but it is certainly an exception to see such a result practically under one dressing."

#### THE PRODUCTION OF THE SERUM.

The production of the serum is based on the known principle underlying immunization of animals. The horse is naturally immune to a remarkable degree to the germs of tuberculosis. It has been possible, very rarely, to inoculate the equine species, but not to produce any permanent disease, except in very rare (doubtful) instances, to say the least. Acting on this knowledge, which I have verified with numerous

experiments on the horse, consisting of inoculations of pure bacilli culture, it occurred to me that the physiologic resistance of horse blood serum to the action of the bacilli of tuberculosis and its products, could be so increased by a proper process of immunization as to render it valuable in therapeutics. The results obtained verify apparently, the preconceived notion. In a word, the process of immunization consists of the introduction into the horse of quantities of toxins, regulated by their action on the system, followed by the introduction of germs of consumption, in various states of alteration and dilution.

One of the most important questions with reference to the production of serum, whether it be for tuberculosis or diphtheria, or any other disease, is the healthfulness of the subject used. The horse seems to be the only one used for therapeutic purposes. No animal of this family should be utilized without a thorough examination, and absolute evidence that it is not suffering from some organic disease or other, or from any functional disturbance which may produce any kind of toxic elements in the blood. In any condition bringing forth changes of the physiologic processes in the system, whether it be during the course of an insidious malady, or a readily appreciable disease, or whether it be during the process of recuperation from a pathologic condition of any character, there exist in the blood, elements which, introduced into an alien body, sometimes produce very serious results. And by the way, it seems to me that this point has been overlooked, so far as I can judge from the literature at my command, by the various experimentalists who have produced antitoxin. In my experience, the various untoward phenomena which have been described as occurring after serum injections depend largely on conditions preëxisting or created in the animal. A thorough knowledge of the physiology of the horse is as essential for proper immunization, as a thorough understanding of the strength, nature, dosage, etc., of the agents of immunization. Certain bad results in sero-therapy, such as fever, may usually be prevented by proper care and choice of animals.

#### THE SERUM.

The serum produced from the horse, whether its immunity is increased or not, varies considerably according to the subject, according to the immunization process, and according to the number of successive times the blood has been drawn. Consequently, uniform results can not be obtained in therapeutics unless the greatest care is taken in testing the serum obtained after each withdrawal of blood. This is probably true of antitoxins for diphtheria. There occurs a time after several séances of this character, when animal toxins are formed in the blood during the process of recuperation, and these, by injections in the human organization, produce untoward effects. I have seen a high fever from a single injection of 10 drops of serum absolutely free from microorganisms and other products, and I have also seen the development of urticaria, erythema, and symptoms of arthritis and disturbances of the kidneys produced by serum which chemically seemed, and microscopically was, absolutely pure.

#### DISCUSSION.

DR. PAQUIN said—The operation of immunization is exactly that relied on in obtaining antitoxin for diphtheria. It consists, briefly, of toxin injections until the fever ceases to rise; first of culture fluid, then injection of dead bacilli,



until that ceases to produce a fever; then of living bacilli until this causes no fever. When we do not produce any reaction to the germs, we consider that the horse is immune.

DR. VON RUCK of North Carolina—As to the immunization of the horse, I understood from Dr. Paquin that he injected, in the first place culture fluid, subsequently dead bacilli, and then the virulent bacilli. Now, we know that a horse can acquire tuberculosis; in fact, there is no animal that is immune to tuberculosis. I have very serious doubts as to the propriety of injecting the living bacilli into the horse, without killing the horse and making the most painstaking bacteriologic examinations. I would by no means be understood that I wish to throw cold water on the merits of the investigation. On the contrary, I realize how difficult this work is; how many obstacles there are in the way to discovering a true path where no one has yet trod. Still, I maintain that the therapeutic application of serum in the human system is entirely premature, as the experiments are not complete. I hope that the treatment will be shown to be of value; and in our laboratories in Asheville, experiments are now being made with this serum. One of the specimens of serum that Dr. Paquin kindly sent us contained cocci, and we could not think of using it in a human being. As to the results that are shown they are certainly in some respects very encouraging, but I must call your attention to the fact that those cases have all been in more or less advanced stages; they are phthisical conditions rather than tubercular cases. If this is the specific medication, just the same as in the treatment of diphtheria with serum, and there are pathologic changes, you can not expect to remove the mixed infection; in other words, you can not expect to cure by specific medication and at the same time remove thereby the results as well. About ten years ago I conducted a small institution in Ohio, for tubercular conditions. We had no climate, except of the worst, but we obtained from 24 to 34 per cent. of excellent results in the first and second stage. Even in the first stage we got some good results. One of the patients whom I examined in St. Louis stated to me that before the serum treatment was begun he had gained seven pounds. Clinical experience must be preceded by careful experimentation. It is not an indifferent thing to inject the serum of any animal into a human being. As to the cases which are present, it would be useless to examine them now unless we had previously done so ourselves.

DR. DELANCY ROCHESTER—I should like to refer those gentlemen who are reporting recoveries in tuberculosis, to Flint's original observations in regard to tubercular cases, in which sixteen out of forty-four recovered without any treatment whatever. Tuberculosis, according to his clinical investigations—I should say typhus, because it was typhus—was a disease which was of itself limited, and tends to recovery, and that in a number of cases they recovered without any treatment whatever. I would like also to emphasize the fact that in cases well advanced toward cavity formation, and in cases in which there are actual cavities of the lungs, we have not only a plain tubercular disease, but a mixed infection, and that the specific treatment is to a great degree out of place.

DR. HOLTON of Oregon—I remember reading some time ago some experiments that were made in Geneva with treatment by the serum of the ass. It was claimed that this was superior to the serum of the horse, and attention was called to the fact that consumption is rare where ass's milk is used as food. In twenty-five cases which were reported, thirteen were said to have recovered, two had died, and nine were under treatment, not having been treated for a sufficient time to demonstrate the result. I think that we want to take into consideration that there is still some question about how much the bacilli have to do with the trouble. Experiments have shown that the juice of the muscle of an animal infected with tuberculosis, where there was no tubercle shown in the muscle at all, would on injection produce the disease. It has been shown also by Ernst that the milk of cows infected with tuberculosis, where there was no affection of the udder whatever, and where there were no bacilli in the milk, would by injection produce the disease; that is to say, there were tissues in the juice of the muscle, and in the milk, although the tubercle was not present in either of them, that produced the disease. Now, does the bacillus happen to be there, with the other substance as an attendant, or with it as a cause?

DR. PAQUIN—I am rather surprised that Dr. von Ruck has taken occasion to call attention to the fact that the serum was impure. I expressly stated that this serum could not be expected to be microscopically pure, as it had not received the proper treatment. There may have been cocci there.

The antitoxin of Behring contains microorganisms and yet it has been used. A few of these do not show that poison will follow from injection. He is right in saying that we must be exceedingly careful in the matter, but the samples which I gave him were not intended to be utilized except with the knowledge which I gave him that they had not been filtered. It seems to have been the object of the speakers to make it appear that I claimed that I have proved the case at once. I have made no such claim. I have made a report, and it is so far true. Out of twenty-two cases we have not had a death. Out of thirty-five cases in the other ward, during the same period, there have been several deaths. As to microscopic work, I beg to say that I have a means by which a man can see spores from tubercle bacilli; it is my belief that it is possible to do so. I have read of the experiments in Geneva, and I have tried the blood of the mule. It seems to be little different from other animals. They are, however, more subject to disease than the horse; more subject to disease which simulates rheumatism in men. Dr. Holton has mentioned the fact that tuberculosis has been inoculated from tissues not containing bacilli. If this is the case, perhaps there were spores in that juice, and they were injected!

## PULMONARY HYPERTROPHIC OSTEO-ARTHROPATHY.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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I have chosen this symptom group for description as it is one that has received little attention from American writers. It has been my fortune to find but one case described in the literature of this country. This was written by Dr. Packard<sup>1</sup> and published in the *American Journal of Medical Sciences* for June, 1892. In European literature I find more than forty cases described during the last five years.

The characteristic lesions were first pointed out by Marie<sup>2</sup> in 1890 and received from him their name. His attention was attracted to these cases by the need of differentiating them clearly from acromegalia, which he described first in 1886. He found that many observers confounded these disorders which in some respects resemble one another. Moreover he believed that the bone lesions of pulmonary hypertrophic osteo-arthropathy were always due to the absorption of a chemical irritant produced by a primary disease of the respiratory organs.

The affection may be defined as a chronic multiple osteitis, involving especially the terminal phalanges, which are in consequence greatly deformed and the ends of the bones of the extremities. These bone lesions follow a chronic disease of the respiratory organs.

Almost simultaneously, Bamberger<sup>3</sup> of Vienna, described the same lesions, and assigned to them the same cause. He, however, included among his cases, cases of congenital heart disease, which exhibited the same osseous malformations, although they could not be explained as due to the same cause. Endeavoring to prove the correctness of his surmise, that this form of osteitis was the result of a chemical poison absorbed from the lungs, pleura or bronchial tubes, Bamberger introduced sputa from one of his cases beneath the skin of animals, endeavoring thus to produce the characteristic lesions; but he was unsuccessful. The earliest and most widely accepted explanation of the clubbed fingers of congenital heart disease has been the existence of chronic cyanosis. But need of well oxygenated blood will not explain the cases of Marie's disease for it is not a symptom of it.

The fact must also be remembered that in most cases of congenital heart disease there are coincident chronic lesions of the respiratory organs such as passive hyperemia and bronchitis. Since the original description of this group of symptoms by Marie, other observers have found them associated with other than lung diseases—with congenital heart disease, with syphilis, and possibly with caries of the spine. It is evident, therefore, that the bone lesions can not be due simply, or always, to the absorption of a chemical poison from the lungs or pleura. It is a fact, however, that in very much the largest proportion of cases, they are associated with chronic sup-  
 puration in the respiratory organs.

Thorburn,<sup>4</sup> who has described several cases, all primarily of tubercular disease of the lungs, believes the lesions in the bones to be those of an attenuated tuberculosis. This view is not sustained by other observers for in many instances sputa examinations do not demonstrate tuberculosis. Möbius<sup>5</sup> has suggested that this form of osteitis may be due to a primary affection of trophic nerves, for a clubbing of fingers and enlargement of bones in the neighborhood of joints has been known to result from neuritis. He describes one case in which only those fingers whose nerve supply was interfered with, were affected. Orilard<sup>6</sup> has described a case in which there was the deformity of the hands characteristic of this malady, which he thought resulted from caries of the vertebral column, but even in this patient there was a chronic sero-fibrinous pleurisy on the right side. Three characteristic cases have been observed associated with syphilis. No lung or cardiac lesion was found in two,<sup>7</sup> of them; and no cause of the bone affection could be assigned, except the constitutional disease. In the third, which was described by Chretien,<sup>8</sup> gummata were found in the spleen, liver, and various organs of the body, and a cavity of irregular size, containing partly caseous and partly cretaceous matter, was discovered in one lung, as well as numerous small bronchial dilatations, which contained pus. It is therefore doubtful in this instance whether the affection was not due to the coincident lung disease rather than to the constitutional one.

We must conclude, I think, that pulmonary hypertrophic osteo-arthropathy is not a distinct disease as acromegalia is; but a symptom-group, oftenest coincident with chronic lung affections, rarely with diseases of other organs and with syphilis. From the analogous action of some chemical poisons, such as phosphorus and arsenic, and the well-known tendency of certain infections to involve bones and joints in inflammation, it is probable that this chronic osteo-arthropathy is due to a toxemia which finds its source in the respiratory organs when they suffer from certain chronic diseases. It is best, therefore, to retain the appellation which Marie has given to this group of symptoms, remembering, however, that pulmonary hypertrophic osteo-arthropathy does not signify a pathologic entity, but an affection commonly associated with disease of the respiratory organs, although having at times a different origin.

The symptoms can perhaps be best depicted by describing a typical case:

A boy  $1\frac{1}{2}$  years old came under my observation a short time ago with the following history: When about 1 year old he had pneumonia. Since that time he has coughed more or less constantly, and has frequently expectorated large quantities of purulent sputa. About one year after the primary pneumonia, his parents noticed that the ends of his

fingers and toes became deformed by enlargement and that his wrists and ankles were increased in size to an abnormal degree. He required shoes several sizes larger than children of his age usually wore. His family history threw no light upon the origin of his malady. His parents are poor and in consequence he has not had constant medical aid. He appears as tall as children of his age usually do; fairly plump; his face is well shaped, although his expression is dull; his nose is short and somewhat broad; ear lobes a little thick; cheeks full; lips rather large, especially the right half of the lower one which is slightly pendent. His teeth appear quite normal, and his jaws and tongue are not enlarged. The skin on all portions of his body is smooth, soft and quite natural in appearance. His neck is slender. The thyroid and lymphatic glands about it are not abnormal. His body is well proportioned. There is no spinal curvature, although a dorsal kyphosis has often been observed in this affection as well as scoliosis. Comparative immobility during respiration and enlargement of the left half of the thorax is noticeable. The lower intercostal spaces on that side are not observed because of their distension, although readily seen upon the right side. The apex beat of the heart is invisible. Palpation of the chest reveals only the smoothness and distension of the left side. On percussion the whole of the left side is found to be absolutely dull, both in front and behind, and from the clavicle to the bottom of the thorax. On the right side, resonance is quite normal, except that between the third and sixth ribs, and extending about an inch to the right of the sternum there is an area dullness, due evidently to displacement of the heart to the right side. The respiratory sounds over the right lung are strong and exaggerated; over the left lung they are entirely wanting, except just beneath the clavicle and in the upper half of the left inter-scapular region, where there is consonant bronchial respiration.

It is evident that an effusion completely fills this boy's left pleural cavity and compresses the lung against the posterior and upper wall of his chest. As he has been expectorating from time to time, large quantities of purulent sputa, it is probable that the effusion is purulent and has been partly drained through the bronchial tubes. The effusion has existed at least a year, for as long ago as that, his parents were told that his left lung was useless. There is no disturbance of appetite, digestion or interference with the functions of other viscera. His parents say that at times he is feverish, especially just before and when expectorating large quantities of purulent sputa. His pulse is quite normal as regards fullness, force and rapidity, and when seen by me there was no increase of bodily temperature. The bones of the body are not deformed. Nor are those of the upper arms enlarged. But both wrists are considerably thickened and broadened. There is no interference with the motions of these joints. The metacarpal bones are not affected, but the first phalanges of the fingers are abnormally large, especially near the first finger joint. The second row are little or not at all affected, but the terminal phalanges are enormously and most characteristically enlarged. They are greatly broadened, and at the same time greatly thickened. The nails are abnormally arched, both laterally and longitudinally, so that they curve over the finger ends like parrot beaks. The last phalanx of the thumbs measures 6 c.m. in circumference and of the middle finger 5 c.m. The enlargement of the wrists and of the fingers is so great that it creates the impression of a general increase in size of the hands, although a genuine increase is not observable in the carpo-metacarpal regions. Precisely the same changes are visible in the feet. The ends of the toes, especially the big toes, are clubbed and greatly enlarged. The ankles are considerably thickened, as are the bones about the knees. The joints of the knees are not distended with fluid but the lower ends of the femurs are much enlarged. The hands and feet are mobile but the knees are slightly stiffened. There is no tenderness about the joints and never has been much.

The parents of this boy say that he has rarely complained of pain, although there are times when he seems inclined to play less than usual. In some other cases pain has been a prominent symptom. It has, however, rarely confined a patient to bed, although it has often restricted the use of the extremities. Pain is most apt to occur at the onset of the bone affection and is rheumatoid in character. Although in a small proportion of cases the onset of these lesions

is painful and somewhat abrupt, as a rule it is insidious. A striking and characteristic feature of this malady is the symmetrical distribution of the changes in bones and joints.

As yet it has not been possible to obtain samples of the sputa or urine of this patient for examination. When urinalyses have been made in similar cases no marked abnormality has been found. Legrain,<sup>10</sup> who investigated with unusual care the chemical composition of the urine of one patient in whom these lesions developed in infancy, and persisted up to the time of the examination, when he was 25 years old, found the quantity voided daily to be normal or only slightly increased. Its specific gravity was normal; and it contained between 14 and 15 grams of urea per liter; about 13 grams of chlorids and 1.6 of phosphoric acid. The proportion of earthy phosphates to alkalin phosphates was as 4 to 5. He found .07 of a gram of magnesia per liter of urine and .216 of lime. This is twice as much lime as normal, in proportion to the amount of magnesia. Legrain discovered that when acids were administered to this patient the amount of lime was increased still more. He was led to investigate particularly the proportion of lime and magnesia voided, by some observations of Chabrie which he quotes; the latter found that the affected bones in this disease contained comparatively a small amount of lime salts and proportionately a large amount of magnesia.

Post-mortem examinations of the bones have been made by Bamberger,<sup>3</sup> Therese and Rauzier.<sup>11</sup> They find in varying combinations an increase of synovia, enlargement of the epiphyses, erosion of the cartilages in some of the joints and enlargement of the long bones just above the joints, and sometimes along almost their entire length; thickening and adhesion of the periosteum in places, and the formation of wart-like growths of new bone within the periosteum; occasionally also they have observed central rarefying osteomyelitis.

These lesions may develop at any period of life, from infancy to old age; although oftenest in the earlier years of adult life. They occur most frequently in males.

Of affections of the respiratory organs with which this osteo-arthropathy seems to be associated, tuberculosis, empyema, and bronchiectasis are the most common. Cancer and sarcoma of the lungs with complicating bronchitis and pleurisy are among the rare concomitant affections.

A diagnosis of pulmonary hypertrophic osteo-arthropathy is usually not difficult. The peculiar and characteristic clubbing of the fingers resembles no other affection, except the common hippocratic finger or drumstick finger, from which it can be distinguished by the involvement of joints and other bones than the terminal phalanges. The close resemblance of these affections and their association with similar diseases makes it probable that the former is an exaggeration of the latter. The shape of the terminal phalanges, the location of the enlargement of the other bones, their shape, the non-involvement of the cranial bones make it easy to distinguish this affection from chronic rheumatic arthritis, lioniastis ossea, gigantism, and the commoner tubercular or syphilitic joint lesions. It is easier to confound it with acromegalia, although such confusion will not happen if close attention is paid to the characteristic symptoms of the latter disease. In acromegalia the ter-

minial phalanges and finger nails are not disproportionately enlarged and deformed; the fingers, as a whole, are uniformly and proportionately enlarged. The same is true of the toes. The metacarpal region of the hand, and the metatarsal region of the foot is much increased in size, especially in proportion to the wrist. Kyphosis is usual, but it is generally cervico-dorsal, not dorso-lumbar, as in this affection. In acromegalia the inferior maxilla is greatly enlarged, and so protruded that the teeth of the two jaws often can not be approximated perfectly. The nose, ear lobes, lips and tongue, are very much increased in size. These deformities may interfere with speech, mastication and deglutition. Acromegalia is also not associated with any disease of the lungs but with an enlargement of the pituitary body and consequently commonly with disorders of vision.

Improvement in the bone lesions has very rarely been observed. Monssous<sup>12</sup> saw one case due to empyema, in which drainage and thorough cleansing of the pleural cavity was followed by a diminution of the deformity of the fingers and toes. Gillet<sup>13</sup> noticed similar improvement in another case, follow drainage of a tubercular cavity. One<sup>7</sup> of the cases of supposed syphilitic origin also recovered after a course of specific treatment. Another case has been reported by A. Desmons<sup>14</sup> and W. Binand, which they treated by subcutaneous injections of tissue extract, made from the lungs of healthy sheep. These injections were made for several months, without injury or noticeable discomfort to the patient. The deformity no longer increased. The patient improved in general health. And what was more noteworthy a thoracic synovus which had persisted for years and grew out of an empyema that caused the osteo-arthropathy closed perfectly. At the same time, ease in the flexion of the digits and muscular power in the hand increased. Motion in the joints of the feet and legs, became so much freer that the patient could walk without a cane, upon which he had long been dependent. A single trial of so novel a treatment is suggestive but not demonstrative of its utility.

The result of treatment in the case which I have described can not be related, for the child has come only recently under my observation, and as yet it has been impossible to execute the surgical treatment which is required. Aspiration, and if the effusion proves to be purulent, as it seems probable that it will, thorough drainage of the pleural cavity is indicated. By this procedure we may hope at least to stop the bone disease in its progress and possibly even effect a disappearance of it.

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#### BIBLIOGRAPHY.

- 1 Packard, American Journal of Medical Sciences, June, 1892.
- 2 Marie, Revue de Medicine, Paris, 1890, x, 1-36.
- 3 Bamberger, Zeitschrift für Klinische Medicine, 1891, xviii, 193.
- 4 Wm. Thorburn, British Medical Journal, 1893, i, 1155.
- 5 Orliard, Revue de Medicine, 1892, xii, 231-247.
- 6 Gazette des hopitaux, Paris, 1892, lxx, 685.
- 7 H. Schmidt, Münchener Medicinischer Wochenschrift, September, 1892.
- 8 G. Smirnoff, Monatshefte für praktische Dermatologie, Hamburg, 1888, vii, 1.
- 9 Chretien, Revue des medicales, 1893, p. 326.
- 10 Legrain, Annales des maladies des organes genito-urinaux Paris, 1894, xii, 109.
- 11 Rauzier, Revue de Medicine, Paris 1891, xi, 80-60.
- 12 Monssous, Journal de Medicine de Bordeaux, October, 1890.
- 13 Gillet, Annales de la Policlinique de Paris, March, 1892.
- 14 Desmons, Archives generales de medicine, 1894, xx, 129.
- 15 Spillman et Haushalter, Revue de Medicine, Paris 1890, 361-378.
- 16 Souza, Leite These de Paris, 1890, and "Acromegalia," New Sydenham Society.
- 17 Thibierge, Gazette hebdomadaire, Paris, 1890.
- 18 Barie, Revue generale de clinique et de therapeutique; Paris, January, 1891.
- 19 Lefebvre, A., Des deformations osteo-articulaires consecutives a des maladies de l'appareil pleuro-pulmonaire Paris, 1891, F. Alcan, pp. 164.

- 20 Möbius, *Münchener Medizinischer Wochenschrift*, 1892, XXXIX, 399-401.
- 21 Sevestre, *Société médicale des hôpitaux*, 1892, XI, 461.
- 22 Raugier, *La Semaine Médicale*, Paris, February, 1892.
- 23 F. A. Field, *British Medical Journal*, 1893, II, 14.
- 24 James Kerr, *British Medical Journal*, 1893, II, 1215.
- 25 Springthorpe, *Australasian Medical Journal*, 1893, XV, 222.
- 26 Stembö, *St. Petersburger Medizinische Wochenschrift*, 1893, p 121.
- 27 Molzard et Marfan, *Société Médicale des hôpitaux*, May, 1893.
- 28 Posnanti, *Spitalul, Bucuresci*, 1894, XIV, 8-16.
- Descriptions made under various titles and classified since by Marie and others as belonging to this affection.
- 29 Gourand, *Société Médicale des hôpitaux*, August, 1889.
- 30 Bailly, *Compte Rendue de la Société de Biologie*, 1862.
- 31 Friedrich and Erb *Deutsches Archives für Klinische Medicine*, 1888.
- 32 Sandby, *Illustrated Medical News*, March, 1889.
- 33 Elliott, *Lancet*, 1888, vol. I, p. 170.
- 34 Fraentzel, *Deutsche Medizinische Wochenschrift*, August 9, 1888.
- 35 Sollier, *France Médicale* 1889, Nos. LXVIII, LXIX.
- 36 Ewald, *Berliner Klinische Wochenschrift*, March, 1889.
- 37 Waldo, *British Medical Journal*, 1890, I, 662.
- 38 Gerhardt *Berliner Klinische Wochenschrift*, Dec. 15, 1890.

## DISCUSSION.

DR. S. SOLIS-COHEN of Philadelphia—It has been my fortune to meet with two cases of the affection so well described in the paper, and to find in one of the cases a little more difficulty in discriminating the case from acromegalia than either my reading or the paper just laid before us this afternoon would seem to indicate. The point, however, upon which from further reading and from a study of these cases I would be inclined to lay greater stress, is the broadness of the hand in acromegalia, as contrasted with the length of the terminal phalanges in hypertrophic osteoarthropathy. In both instances under my notice there was associated chronic pulmonary tuberculosis in aged subjects. It is quite common, however, to meet with kyphosis, and with the hippocratic finger-nail in these subjects, especially in the debilitated and poverty-stricken people whom we meet at the Philadelphia Hospital, and I have thought that the affection discriminated by Marié and described this afternoon by Dr. Davis, is after all, as I think is Dr. Davis's opinion, merely an expression of a commonly encountered condition. If we were to class as pulmonary hypertrophic disease of the joints every case of empyema, or other suppurative thoracic affection which is associated with thickened terminal phalanges, with curved parrot-beak finger-nail, and so on, I think I could show two or three dozen cases at a moment's notice. Therefore, I would lay stress upon the involvement of the wrist and ankle joints before consenting to the diagnosis of this condition, which is again a further point of discrimination from acromegalia, in which the wrists and ankles as a rule are not affected. The condition is one of extreme interest, forming as it does one of the great group of affections to which clinical attention has so lately been directed, namely, the trophic results of chronic toxemias. I use these large expressions, which are somewhat vague, for the reason that I have not yet determined, or I think are we in a position to ascertain just what the toxemia is, and just what the exact pathologic and etiologic relation of the affection is. Still, it is trophic, in so far as it is a disturbance of of normal secretion, leading to excessive development of certain structures at the expense of others. In these cases there is excessive development of the bony tissues, in rheumatoid arthritis also development of the bony tissues with destruction of others involved in acromegalia, excessive development of subcutaneous tissues in myxedema. Here we have a large group of cases of perverted trophic conditions. That all will be shown to be due to some error in embolism will hardly be doubted. The evidence seems to prove that in this case it is some toxin, developed from the presence of pus within the body, whether that pus be formed in one disease or in another. I have listened with great interest to Dr. Davis's paper, and have learned a great deal from it.

DR. DAVIS—At first I was somewhat in doubt as to whether this case was not one of acromegalia, because of the enlargement of the hands and feet, and because of the dull expression of the patient, broad face instead of oval one, and thickening of the lips. It was perfectly evident on careful examination that there was no enlargement of the jaw, which is so characteristic of acromegalia. There was enlargement of the terminal phalanges and no increase in the size of the palm of the hand, and no thickening of the tissues outside the bones. The diagnosis was thus made clear in this case of pulmonary hypertrophic osteoarthropathy. Upon these features we have to depend in making our diagnosis.

## MEASURES CALCULATED TO MODIFY ACUTE INFLAMMATIONS OF THE RESPIRATORY TRACT.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY H. B. SEARS, M.D.

BEAVER DAM, WIS.

No single remedy or measure can always be relied upon to afford relief in any acute disorder, as the disease itself is often but a climax in a pathologic process, the divergent lines from which, radiate to a series of inherited or acquired causes; the most important of which must receive consideration of him who would stay the process of disease or assist nature in restoring to health.

Undoubtedly there are many measures utilized in therapeutics, identical in effect; also more than one way by which a pathologic process may be turned to a healthful issue.

We find ourselves to-day confronted with quite a number of methods for treating acute respiratory troubles; each of which, undoubtedly, possesses merits peculiar to itself and well adapted to meet certain indications which arise in these affections; but that any one remedy or means can fulfill all the indications or be applicable in every case could not be claimed, much less substantiated. One becomes expert in the use of a remedy or measure the same as in a certain surgical procedure; and one may also become blinded to the defects of a remedy or measure because of over-confidence in the same. We can only become right eventually by comparison of thoughts and experiences.

One urges us to use cold water locally or generally, one pilocarpin, another digitalis, others strychnia; another values hypodermoclysis; still others urge the expectant plan of treatment, combating a symptom here and there as it appears too prominent, asserting there is no way to shorten the inflammatory process and that the physician's duty is to watch, but act only when positive indications arise.

The writer desires to call your attention in a general way to conditions found in asthenic cases, prostrated with acute respiratory inflammations. Infancy and old age claim the larger share, but all ages furnish us with examples. Reference is made to the whole respiratory tract, because all parts suffer more or less in common, and treatment for one part is not wholly inapplicable to the rest of the tract; weakness or vigor having their respective influence upon the whole tract much the same. The intention is to look at the subject from a normal anatomic and physiologic standpoint, noting the variations in local nutrition and elimination and instituting treatment, in part influenced by the conditions existing just previous to the onset of the acute inflammation, and taking into consideration microorganisms or their chemic products only so far as defective nutrition in a part offers to them a suitable feeding and propagating ground.

All but a small percentage of the deaths in acute respiratory inflammations result either from excessive secretion of mucus or heart failure. These facts led the writer to look for prompt means of checking secretion in the respiratory tract, also those calculated to bring about the best possible heart action; appreciating the fact that not only healthy tissue metamorphosis but also the excessive changes occur:



ring during the inflammatory process are much influenced by the condition of the heart and capillary circulation. Every practitioner of experience has, probably, been impressed with the tenacity with which bronchial catarrh clings and the slowness with which resolution takes place in the lungs of subjects having a sluggish circulation. We have of these two main classes: first, the spare or poorly nourished in whom vitality is generally low and with whom the matter of nutrition is the subject of all importance, everything else being secondary thereto; second, a class not feeble in appearance, for they look full blooded and well nourished, but when your finger touches the pulse you perceive it is small and rapid. They are short of breath and a degree of cyanosis is present in the extreme cases. You may discover a heart murmur and you may not. Râles may be heard here and there over the lungs; quite frequently even when they feel their best. They have great thirst and demand large quantities of cold water, or something else, to quiet the inward burning. We will not go into further detail or speculate as to the different lesions which may have brought about an approximate of this condition. They are not confined to any age or condition in life. The defect in the power of the heart (from whatever cause) has brought about varying degrees of blood stasis, so that the venous system and lymph channels can not unload themselves nor remove the transudation which has occurred into the tissues of the lung. Elimination is much interfered with as well as nutrition. In these cases pilocarpin would be dangerous and heart stimulants alone would, ordinarily, fail to accomplish the desired results. The too common advice to give your fever patients an abundance of cold water (in these cases above all others) would, in the writer's opinion, but make their death more sure.

This condition, against which we are striving, is begotten of a feeble heart and an over-abundance of fluids, which, on account of the lack of tone in the circulation fails to be thrown off by way of the kidneys. Heart stimulants alone might relieve the edema of the tissues by unloading the distended veins and lymph channels, provided the condition of the heart would allow that degree of forcing, but there would be great danger of exhausting or injuring it before the work was accomplished. What seems to be needed first in these cases is depletion, not with the lance (although that might be a successful measure), but by catharsis, vigorous in proportion to the degree of stasis and depletion needed. Then the heart stimulants or tonics will work like a charm, diuresis will be induced and the dilated veins and lymph channels can easily be brought to an approximately normal condition, relieving the tissues of surplus serum and waste products. Then the exhibition of remedies lessening secretion in the respiratory tract, together with those having a tonic effect upon the vascular and nervous systems will, as general measures, do much to avert the dangers which await adynamic cases prostrated with bronchial and pulmonic inflammations.

If this is done we feel that the advice favoring the use of emetics in children and the lance in adults when dyspnea and cyanosis supervene, will not often be needed. By emesis we temporarily relieve the collection of mucus, but excite renewed secretion, very likely necessitating a repetition of the dose, each time increasing the fatal tendency. By bleed-

ing, some of the resistance to the weakened heart is removed, together with waste products, also valuable corpuscular elements of the blood, which will be sorely needed in convalescence should that stage be reached. All of this could be more safely and as surely accomplished by derivation by way of the bowels and kidneys, and the exhibition of heart stimulants and tonics, without the loss of valuable tissue elements.

The condition of the heart and capillaries should determine the use of heart stimulants as well as the efficiency of elimination; also the amount of fluids which the case will bear. When heart tonics are most indicated abundant fluids, most certainly, are not.

Ingestion of fluids does not of necessity increase tissue change or elimination. With a vigorous circulation the ingestion of water may flush emunctories, assisting greatly the throwing off of waste products; but if the circulation be weak, the accumulation of fluids in the body tends still more to embarrass the already failing heart.

Julius Glax made special observation in fifty-three cases of fever, endeavoring to determine if the human body retained water in the tissues during fever or is deficient in water. The amount of water ingested was noted, also the amount of urine passed (cases in which diarrhea was too free were excluded). He concludes that there is a conservation of water during fever, with an increased elimination in convalescence. His explanation is, that at the onset of the fever while the blood pressure is yet high, the diuresis occurs, but a diminution ensues as the pressure becomes lower and a still later increase as strength returns. An increase in the ingestion of fluids increases the elimination in most cases *only* after defervescence has begun, while during the height of the fever, diuresis appears to be more favorable the more limited the ingestion.

The writer would offer, as applicable in many cases of acute respiratory inflammation, the prompt exhibition of belladonna and turpentine for the purpose of abridging or modifying the local process. They have seemed to prevent excessive secretion of mucus in bronchitis as well as lessen the amount of exudation in lung inflammations; and, in conjunction with an effort to maintain the best possible circulation of the blood, have yielded results which encourage the writer to bring the subject to your notice.

In the early stage of respiratory inflammations, before excessive secretion begins, they seem to soothe the mucous surfaces and prevent much trouble. If secretion is already considerable, derivation by way of the bowels, together with the toning up of the heart will enable them to check the secretion of mucus, prevent accumulation in the dependent portions of the lung, or extension of the inflammation by contiguity. In children and feeble subjects this is a matter of no little importance.

Digitalis, as a type of heart stimulants occupies a very important place among the remedies utilized in combating respiratory inflammations, but it should not be forgotten that observation indicates that with high temperature or edema it is not absorbed, or, at least, is ineffectual until the temperature is reduced or the edema somewhat relieved by purgation. An additional advantage of the above mentioned plan of treatment, is that anodynes and antipyretics may be given with greater safety when indicated.

## PRE-COLUMBIAN LEPROSY.

BY ALBERT S. ASHMEAD, M.D.

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NEW YORK.*(Concluded from page 807.)*

I print here, side by side, photographs of loss of nose deformation by lupus, by syphilis, by leprosy. The leper apparently has lost his upper lip, with his nose. This last is taken from Leloir's well-known work. I also print the characteristic deformations of fingers and toes of lepers, according to photographs sent me by Dr. Morrow. I print also photographs of *huacos* pottery, representing deformations. Also a photograph showing leprosy tuberculation of the face. This mutilation of the fingers, and this tuberculation of the face, are the most striking features of the disease. Is it not probable, therefore, that if those ancient Peruvians had intended to represent leprosy in the *huacos* pottery they would have shown a tuberculated face or a deformed hand?



Destructive lesion of nose and upper lip, typical of syphilis. Pl. 122. Clinique de la Maladie Syphilitique. Par M. N. Devergie. Paris, 1826. Ulcers rouges du nez, des lèvres des palais et de l'arrière bouche avec carie des os.

There lives in France (Béarn), in the Pyrenean regions, a class of people called Cagots, who have deformations of the finger- and toe-tips, elevated and arched nails, fissures and cracks, sometimes ulcers of the epidermis and ungual matrix, a reduction of hair, more rarely certain deformations of the phalanges, and some anesthetic cutaneous patches. M. Magitot and M. Zambaco have studied these deformations and consider them as being of a leprosy nature, being supported in this theory by historical documents, local traditions and other proofs, etymological and philological. These people represent an instance of survival in extreme attenuation of the genuine leper, so widely spread in southwest France from the thirteenth to the sixteenth century.

In the Academy of Medicine, of Paris, 1893, in a discussion on leprosy, and on the question, "Are there in countries reported non-leprosy, as France and especially in its northern regions, also in Paris, vestiges of ancient lepra?" M. Leloir mentions a case of multiple cutaneous gangrenous plaques connected with a lesion of the nervous system, which might have been lazarine lepra. He also, in his report, refers to what he said previously on leprosy in Norway, and quotes three cases, in which the diagnostic of lazarine leprosy was imposed: "In these three cases," says he, "we are in the presence of French patients, born in France, of French parents, and who had never left their own country (Paris and the Department of the North). Certainly if these patients had lived in leper countries one would have found the diagnostic of the mutilating lepra, the lazarine lepra. As it is, these affections, are simply called problems. *Are not these degenerated leprosy vestiges of the lepra of old?*"



Lépre tuberculeuse devenue tropho neurotique, lepre mixte variée; tuberculose systematisée nerveuse. Lépre Norwegienne. Traité de la lepre, par Leloir. Paris, 1886. Pl. xi.

Leloir, at Lille, in two clinics, showed four cases of unnamed affections, simulating systematized nervous lepra, or mixed lepra. The first of these accidents was that of a man born in the vicinity of Cambrai, who had never left the region of the north, and presented all the symptoms of systematized nervous lepra.

The second was a thresher, 46 years old, pensionnaire at the General Hospital, born in the vicinity of Bergnes; he had never been a soldier and had never left French Flanders. This patient presented in the highest degree the characters of the systematized nervous lepra. M. Leloir made the histologic examination of the pus taken from the cutaneous ulcerations, and from a small fragment of skin bordering on an ulceration; he found nothing characteristic. He

found two bacilli, showing the histo-chemic reactions of the leprous bacilli, and tolerably well their characters; "but you know," says he, "how abundant the lepra bacilli generally are in leprous tissues."

The third observation concerns a shepherd, 66 years of age, born near Fauquembergnes (Pas-de-Calais), who had never left Artois and the Flanders.

The fourth observation was the case of a woman aged 58, who had never been outside of French Flanders. This was a quite remarkable case of systematized nervous lepra. At the autopsy, pronounced alterations of the nerves of the limbs were found.

Leloir mentions another case, in 1892, a patient of his service, born near Dunkerque, and who had never been outside his native country; he was affected with trophic troubles, muscular and cutaneous, resembling much, in certain respects, those caused by the systematized nervous lepra, but probably of syringomyelic origin; this gave occasion to M. Leloir to agitate



Huacos pottery showing characteristic deformation. Wine or water bottles exhumed with pre-Columbian Peruvian mummies, (Chaucan and Champeco). Bandelier collection, American Museum of Natural History.

again, in a clinical lesson, the question as to the persistence of the vestiges of ancient lepra in France.

"Taking ground on the phenomena observed in those subjects," says M. Leloir, "I remarked in 1885, in my clinics at the Hospital Saint Sauveur, that in these five observations we have to deal with subjects affected with lesions which resemble much those of systematized nervous lepra, deforming or mutilating; those of the systematized nervous lepra at the period of the achromic and hyperchromic specks; of the lepra called lazarine (systematized nervous lepra with leprous erythema, pemphigoid and escharotic) and finally, of mixed lepra."

Were these cases of true leprosy, as one would certainly be inclined to believe at first glance? But, if so, where was the lepra contracted? This objection, Leloir says, might, however, be discarded, if we supposed ourselves in the presence of autochthonous

lepra, of vestiges of the ancient lepra which covered Europe, and France especially, up to the middle of the fifteenth century. He emphasized once more the fact that quite possibly a disease, which at the death of Louis VIII. (1229), had necessitated the creation of 2,000 leproseries in France, and of 19,000 throughout Christendom, had not entirely disappeared from the countries where it was believed to have been extinct for centuries.

He adds, however, that such a theory could not pass from the domain of hypothesis, to the domain really scientific, unless the ken of future observers can be connected in an incontrovertible fashion with lepra, on the basis of a careful clinical, anatomopathologic and bacteriologic study.

Now in the five observations which furnished a basis for his communications, and his lessons, if the patients had much in common with real lepers, it must nevertheless be confessed that certain clinical details, (for instance, the absence of paralysis of the orbicularis of the eyelids, with anesthesia of the face, etc.) did not tally exactly with the lepra diagnostic, and that there was no bacteriologic criterium at all.

"It might, however," says Leloir, "be conceived possible that these cases of autochthonous lepra, vestiges of the ancient lepra, presented themselves to-day under an aspect slightly modified, the disease having, as it were, degenerated since the Middle Ages."

M. Leloir thanks M. Zambaco-Pacha, for giving fresh support to the hypothesis expressed by the Lille professor, in 1884, 1885 and 1886, by his works on the *Cagots of Bretagne*. Only, he thinks that M. Zambaco's labors do not give us the decisive, conclusive proof of the persistence of ancient lepra in the individuals described by him. "Until he finds in them, Hansen's bacillus, one must be allowed to doubt, in fact, one must doubt."

"I content myself with referring to the Chapter 'Diagnostic,' of my Treatise on Lepra, where it will be seen how difficult the diagnosis of this disease is sometimes. If what I say in that chapter, and what I said in 1889 in the *Annals of Dermatology*, in speaking of a patient of my service whose observation was published by my interne, M. Baade, and subsequently published again by M. Thibierge in the *Medical Society of the Hospitals*, is true, if lepra can be present unperceived before the most experienced doctors, if they are not perfect leprologists, it is not less reciprocally true that we must be extremely cautious, lest we confound several quite different diseases with lepra. This is especially to apply to the systematized nervous lepra, a real specific polyneuritis, which may be easily confounded with a number of affections of a tropho-neurotic origin.

"As I said in my Treatise on Lepra, it can easily be conceived that as systematized nervous lepra is nothing but a specific polyneuritis, many affections of nervous origin are confused with it. But even this specific character of the leprous neuritis is cause that in its character, in its evolution, in its dissemination, in its localization in certain nerves, etc., it presents characters so different from those we are used to observe, such a special stamp, that in general the diagnostic will be easy enough for a physician who knows something about systematized nervous lepra.

"I will conclude in a few words:

1. "As I have shown with regard to the region of the North and for Paris in 1884-85, and as has been

shown in 1892 by M. Zambaco-Pacha for Bretagne; there are in France persons affected with nameless diseases, bearing a strong resemblance to lepra.

2. "As I asserted in 1884-85, and as has been affirmed in print by M. Zambaco-Pacha in 1892, it is possible that we are in these cases confronted with vestiges more or less degenerated of the ancient lepra, which had invaded all France and Europe in the Middle Ages.

3. "This theory is plausible, suggestive, but it is still in want of a scientific demonstration founded on a set of facts carefully observed and carefully described from an anatomic-pathologic and bacteriologic point of view."

Thus we see that, if we had cases with such deformations as may have existed in Peru, and which the *huacos* pottery is claimed to represent, not even that would be sufficient proof of the existence of leprosy, as long as mutilation of hands and feet, and tuberculation of face, were absent. Evidence of tropho-neuritic destruction is not sufficient to make us assume leprosy. Nor would even syringomyelia, if it is existent in British Columbia, be proof of the existence of leprosy in pre-Columbian times.

There is a little pamphlet, published in London, 1889, by a member of the American Ethnological Society; it is entitled "Tepeu: the Hypothetical Migrations of Morbus Americanus." Tepeu is the Quiché name for syphilis, meaning also nobility. The author claims that the investigations among the Natchez, and the mound-builders of the Cumberland Valley, established one point: that the latter were the subjects of a constitutional malady, which produced certain textural changes in the osseous tissue, a malady which may or may not have been syphilis, but which was incontestably like syphilis in its pathologic lesions and may therefore have been lepra, "the pathologic counterpart of syphilis and by some writers regarded as essentially one with it."

I have myself attempted to show in an article entitled "Leprosy in America before the Advent of the Spaniards and the Negroes," published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, December, 1894, that the disease, leprosy, did not exist among the ancient Aztecs. The Natchez are supposed to be a connecting link between the mound-builders of the Mississippi Valley, and the ancient Aztecs. If the Natchez had been lepers, the Aztecs would have been lepers. Now, as I said in that article, and as Dr. Brinton stated before, the word *lepra*, to the ancient Spaniards, and the word *teococoliztli* to the ancient Aztecs, meant the same disease, which undoubtedly was syphilis. From which we may certainly draw the conclusion that the pathologic lesions in the remains found in the Cumberland Valley are more likely to be attributable to syphilis than to leprosy.

Mr. Henry C. Mercer, Curator of the Section of American and Prehistoric Archaeology, University of Pennsylvania, who has just returned from an exploration in Yucatan, says that he could not discover any proof of the assumed great antiquity of the Mayas, or of their migrations; he is inclined to hold quite opposite views. "The interment vase," says he, "must be proved to be pre-Columbian, if it is to be of any use in the argument, and this is not an easy matter. I am not altogether," says he, "satisfied with the syphilitic bones from Tennessee, but am open to proof. I know how collectors 'collect,' and should want to be sure that Bandelier had dug

up the Peruvian vases himself, and studied the whole interment. I found some crania on the eastern shore of Maryland not long ago, in an ossuary, which Dr. Harte, of the University, after examination says are syphilitic, but the ossuary may not be pre-Columbian. The description of these is already in MS. I know the need of exact archaeological work in Central and South America, where the first object has been to discover startling facts and 'beautiful specimens,' and trust you will be very careful in making use of what has been sent up to us by enthusiastic collectors."

I may say here that these *huacos* potteries which have been sent up by Mr. Bandelier are said, by competent archaeologists, to be pre-Columbian. Certainly, one of them, if dug out of a grave twelve feet deep, which contained a Pachacamac pre-Columbian skull, showing a syphilitic lesion, diseased frontal and parietal bones, must have some relation to the same skull; that is, represent the disease apparent in it.\* This cranial lesion is certainly due to syphilis. The plates in Devergie's "*Clinique de la Maladie Syphilitique*," Paris, 1826, present caries and necrosis of the frontal bone, of the nostrils and superior maxillaries, following chronic syphilis; exostosis and caries of the frontal bone and of the cheek bone, and its surrounding parts; caries of the frontal bone, nasal bones and ethmoidal bones, developed under mercurial influence, and a process of healing; exfoliation of internal table of the frontal bone, followed by caries and necrosis of that bone. These lesions are peculiarly syphilitic. In the same atlas will be found plates showing destruction of the nose and upper lip, strikingly like the deformations on *huacos* pots; scars of carcinomatous and rodent ulcers (syphilitic) occupying the left wing of the nose, almost totally the upper lip and left cheek, with caries of the cartilages of the septum, and the wing of the nose; rodent ulcers of the nose, lip, palate and of the throat with caries of the bone; irregular cicatrices of ulcers of the head; tuberculous and ulcerous cicatrices, with total loss of nose; tuberculous ulcer, loss of nose through the progress of ulceration caused by syphilis, consecutively developed after treatment by mercury; cicatrices of ulcer of the head, and others of the face, thought to be syphilitic, with caries of the upper jaw and the nose.

These lesions are identical in appearance with the lesions to be found in the *huacos* pottery. There is but one loss of nose, and apparent loss of part of upper lip, of a leper represented in Leloir's "*Traité de la Lepre*," Paris, 1886. The title of this plate is: "Tuberculous lepra changed into tropho-neurosis, mixed lepra; variety: systematized nervous tubercular leprosy in a Norwegian." This is not like *huacos* pottery, because there is typical leprous cicatrization and contracture of the connecting link of flesh between the lip and the lost nose. It is not a loss of lip. Besides, there is the usual leprous stenosis of the oral aperture, and general facial atrophy. These characteristics do not appear in any of the *huacos* specimens. Moreover, in the dry or atrophic form of leprosy, the only form which these vases could possibly represent, we should have crooked or mutilated fingers, and deformity of eyelids which in these vases never appear.

One thing more: to have the *lepræ bacillus* from a leprous country, say India or China, it is not only necessary that the bacillus be transported in a human

\* NOTE.—I have written to Mr. Bandelier for the exact facts.



body, but that the condition of life of the human body itself should be transported also. This point has been clearly explained by Hansen in his investigations on the conditions of leprosy among the Norwegians emigrating to Wisconsin and Minnesota. He found that while a number of lepers (of course not

change, that their conditions of life are not the same as those in Norway, and that therefore the conditions necessary for the life and well-being of the bacillus are absent.

#### CONCLUSIONS.

So far as I have investigated this subject, I consider myself justified in saying: 1, syphilis and tuberculosis are pre-Columbian; 2, that any deformation on American pottery would be more likely to represent lupus and syphilis than leprosy; 3, the pottery upon which the supposed leprous deformations appear, is beyond doubt pre-Columbian.

NOTE.—I may say here that I have examined many bones, in a disintegrated condition to be sure, dug up at Llujon, Bolivia, five miles over the Peruvian line, at a place called Tiahuanaco; also two skulls, at the same place, which probably are not so old as the disintegrated bones. These latter two skulls have the peculiarity of an open suture running down from the coronal suture of the forehead to the root of the nose. These skulls are, like the bones I mentioned, not only pre-Columbian, but pre-Inca. In none of these is there any evidence of leprosy or even of syphilis. What makes us look with some suspicion of leprosy at these Tiahuanaco bones in Bolivia is the probable relationship between the Micmacs of Nova Scotia and the Tiahuanaco races of Bolivia. The Micmacs are supposed to have come north from the southwest, and to have had relations with the Navajo and Apache Indians, and also with Peru, Yucatan and Mexico. Whether the endemic leprosy of Nova Scotia, supposed to have come with the Bretons, is at all connected with the Micmacs remains to be seen.

## SOCIETY PROCEEDINGS.

### ILLINOIS STATE MEDICAL SOCIETY.

*Abstract of the Proceedings of the Forty-fifth Annual Meeting, held at Springfield, May 21, 22, 23, 1895.*

#### FIRST DAY—MORNING SESSION.

The Society met in Central Music Hall, and was called to order by the President, DR. DANIEL R. BROWER, of Chicago, at 9:40 A.M.

Prayer was offered by the REV. F. W. TAYLOR, of Springfield.

The report of the Executive Committee was made by the President.

After the transaction of some routine business, the general session adjourned, and Section 1 was called to order.

#### SECTION 1.

*Practice of Medicine, Medical Specialties and Therapeutics.*

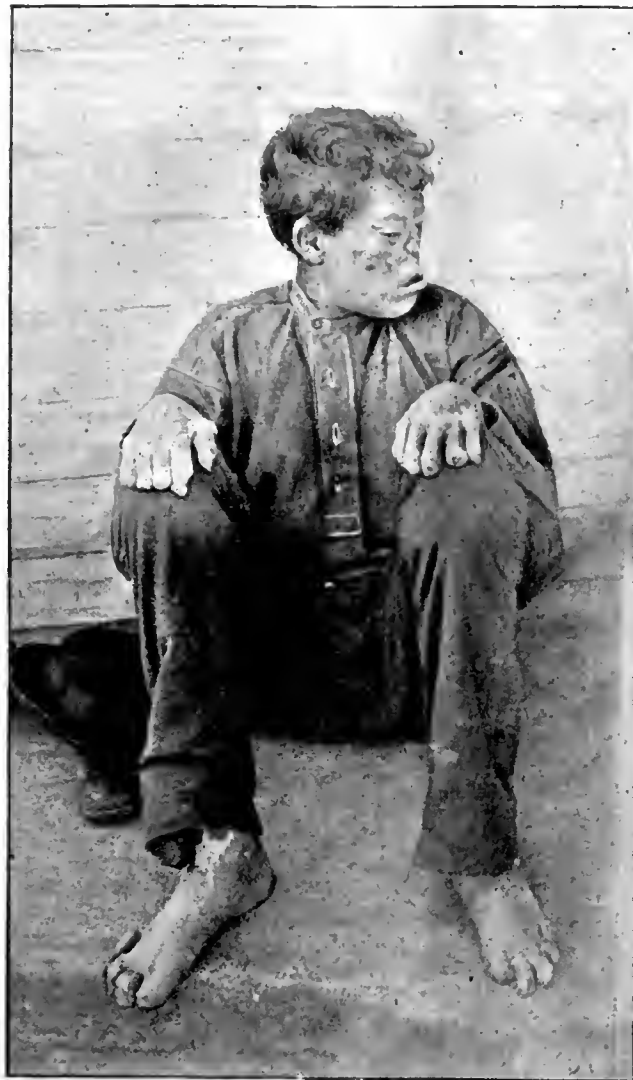
*Chairman, DR. E. P. COOK, of Mendota.*

*Secretary, DR. J. T. MCANALLY, of Carbondale.*

The Chairman made a few remarks introductory to the work of the Section, after which he called for the reading of the first paper, entitled

#### LITHEMIA,

by DR. C. W. HALL, of Kewanee. The author said there were three reasons for selecting this subject: 1, because its importance is not appreciated; 2, because it occurs much more frequently than is generally supposed; 3, because it is a condition medicine will remedy. Cases of lithemia generally present themselves with a history of long-standing ill health. Medicine seems to help for a little while. They complain mostly of indigestion. The health of these patients has been failing for a long time. They have no appetite, and when they do eat they wish they had not, for a heavy, loaded sensation follows eating which in time causes great distension of the bowels due to gaseous fermentation. Food is oftentimes vomited and it is very sour. Bowels are constipated. General weakness is present. Patients have no desire for mental work; they feel blue and despondent, and this latter condition varies with the amount of gaseous distension. Pain is generally present in the region of the liver or stomach and in the region of the kidneys. An empty faint feeling in the stomach before eating accompanied with dizziness and headache. The author emphasized the pain felt in the region of the kidneys. This pain takes a course down the ureters, the ureters being rather tender to the touch. The pain also extends to the meatus urinarius, and the urine smarts and burns. The urine is always highly colored and when cool very cloudy. We have a brownish smoky color of the urine, and sometimes a reddish deposit. Litmus paper gives a decided acid reaction. The cause of this is an improper oxidation of albuminous



Deformation of fingers and toes, from Dr. Morrow's collection of photographs.

known as such) had emigrated, in no case did he find a second generation leper, or that a case of leprosy had developed here from Norway not imported. He asserts that the reason of it is that their habits

substance taken as food. The gastric secretion in lithemia is especially affected and gastro-duodenal catarrh is probably the most pronounced symptom of the disease. In the treatment the author never fails to give almost perfect relief by the administration of nitric acid C. P. and phosphate of soda C. P. Nitric acid is given before meals in one or two drop doses in plenty of water; this lessens the acid secretion of the stomach. It is a great oxidizing agent, stirs up the torpid liver and is probably the best all round medicine to give in this disease. The sodium phosphate is given in the middle of the morning, afternoon and at bedtime, which acts very favorably on the catarrhal condition of the stomach and bowels. It neutralizes the acidity and dissolves the mucus. For gaseous fermentation the author gives creasote and assafetida with good results.

DR. E. INGALLS, of Chicago, contributed a paper on

#### SOME OBSERVATIONS ON MODERN THERAPEUTICS

which was read by the Secretary of the Section in the absence of the author. The paper stated some facts that indicate the very weighty obligations under which we rest for some modern discoveries in therapeutics. Therapeutics was defined as that branch of the science of medicine which treats of the properties, powers, action and modes of application of such agents as will prevent, ameliorate or cure disease. To learn that there was such a disease as cowpox, that it caused but little discomfort to the patient and left behind no harmful sequelæ, and that it rendered the system immune to smallpox, was, he thinks, the most important discovery ever made by man. It has added millions to the number of inhabitants on earth; it has given them exemption from suffering and has greatly augmented their wealth. Therapeutics requires very careful study, for there is no department that is more difficult to master. With most medicines it is impossible to determine by any scientific rules how they produce their effects. We know how some antidotes and antacids are curative, for their action is chemical, but in general we acquire this knowledge through empirical observation. We would never suspect from any examination of the medicine that morphia would compel sleep or allay pain, strychnia cause convulsions and death, that ipecac would produce emesis, or veratrum slow the action of the heart, except by administering them and observing their effects; and these effects are not uniform, for they will differ as they are influenced by individual idiosyncrasies, or by the varying substances they meet in the stomach or in the circulating fluids, and sometimes by vital forces that we do not understand. For these reasons therapeutic skill is only to be acquired through the most painstaking study and observation, but if these are given it will abundantly reward a student for his labor.

DR. ARTHUR R. EDWARDS, of Chicago, read a paper on

#### THE DIFFERENTIAL DIAONOSIS OF UREMIA AND ORGANIC BRAIN LESIONS, ESPECIALLY MENINGITIS, WITH REPORT OF OBSCURE CASES.

Uremia is usually readily differentiated from organic cerebral disease, yet confusion may arise in atypical cases. The main rule in diagnosis is to assume that uremic intoxication is the cause for nervous symptoms in nephritic subjects only when other causes can be excluded. Preëminent importance attaches to the presence of albumin, casts and to the amount of urine, although 1, nephritis may be unattended by albuminuria; 2, casts may be permanently absent; and 3, uremia may intervene when the amount of urine and urea is normal. (Citation of case of chronic parenchymatous nephritis in which casts without albumin were present.) If uremia is due to cerebral anemia, we must guard against confusion with cerebral anemia from other causes, but such albuminuria is transitory and unaccompanied by casts. Conspicuous cardio-vascular symptoms are valuable diagnostic adjuvants and yet not worthy of absolute confidence. (Citation of case of albuminuria and cardiac hypertrophy in which the clinical diagnosis was uremia while the autopsy disclosed meningitis and arterio-sclerosis.) Numerous alterations in the pulse may involve differentiation. The retinal findings are most important, for retinitis albuminurica is rarely absent in chronic nephritis leading to uremia. In certain cases the diagnosis is more difficult than that of any other cerebral disease. Uremia and meningitis have many symptoms in common—headache, convulsions, coma, dyspnea, vertigo, etc. Confusion is almost inevitable when partial contractures, focal paralysis, and temperature occur. In such cases the most experienced diagnostician errs. Broadly speaking, circumscribed convulsions and paralyses speak strongly for anatomic changes in the central nervous system, although they may rarely occur in uremia. This

point is scarcely recognized in the literature and the author of the paper collected published instances and reports four cases of his own, in which the most diverse focal symptoms appeared in uremia—crossed paralysis, ptosis, strabismus, temperature, delirium, hemiplegia, etc. The multiplicity and incongruity of the symptoms were best reconciled by a diagnosis of meningitis. In all the instances there were no microscopic changes in the brain, edema cerebri alone being present. Unusual focal signs may exceptionally occur in uremia. Convulsions may occur in one-half the body, opposite half of tongue and arm. Trismus, nystagmus and grinding of the teeth have been recorded. Rigidity of the neck, so common in meningitis, has occurred in uremia with consequent confusion in diagnosis. Opisthotonos, extreme in degree, complicated a plain case of uremia. Paralyses are rare and usually transitory. The combinations are manifold. Hemiplegia is the most common form, but exceptional combinations are found, *e.g.*, 1, crossed facial paralysis with hemiplegia; 2, crossed oculomotor paralysis and hemiplegia; 3, paraplegia; 4, hemiplegia with aphasia, amnesia and deafness; 5, hemiplegia plus nystagmus, diplopia and aphasia; 6, paralysis with conjugate deviation or glosoplegia; 7, tonic local spasticity with focal paralyses. In short, the writer has been able to find instances in uremia of almost every focal symptom or sign observed in disease of the central nervous system, combined in infinite variety and simulating the most diffuse intracranial processes.

#### TYPHOID FEVER.

A paper was read on this subject by DR. D. W. ALDRICH, of Galesburg. The author believes that the typhoid bacillus is an important factor in the disease; that it may be taken into the system through the mouth, air passages, and possibly the skin; that the spleen, liver, and intestinal tract afford soil in which to incubate and develop a crop of the bacilli which may prove to be master of the situation a few days or weeks later on. Typhoid fever is a disease of many symptoms or of few. Where the bacilli are not in any manner interfered with, the symptoms are many and severe in the extreme. But it is possible to interfere with the development and action of the bacilli in such a manner that their presence in the system is scarcely recognized by the symptoms they produce. It is for the purpose of bringing about this change that the physician is called in the case. Since August 1, 1890, it has been the author's custom, when called to see a patient with typhoid fever, if the stage of incubation is not passed, to apply ice water or ice bags to the abdomen for a period of twelve to twenty-four hours, with a view to interrupting what he presumes to be the incubating process, first using cloths wrung out of tepid water, gradually lowering the temperature until at the end of one hour, ice water or ice bags are used. It has also been the author's custom to administer carbolic acid and iodin with a view to disinfecting the alimentary canal, destroying the germs; to reduce the temperature; also to administer the sulphate of magnesia to wash out typhoid bacilli and other noxious matters which may find lodgment in the alimentary canal. The author then detailed the symptoms of two cases and the method of treatment, and closed by saying that since Aug. 1, 1890, with one exception, he had fed 182 patients of typhoid fever upon milk alone. The exception was a case in which beef tea was administered by the nurse with a view to rendering invaluable assistance to the physician. This patient died, but the other 181 patients recovered. The patients were allowed to take their milk either hot or cold. Other articles of diet were prescribed. Rectal feeding was resorted to in many very weak patients. The same article of diet, however, with the addition of a small amount of brandy, was alone made use of. Later in the disease, in some cases oils were rubbed into the skin at regular intervals and in sufficient quantities to aid very materially in upbuilding the system.

DR. C. C. HUNT, of Dixon, followed with a paper entitled "Antiseptics as Applied to General Practice."

#### TREATMENT AND CARE OF EPILEPTICS.

This paper was contributed by DR. GEORGE BOODY, of Kankakee. The author says this class of unfortunates are shunned by friends and too often by their nearest relatives. They feel that they are looked upon as outcasts by every one with whom they come in contact, and what wonder that they, unable to help themselves, at last become despondent and are driven to desperation, finding themselves within the walls of a hospital for the insane. Of 100 cases in the hospital, investigation shows that the greater number of them became epileptics in childhood. Of the cases that began in childhood, three-fourths of them were due to infantile con-

vulsions, ascribed to teething. Gray says that these convulsions are known to be due to defective development, which is itself brought about by defective nutrition and ought to be preventable. Fright is ascribed as a cause, but the author has been unable to find statistics sufficient to prove how important a rôle it plays. From a pathologic standpoint, epilepsy is divided into two great classes: 1, epilepsy from organic disease; 2, from a morbid state or condition and not dependent upon any other disease. The author then dwelt upon the symptomatology and diagnosis of the affection. He is a strong advocate of the establishment of epileptic colonies, and says that no State can boast of advancement in the treatment of the insane so long as it continues to permit the epileptic insane to be promiscuously scattered among the general insane. There should be an absolute separation of these poor unfortunates from the other insane, and their speedy removal to a home for epileptics should be the foremost thought in the minds of all those who are deeply interested in the welfare of the insane. Illinois ought to profit by the example set by Massachusetts, Ohio and New York, each of which now have separate homes for this most unfortunate class of individuals.

DR. HUGH T. PATRICK, of Chicago, read a paper entitled

#### THE COMBINATION OF HYSTERIA AND ORGANIC DISEASE.

The author first related a number of cases in which hysteria was combined with various organic diseases. These diseases include typhoid and scarlet fevers, rheumatism, puerperal fever and acute pelvic inflammation, as well as more chronic affections of various kinds. Instances were also given in which there was a combination of organic disease and hysteria as well as simulation on the part of the patient. It was particularly emphasized that organic disease of the nervous system was apt to be complicated with hysteria and illustrative cases were quoted. The fact was emphasized that, particularly, multiple sclerosis and syringomyelia are apt to be complicated with hysteria, and among the toxemias those of lead and alcohol show most frequently the aforesaid complication. He believes our semeiology to be sufficiently advanced, even in the obscure realm of the nervous system, to allow us to say that the different types formed by certain pathologic conditions and stamped by well-defined combinations of symptoms remain sufficiently distinct to be generally separated the one from the other. When two types occur in the same individual it is not really a mixture with which we have to do, but simply a contiguity and juxtaposition; consequently in a given case of organic disease the diagnosis of hysteria is aided simply by means of the so-called hysterical stigmata and other symptoms characteristic of this disease. The various stigmata were then briefly enumerated. Of these, the principal are the characteristic anesthetics in patches and the so-called glove, stocking or sleeve anesthesia being the most typical. A distinctive trait of most of these anesthetics is the fact that they do not interfere with cutaneous reflexes and automatic accomplishments. The hysterical eye affections were then alluded to, embracing the characteristic alterations in the visual field, monocular diplopia and polyopia, monocular amaurosis with binocular vision, anesthesia of the eyelids and conjunctivæ. The peculiarities of hysterical paralysis were then pointed out as distinguished from those of organic origin, as well as the characteristic differences between hysterical, organic and epileptic convulsions.

In conclusion, the author insisted that a severe hysterical affection might occur in an individual who had never shown any other hysterical symptoms; that such an affection might remain unchanged for years and be almost the sole sign of this omnivagant disease. Furthermore, that fever, a rapid or subnormal pulse, retention or incontinence of urine, loss of sexual power or desire, loss of pupillary reflex to light, and ankle clonus, although indicating as a rule organic disease, may occur as symptoms of hysteria.

DR. S. K. CRAWFORD, of Chicago, read a paper entitled

#### HEMIPLEGIA BY THE HEMIPLEGIC HIMSELF.

The author of this contribution was seized with left hemiplegia Aug. 22, 1892. There were serious and, to him, most sensible perturbations of the circulation in the base of the right hemisphere of the brain, prominently located in his mind by the sensations present. "The first sensations were those of intoxication, with a mentality like the country peddler's wagon, when a wrecked hind wheel is compensated for by a limber pole with the large end fixed upon the front axle and the wheelless spindle of the axle placed upon the swaying pole, while the topmost end brings up the rear."

Dr. Crawford said that he had treated six patients during the forenoon of the day of his seizure. His motions were awkward in the extreme, but weakness or marked prostration did not supervene until the approach of the lunch hour, when it became a prominent symptom and he walked to his bed chamber adjoining his operating room, threw himself upon the bed to doze the afternoon away, half sleeping and half waking, with no pain or distressing sensations of any kind, and with hearing and sight acute and perceptions unimpaired. The physical pain was nothing to be compared with the mental perturbations that were endured. As regards treatment, under the direction of his physician and by and with the consent of his consultants, he sent a gentle and continuous stream of electricity through the right hemisphere of his brain from fore to aft, and ranging downward from the right frontal to the occiput of the same side, daily for ten months, with a sitting of fifteen minutes at each and every employment. At each and every sitting the paralyzed muscles were awakened, as well as the dormant tissues, with massage, and a faradic or interrupted current. This treatment was supplemented by the employment of digitalin, strychnia, and minimum doses of quinin, and continued for some months after the employment of the electric current was suspended. Convinced that the treatment employed had been efficient, and when he could no longer detect any local pressure anywhere or observe any of that dazed or hazy condition about his being that so prominently prevailed in the earlier months of his illness, he began a course of specific nutritive treatment, by the exhibition of phosphorus in the way of medicaments and diet, and he was not only pleased but delighted with the results obtained.

The Address of SECTION ONE was delivered by DR. ROBERT LEUDEKING, of St. Louis, Mo., who selected for his subject

#### THE PRESENT STATUS OF SERUM-THERAPY.

A variety of theories exist in explanation of antitoxin production. The one theory advances that the antitoxin is the product of the reaction of the specific toxin on the albumin of the living body. It is a cell elaboration, the toxins acting as cell stimulants. A second view says, May not the toxins become converted into antitoxins? A third view is, that in infections, where bacteria invariably have place, these themselves in their disintegration indirectly yield antitoxins. As a consequence of these developments of scientific research, Behring shows us that the incorporation of such serum, possessed of these faculties, into a second animal, is followed by the development of a similar protective state. This was called passively acquired or indirect immunization. The next step in natural order is the application of these experiences by Behring and Roux to the treatment of disease, first in animals, then in man. Behring held and still holds that antitoxin destroys the toxin, neutralizes its effect. One writer has shown, however, that such is not the case. Toxin and antitoxin exist side by side. A mixture of the two, for instance, that will on injection leave white mice unscathed, may kill a guinea pig, which is a more susceptible animal.

Dr. Leudeking believes that we have but two diseases that may to-day be discussed as amenable to serum-therapy, namely, tetanus and diphtheria. With reference to the former the literature contains a number of reports of cures. Krieger cites five cases of recovery, but we have the word of Behring and of Roux to the effect that, although it is easily obtained and exhibits its preventive action with marvelous force, in practice it has not justified expectations. Of 553 cases of diphtheria, 303 were injected with serum and developed a mortality of 13.2 per cent. Two hundred and thirty were not so treated, causing a mortality of 47.8 per cent.

#### ETIOLOGY OF SOME HYSTERICAL MANIFESTATIONS, WITH REPORT OF A CASE TREATED BY HYPNOTISM.

This paper was read by DR. HUGH T. PATRICK, of Chicago. A point made by the author in the etiology of hysterical manifestations was that they are frequently the result of a subconscious imperative conception which slowly or rapidly develops from sensory or psychic impressions. The case was a unique one combining hysterical amaurosis of both eyes with hysterical pseudo-meningitis. The symptoms developed rapidly following an ophthalmic migraine, the pain and scintillating scotoma being the etiologic factors. This connection of cause and effect was distinctly shown during the recovery of the patient, and particularly by means of hypnotism. The hypnotism in this case, besides throwing light upon the processes involved in the generation of the symptoms, was a valuable diagnostic and therapeutic aid. Regarding hypnotism, Dr. Patrick insisted that there is no such thing as the hypnotic power as ordinarily understood,

but that in every case the subject in reality hypnotizes himself; that is, that hypnosis is always a subjective phenomenon. The ordinary *modus operandi* of inducing hypnosis was described and illustrated.

(To be continued.)

### Connecticut State Medical Society.

The one hundred and third annual meeting of the Connecticut Medical Society was held at Hartford, Conn., in Jewell Hall. The Fellows of the Society met at 2 o'clock. There are five Fellows from each county of the State with the exception of Tolland County, which has only three representatives. The meeting was presided over by President FRANCIS N. BRAMAN, of New London. The address of the President reviewed the efforts of the medical profession in 1763 to obtain from the Colonial Assembly an act regulating the practice of medicine. This and subsequent efforts failed, until the Legislature of 1893 passed the medical practice act, under which the State is now experimentally progressing. The act had brought about a more popular interest in medical practice, and the wisdom of the Legislature in passing the act was apparent. The President recommended that the office of county reporter be abolished and that a member from each county be appointed to act as a general committee to do the work now assigned to the reporter, the members to be Fellows of the society. The address was referred to a committee of three and its recommendations were indorsed and laid upon the table for action next year, as they involve an amendment of the by-laws.

The Committee on Nomination of Essayists reported: On Medicine, Max Mailhouse of New Haven, Chas. B. Graves of New London; on Surgery, W. H. Carmalt of New Haven, Harmon G. Howe of Hartford, and they were appointed. Honorary members proposed, to be voted upon at the next annual meeting, were: T. M. Prudden of New York, W. W. Keen of Philadelphia, and T. G. Thomas of New York.

The Committee on Medical Examinations reported an amendment to the present law, requiring three sessions for examinations to be held each year, in March, July and November, instead of monthly, as now. The report was referred to the committee on legislation.

The Committee on Nominations reported the following list, which was adopted: President, Seth Hill of Stepney; Vice-President, Rienzi Robinson of Danielsonville; Assistant Secretary, Julian La Pierre of Norwich; Treasurer, W. W. Knight of Hartford. Committee on matters of interest to the profession in the State, C. S. Rodman of Waterbury; A. E. Abrams of Hartford; R. W. Kimball of Norwich. Committee on publication, W. H. Donaldson of Fairfield. Committee on anniversary, C. P. Lindsley, M. C. O'Connor and F. H. Wheeler of New Haven. Dissertator, S. B. Childs of Hartford; alternate dissertator, Arthur N. Alling of New Haven. Delegates to the AMERICAN MEDICAL ASSOCIATION: A. E. Abrams of Hartford; F. H. Wiggin of Litchfield; Nathaniel Hibbard of Danielsonville; H. E. Smith of New Haven; L. B. Almy of Norwich; John E. Loveland of Middletown; G. A. Shelton of Shelton; Frederick Gilnack of Rockville; Robert Lawler of Bridgeport; Ralph A. Goodpin of Thomaston; E. P. Douglas of Groton; E. W. Pierce of Meriden. Maine Medical Society, P. H. Ingalls of Hartford; W. W. Hawkes of New Haven. New Hampshire Medical Society, F. W. Simpson of Hartford; J. B. Kent of Putnam. Vermont Medical Society, E. F. Davis of Ellington; Carl E. Munger of Waterbury; George N. Lawson of Middle Haddam. Massachusetts Medical Society, D. A. Cleveland of Middletown; M. Van B. Dunham of Greenfield Hill. Rhode Island Medical Society, T. D. Crothers of Hartford; F. E. Guild of Windham; E. H. Davis of Plainfield. New Jersey Medical Society, H. O. Allen of Broad Brook; F. W. Wright of New Haven. New York Medical Society, William H. Carmalt of New Haven; J. R. Topping of Bridgeport; A. E. Abrams of Hartford. Member of committee on medical examination, J. F. Calef of Middletown.

The necrology during the year included the names of Drs. H. S. Wildman, N. J. Hanmer and George C. Gay of Waterbury; W. A. M. Wainwright of Hartford, and Stephen G. Risley of Rockville. The honorary members who died dur-

ing the past year were Dr. Oliver Wendell Holmes of Boston, and Dr. George Chandler of Worcester, Mass.

In the evening, Dr. James Campbell, President of the Hartford Board of Health, gave a reception to the members of the society at his residence, 34 Congress Street.

The exercises the second day were as follows:

Annual report of the Secretary, N. E. Wordin, Bridgeport; reception of delegates from other State societies.

Vermont State Medical Society—J. M. Clarke, Burlington; Lyman Rogers, Bennington.

Massachusetts Medical Society—T. F. Breck, Springfield; Albert Wood, Worcester.

Medical Society of New Jersey—J. A. Exton, Arlington.

Medical Society of New York—L. Duncan Bulkley, New York; Reynold Webb Wilcox, New York.

Reports from delegates to other societies:

To the AMERICAN MEDICAL ASSOCIATION, San Francisco, 1894, Gould A. Shelton, Joseph E. Root, Edwin B. Lyon.

Baltimore, 1895, Alvin E. Abrams, Chas. S. Rodman, Max Mailhouse, Geo. R. Shepherd, Fred'k Schavoir, Loren T. Day, Frederick M. Wilson.

To the Maine State Medical Association, T. Morton Hills, Thomas M. Bull, M. V. B. Dunham.

To the New Hampshire Medical Association, Theodore R. Parker, Leonard B. Almy.

To the Vermont State Medical Society, George C. Bailey, O. J. D. Hughes.

To the Massachusetts Medical Society, D. A. Cleaveland, J. J. Morrissey.

To the Rhode Island State Medical Society, Charles E. Brayton, Henry B. Plunkett.

To the New York State Medical Association, Edward H. Welch, Frederick S. Smith.

To the Medical Society of New Jersey, Max Mailhouse, Frederick B. Baker, William V. Willson.

Report of committee on matters of public interest in the State:

Typhoid Fever—Irving W. Lyon, Hartford; Perforation in Enteric Fever—its Surgical Treatment, Frederick H. Wiggin, Litchfield; Notes of an Epidemic of Typhoid Fever, at South Glastonbury, Charles G. Rankin; The Treatment of Typhoid Fever at the Hartford Hospital, Joseph B. Hall, Hartford; A Brief History of Serum-therapy, Arthur J. Wolff, Hartford.

The Use of Diphtheria Antitoxin in Connecticut—Irving W. Lyon, Hartford; Report of the Progress of Medicine, Elbridge W. Pierce, Meriden, Everett J. McKnight, Hartford; Report on the Progress of Surgery, Chas. C. Godfrey, Bridgeport; L. W. Bacon, Jr., New Haven; Dissertation, Senile Cataract; one hundred cases. Comment, Frederick M. Wilson, Bridgeport.

At 12 M. the President's Address, Medical Sociology.

The afternoon session began at 1:30 P.M. The first paper was on Pneumonia and the Treatment of its First Stage by Stimulation, by William J. Tracy, Norwalk, followed by Tetanus, Edwin B. Lyon, New Britain; The Modern Management of Natural Labor, Henry Fleischner, New Haven, Benjamin A. Cheney, New Haven; Endometritis; its Surgical Treatment, Frederick Schavoir, Stamford; The Eye and Diseases to which Eye Symptoms Point, Arthur N. Alling, New Haven; The Errors of Refraction found in Four Thousand Eyes, Harry S. Miles, Bridgeport; Cerebral Thrombosis, Gustavus Eliot, New Haven; The Morphin Habit, John W. Wright, Bridgeport; Simple Meningitis, Max Mailhouse, New Haven; Cerebro-Spinal Meningitis, N. Nickerson, Meriden; Tubercular Meningitis, Stephen J. Maher, New Haven; A Case of Acute General Miliary Tuberculosis, of so-called Typhoid Form. Autopsy, James M. Keniston, Middletown; Modern Improvements in the Treatment of Diseases of the Skin, R. A. McDowell, New Haven; The Localization of Intestinal Obstruction; Illustrated by Three Cases, W. S. MacLaren, Litchfield; Observations on Operations for radical cure of Hernia, with report of cases, George C. Jarvis, Hartford; Observations on Appendicitis with report of Operations, Charles E. Taft, Hartford; The Diagnosis and non-operative Treatment of Appendicitis, John F. Dowling, Enfield; Fracture of the Kneepan, James K. Mason, Suffield; Public Hygiene, Lucy C. Peckham, New Haven; Defense of Public Health Boards, Frank W. Wright, New Haven; The Therapeutic Value of Mountain Forests, Charles D. Alton, Hartford; The Inebriety of Insanity from a Medico-Legal Point of View, Thomas D. Crothers, Hartford; A Case of Utero-vesico-vaginal Fistula, with successful Operation, George C. Jarvis, Hartford.

The annual dinner was served at the Hartford Hotel in the evening.



THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,  
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.  
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, JUNE 1, 1895.

TO THE YOUNG DOCTORS OF 1895.

"Practice and experience are of the greatest moment in arts; and there is no kind of occupation in which men may not learn by their abortive attempts."—COLUMELLA.

The schools have turned out this year an unusually large number of physicians. Where they will all go? what will they all do? and how many will succeed in reaching a high professional level? are questions that can only be answered by speculation. The medical statistician assures us, with the blunt rudeness of a mathematical slugger, that such a percentage die during the first year, that so many grow weary, and engage in other pursuits within a twelvemonth, or within two years at most, and the remainder, say 75 per cent. remain in the profession to work, and worry, and win success or failure as best they may.

To this last class we wish to indite a few words, although at a venture we presume they must have had a vast deal of advice in the semestre just closed.

We urge the young doctor to lose no time in joining the local medical society where he casts his lot. The men composing it may not be exactly to his mind, they may to outward view lack even some of the refinements of society, they may not care for them, they may have fallen distinctly below the level of the average knowledge of the times. But we advise the young doctor to pay attention and watch these wise old practitioners, for experience is a wonderful teacher, and many times he may learn very much from those he now thinks so far behind in pathology and laboratory lore.

Sometimes you may feel hurt at being treated like a raw recruit by these veterans, but you must remember that like all veterans they will be with you when you win your spurs, in society debate, or at the

bedside, and in proportion as you demonstrate your ability, their doubt of you will disappear. One thought will, we think, serve to give you a little closer relation with the old fellows, and that is that each one says to himself when he meets you, at the society or elsewhere: "Ah, if I were only young again like that young man! With the knowledge of the world, of men, of material things, that I have acquired, and his modern laboratory technique, what could I not accomplish in the average life time that is before him."

Be guided, then, by the voice of experience in all things not controverted by recent facts, and try yourself to become that ideal being the old doctor would be, had he only your growth and recent knowledge to add to his tact and *savoir faire*. Watch him closely! he knows men as open books; he knows how to manage and control them; he knows when to smile and when to be grave. He has learned his community; he knows what he can do without offense, and how best to acquire its good will. He knows best how to set forth the knowledge he has to its best advantage. Take all you can of his method, it is the result of experience, and pay him that deference when you meet him, that you yourself would like to receive from the classman of 1945 freshly filled with the new doctrines of which you will have only heard through your journal.

EURIPIDES lamented, "Alas! why is it not permitted to mortals twice to be young, and thence return once more to old age? For in our domestic affairs if aught be ill conducted, we put it right by after thought, but we have not this power over life. If we could be twice young, twice old, when we made a mistake, having twofold life, we could correct it."

The story of the Wandering Jew as retold by WALLACE in the "Prince of India," shows how much superior to every other man was that mysterious one who renewed his youth every one hundred years, and with it retained all the knowledge he had acquired during each centennium, and this leads us to advise our young doctor of 1895 to cultivate and conciliate his older colleagues, so that he himself may convey their general stock of information, in continuity with his own, to the profession of the future.

THE DUAL BRAIN.

The theory of duality of the brain as maintained by HOLLAND and WIGAN, and later by BROWN-SEQUARD and others, is one in regard to which most physicians probably hold themselves uncommitted, as they are hardly ready to admit it as proved that the two hemispheres can act to any considerable extent independently of each other. Clinical observations such as would be of value in determining whether such independent action is possible are rare, and those that seem to point that way have generally

been more or less incomplete and unsatisfactory. A recent observation by DR. L. C. BRUCE (*Brain*, spring, 1895), is therefore of special interest, as it comes from one who may be presumed to be a competent observer, and it is published in one of the highest grade medical periodicals of our time.

The patient was under observation continuously for three months up to the time of the report. In one stage he was demented, left-handed and talked only Welsh and gibberish; in the other he was fairly intelligent, but maniacally mischievous, right-handed and talked English, but understood and could converse also in Welsh. In an intermediate condition he was ambidextrous, and spoke a mixture of Welsh and English. In the English stage he remembered nothing of the Welsh stage, but had a perfect recollection of anything that had occurred in his previous English stages. His circulation and his bodily conditions generally were good in this phase, while in his demented state his mental and physical conditions were exactly the reverse. In his maniacal condition he wrote legibly with his right hand and produced mirror writing with his left; the specimens obtained with difficulty during the demented condition were illegible but were written with the left hand, from left to right. Thinking that the transition from one stage to another might be due to circulatory changes, DR. BRUCE took sphygmographic tracings in both conditions; in the maniacal or English stage the tracing revealed a full pulse of high tension, while in the other it had lower tension and less volume. Attempts were made to produce the two different stages artificially, but without success.

We have apparently in this observation, as DR. BRUCE remarks, a case of right hemispheric melancholia or dementia and of left hemispheric mania, occurring probably in an individual whose cerebral hemispheres acted more or less independently prior to the advent of the mental disorder or disorders, if we can assume the existence of such a condition. Or, as he suggests, only one lobe of the cerebrum, the left, is educated, and takes the greater part in mental action; the right functioning mainly in motion, sensation, etc., and playing but a very small part in intellection, would naturally show its derangement rather by the symptoms of dementia than those of mental exaltation.

It seems possible, moreover, that this condition of independent action of the hemispheres may be only exceptional, and that ordinarily, either originally or through education they always act together and share the same functions. It will be noted that in this case, though DR. BRUCE does not remark it, speech, which is generally regarded as a function of the speech center in the left hemisphere, was not altogether lost in this patient but was limited to Welsh, his native tongue. This, as far as it goes, would indicate that the left brain was not altogether inactive or that there

were bilateral speech centers, the former being perhaps the most probable of the two alternatives.

The case is an interesting one, not only as regards its bearing on the question of the duality of the brain, but also as suggesting possibilities from the study of the cases of circular insanity in our asylums generally. It may be that a closer observation of such patients would reveal other more or less similar instances, in which a marked predominance of one or the other cerebral hemisphere might be seen in the different phases of the disorder. In such a way, it may be, alienists have a special field of physiologic and psychologic research that has been heretofore too little cultivated.

#### COURT-MARTIAL OF A NAVAL MEDICAL OFFICER.

The case of MEDICAL INSPECTOR KERSHNER, Fleet Surgeon of the North Atlantic Squadron, has lately attracted considerable attention. While in harbor at Kingston, Jamaica, a sick call was sent from a foreign merchant vessel to the *New York*, the flagship of the squadron. DR. KERSHNER declined to attend the case on the ground that it might be one of yellow fever, and that his first duty was to protect the men of the fleet from infection. The captain of the *New York* reported the refusal to the Admiral, who thereupon sent an account of the matter to the Navy Department. It is understood that the Surgeon-General sustained DR. KERSHNER in his action and that the Secretary of the Navy could find nothing in the Naval Regulations requiring medical officers to attend the sick of merchantmen in places where other medical attendance was available. Meanwhile a Court of Inquiry was convened on the *New York* to investigate the manner in which certain indorsements in the case got into the newspapers; and since then DR. KERSHNER has been tried by a court-martial at Brooklyn Navy Yard for violating Article 235, Naval Regulations, in giving to the press the said proceedings and for perjury in testifying under oath that he had not done so. It appears from the evidence given before the court-martial that the Doctor has been much disturbed by reflections on his professional and private character, to-wit, that he was lacking in humanity, timorous, etc., made by the Admiral on certain correspondence sent to the Navy Department concerning the affair, and that he had written to SURGEON-GENERAL TRYON and to MEDICAL DIRECTOR BLOODGOOD asking for their advice under the conditions then affecting him. His counsel held that there could be no offense in thus consulting his superior in the Medical Department as it was customary for medical officers when in difficulties to write such letters to their friends in the Service and particularly to the Surgeon-General. In denying before the Court of Inquiry that he had furnished an official account of the matter to any one but the

Surgeon-General he has not regarded his letter to DR. BLOODGOOD as coming within the scope of the query, which had a reference to copies furnished with a view to publication. The official report of the proceedings of the court-martial are now before the Department, but the finding at this writing has not been made known.

In the JOURNAL of March 16, we indicated the need of a re-organization of the Navy Medical Department, to give energy to its present membership and enable it to fill its vacancies. We dwelt mainly on the objectionable features of the Service as presented to young officers, but it will be seen from DR. KERSHNER's case that objectionable features are not absent from the service of officers even when they attain the higher grades. The publicity given to this matter in the daily press will not tend to induce young men to enter the Naval Medical Service. There are now twelve vacancies in the Corps, and perhaps it would be a good thing for the Corps if it were found that these vacancies could not be filled. The medical officers of the Navy should in all respects be on the same footing and have the same consideration as their confrères in the Army.

#### THE SUCCULENT STRAWBERRY.

The season of the strawberry is now upon us. This berry in America is our earliest and latest fruit, for it is now produced in gardens on the Atlantic coast all the way from Florida to New Brunswick; in abundance in mid-season the entire length of the Mississippi Valley, and in great profusion on the Pacific coast.

One of the JOURNAL's young men last week in an excellent article on the social status of physicians, credited the well-known phrase about the strawberry to SIDNEY SMITH, which was too generous to SMITH, for it was a physician DR. WM. BUTLER (d. 1621) who first said that "doubtless God could have made a better berry, but doubtless God never did." BARTLETT says this first appeared in the second edition of WALTON's "Angler," 1655, and further quotes ROGER WILLIAMS in his "Key into the Language of America," 1643, p. 98, as saying: "One of the chiefest doctors of England was wont to say, that God could have made, but God never did make, a better berry."

In SHAKESPEARE's time the strawberry was held in high esteem. RICHARD III. says to Ely: "My lord of Ely, when I was last in Holborn, I saw good strawberries in your garden there; I do beseech you send for some of them." But the strawberry was an ill-favored token for DESDEMONA, for the handkerchief which IAGO gave OTHELLO to whet his jealousy had strawberry spots.

SIR JOHN SINCLAIR says:<sup>1</sup> "In regard to strawberries it is impossible to say too much in favor of

that fragrant, cooling and wholesome article. There are various modes of eating them, but with milk and cream is generally accounted the most agreeable, and is found to lessen in the stomach, the activity of the acid they contain. Strawberries are very wholesome. They tend to promote all the evacuations, and are laxative without inducing any apparently weakening efforts; they are also supposed to possess qualities unfavorable to stony concretions. The wild strawberry has the most agreeable flavor, and is perhaps the best of the whole species."

BEDDOE's "Hygeia," vol. II, essay VIII, p. 64 says: "To persons with weak digestion, the addition of a meal from the garden, to one from the kitchen is in the highest degree pernicious." From this it appears that as there are two sides to almost every story, so here a little investigation shows that not everybody may eat raw strawberries with impunity.

That interesting volume, *Le Cuisinier et le Médecin*, Paris, 1855, says: "Horticulture has marvellously developed the size of this fruit, without damage to the exquisite delicacy of its taste. The fruit is refreshing and a little laxative; it is not well received by all stomachs, because it is hard and cold. Convalescents should abstain from it, and those with disease of the stomach. The berries are eaten ordinarily raw; with sugar; with red wine, Madeira or Frontignan, etc. They may be also eaten with cream; but then they are very indigestible."

FAZIO (*Trattato d'igiene, Napoli*, 1887, p. 763) gives an analysis of the strawberry from KÖNIG:

Water . . . . .	87.66
Sugar . . . . .	6.28
Cellulose (from seeds) . . . . .	2.32
Nitrogenous substances . . . . .	1.07
Free acid . . . . .	.93
Non-nitrog. substance . . . . .	.48
Ash and remainder . . . . .	.81

An interesting case of alleged poisoning by strawberries will be found in the *American Journal Medical Sciences*, N. S., 1851, vol. xx, p. 363.

The cooking of the berry makes it one of the most digestible of all table fruits, and while by no means do we object to the delicate flavor of the fruit as it is picked, yet the difficulty must be admitted of having the fruit placed on the table raw, and yet of exactly that degree of ripeness that allows its highest degree of digestibility. As the berry is generally sold in the market, there is such a wide variation between the greenest and the ripest, that only proper cooking can make a uniformly pleasant and digestible dish.

#### THE OHIO STATE MEDICAL SOCIETY.

The semi-centennial meeting in Columbus, May 15-17, was an indication of decided progress in the affairs and influence of the society. Nearly five hundred physicians attended, most of them members. One hundred new members were admitted, making

<sup>1</sup> The Code of Health and Longevity, etc., etc. Edinburgh, 1807. Vol. I, p. 299.

the total permanent membership about eight hundred and twenty-five.

The program contained a lecture by JUDSON DALAND on malaria, illustrated by lantern slides. The Doctor was elected an honorary member of the society. Two alleged leprosy cases were exhibited by DR. J. G. MCDOUGAL. These cases are quite distinctly an Ohio production, adding to the interest in them. We shall print this paper with the photographs in an early number of the JOURNAL.

Other notable features of the sessions were an elaborate presentation of the status of the treatment of diphtheria from different parts of the State by DRS. HOWARD and OHLMACHER, of Cleveland; CASE, of Ashtabula; MOORE, of Columbus; EICHBERG, of Cincinnati. An able paper was presented on hot-water bath treatment of lobar pneumonia, by DR. JOS. EICHBERG, of Cincinnati; and one on typhoid fever by J. E. WOODBRIDGE, of Youngstown.

One of the most important features was the organization of a committee on medical legislation based on county representation, and the appropriation of \$500 to begin their work.

Ethical questions were decided, placing the society unequivocally in the list of staunch supporters of the Code of the AMERICAN MEDICAL ASSOCIATION.

DR. DAN. MILLIKIN, of Hamilton, was elected President; DRS. J. H. GOSS, of Lancaster, W. H. HUMISTON, of Cleveland, JNO. A. MURPHY, of Cincinnati, B. M. RICKETTS, of Cincinnati, Vice-Presidents. DR. THOS. HUBBARD, of Toledo, Secretary; DR. H. M. W. MOORE, of Columbus, Assistant Secretary; DR. JAS. A. DUNCAN, of Toledo, Treasurer.

The next meeting will be held in Columbus, May 27, 28, 29, 1896.

#### A BACTERIOLOGIC CONVENTION.

The JOURNAL of April 27 gave notice of the organization of a coöperative bacteriologic investigation by the committee on water supplies of the American Public Health Association, and of the difficulties encountered by the committee in drawing up a scheme of laboratory methods for use in the investigation.

We now invite the attention of boards of health, State and municipal, to the call of the committee for a convention in the Academy of Medicine, New York City, on June 21 next. We trust that the laboratories of each board will be represented at the meeting, to aid in making its results give accurate expression to the experience of American bacteriologists on the points at issue. Collegiate institutions also are interested, as the subjects to be discussed by the convention are those of pure or scientific bacteriology irrespective of the practical work hereafter to be undertaken by the members of the committee.

The names of the bacteriologists who are to open the discussion of the various points, give assurance of the most advanced thought in each direction. We print the call of the committee in another column.

#### TO THE NEW MEMBERS.

The Editor is in receipt of several letters inquiring why the new members do not receive the JOURNAL. We have to say that we have been unable, up to this time, to obtain a list of new members from either the Permanent Secretary or the Treasurer. The gentlemen who joined the ASSOCIATION at the last meeting will have to wait until the Treasurer's office furnishes the list. In the meantime we have *estimated* the number of new members at 300 and are storing up that number of extra copies.

#### SOCIETY NEWS.

**Call for a Bacteriologic Convention.**—The following, dated May 21, 1895, has been issued by the Committee on Water Supply of the American Public Health Association:

*Sir:*—Your presence is earnestly solicited at a Convention of Bacteriologists to be held upon Friday and Saturday, June 21 and 22, 1895, in the Academy of Medicine, New York City.

The Committee of the American Public Health Association appointed to determine the possibility of establishing coöperative investigation into the bacteriology of American waters was from the outset impressed strongly by the fact that the chaos at present existing with regard to the bacteriology of water is essentially due to want of exactitude in the details of research and more especially to the absence of standard and generally accepted methods. The replies received to letters circulated by the committee and addressed to the leading laboratories of the United States and of Canada, have indicated a general concurrence in the views therein expressed and have shown how strong is the consensus of the opinion that the time has come to attempt to establish the methods of systematic bacteriology upon a basis more nearly resembling that of an exact science. The proposal that a conference be held has met with a most willing response on the part not only of those representing State, provincial and municipal boards of health, and connected with the water supplies of large public bodies, but also of those interested in every branch of bacteriology. The fact is fully appreciated that it is in the highest degree desirable that the methods employed by any one worker in any branch of systematic bacteriology should be such as others can be expected also to repeat with precision and should be such as gain the approval of the majority. A satisfactory settlement of the questions given below is conceded by experienced bacteriologists to be necessary for substantial progress in the future, not only in the field of pure bacteriology, but also along those lines in which its application plays a prominent part—in the bacteriology of water, air, soil, milk, etc., and in that of disease. The conference will therefore be an attempt to establish some common ground-plan for systematic work in bacteriology in general, in the bacteriology of American waters in particular.

The committee is authorized to announce at this date that discussion on the points at issue will be opened as follows:

1. What method shall be followed in neutralizing all media, and what standard degrees of reaction shall be adopted?

The discussion upon this and upon questions 3 and 8 will be opened by G. W. Fuller, S.B., Biologist in charge of the Lawrence Experimental Station of the State Board of Health, Massachusetts, who will communicate the results obtained by the committee upon these points.

2. What effects upon species differentiation, are produced by the ordinary differences in composition of peptone, meat juice, gelatine, etc. W. T. Sedgwick, Ph. D., Biologist to the State Board of Health, Massachusetts.

3. What media shall be used for all species differentiation, and how shall they be uniformly prepared?

4. What shall be the medium for and the conditions of, the stock culture from which all media are seeded? E. O. Jordan, Ph. D., University of Chicago.

5. What shall be the systematic detailed method to be followed in observing the results of cultures and the manner of recording them? W. T. Sedgwick, Ph. D.

6. What method shall be adopted by which full benefit may be derived from morphologic characteristics? Dr. T. M.



Cheesman, Laboratory of College of Physicians and Surgeons, New York.

7. What tests shall be used for separating bacteria into clearly marked groups? Wyatt G. Johnston, M.D., Bacteriologist to the Board of Health of the Province of Quebec.

8. What shall be the method followed in determining the relation of bacteria to temperature? Geo. M. Sternberg, Surgeon-General, U. S. A.

9. What special methods are of value in the isolation of pathogenic bacteria in water? A. C. Abbott, M.D., University Laboratory of Hygiene, Philadelphia, Pa.; E. O. Jordan, Ph.D., University of Chicago.

10. What shall be the method of procedure in determining the pathogenesis of bacteria found in water? W. H. Welch, M.D., Johns Hopkins University, and Victor C. Vaughan, M.D., University of Michigan, Ann Arbor.

11. How is variability of species to be regarded? J. G. Adami, M.D., McGill University, Montreal.

12. What new methods can be suggested for the separation of bacteria into groups and for the identification of species? J. J. MacKenzie, Bacteriologist to the Board of Health of the Province of Ontario.

Communications in connection with these subjects have also been promised by several others, including: Thos. B. Carpenter, M.D., Health Department, Buffalo, N. Y.; H. C. Ernest, Harvard Medical School; C. J. Foote, Yale University; H. L. Russell, Agricultural Experiment Station, University of Wisconsin; C. Smart, Major and Surgeon, U. S. Army; E. B. Shuttleworth, University of Trinity College, Toronto.

The full program giving detailed order of proceedings will be issued early in June. The replies already received by the committee have assured us that the bacteriologic departments of many State, provincial and municipal boards of health will be represented at the conference, as also the principal universities of the United States and Canada. The conference will thus be a peculiarly representative assembly of bacteriologists. The importance of the subjects to be discussed leads us to hope that you will be present or be represented by a delegate. The convention will be called to order at 10 A.M., on Friday, June 21.

Yours faithfully,

CHARLES SMART,  
J. GEORGE ADAMI,  
GEORGE W. FULLER,  
WYATT G. JOHNSTON.

## NECROLOGY.

CARL THIERSCH, M.D., the eminent German surgeon, died on the 28th ult. at Leipzig, aged 73 years. He was a native of Bavaria and was educated at the University of Munich, graduating in 1846. He afterward resided successively in Berlin, Vienna and Paris. He was a frequent contributor to the literature of his profession, and the system of skin-grafting which he introduced is now generally adopted by surgeons throughout the world. He also wrote upon maxillary necrosis from phosphorus and upon Listerian methods in surgery.

GEORGE A. PERKINS, M.D., who died in Salem, Mass., on May 18, was a man of mark and of varied experience. He was born in Salem, Oct. 15, 1813, and received his early education in the local schools. When he was 20 years old he engaged as a wood-engraver with a New York publishing house and so continued until 1836. After his return from Africa, whither he went as an Episcopalian missionary, he entered Harvard University Medical Department. He took his degree there in 1844, and soon afterward returned to Fishtown, in West Africa, to serve as a medical missionary. In 1850 he returned to his native town and at the age of 37 began life anew in the pursuit of private practice, and not long after began with others to agitate for the formation of the Salem Hospital. That institution, of which Dr. Perkins was consulting physician at a recent date, was launched in 1874. He was Post Surgeon at Forts Lee and Pickering from December, 1863, to May, 1865, and for a long time physician at the Salem House of Correction and the almshouse. He was

widely known as an expert microscopist and chemist. He was a member of the Salem School Committee for fifteen years, and of the Essex Institute, Massachusetts Medical Society, New England Historical and Genealogical Society, Starr King Lodge of Free Masons, Salem Athenæum, and the Tabernacle Church. He was a member of the original staff of the Salem Hospital.

HENRY JOSEPH HESSE, M.D., formerly a coroner of Kings County, N. Y., died May 19 at his home in Brooklyn in the forty-second year of his age. He was born in New York of German parents, and in 1876 received his degree in medicine from the Long Island College Hospital. He began practice at once in the eastern district of the city of Brooklyn, where he continued during his professional life. The cause of his death was erysipelas, an attack of two weeks' duration followed about a week before death by a pneumonia.

RICHARD DUBOIS TRAVER, M.D., of Troy, N. Y., died suddenly May 17, from a poisonous dose of chloral. It is stated that he mistook the latter drug for Epsom salts, and immediately upon swallowing the solution he recognized that he had made a mistake. He busied himself for some time in his own office consulting his books for an antidote for the poison. He thus lost valuable time, and when it was too late went to the office of a neighboring physician. He there secured help, but it was unavailing, for death ensued not long afterward. He was an alumnus of the St. Louis Medical College in 1864, and of Bellevue College in 1867. He was eminent in his county organizations, having been president of his medical society. He was a member of his State Association and a veteran of the Rebellion, and also served in the 8th United States heavy artillery and the 7th Minnesota Infantry. He was also a prominent Mason. The Doctor was 56 years of age and had resided in Troy about twenty years.

PROF. GUSTAV HIRSCHFELD, of the University of Königsberg, died in Wiesbaden on April 20, after a long and heroic fight with cancer. In the vain hope of obtaining relief he even came to America, and became an inmate of the New York Cancer Hospital for a time. In his great and minute knowledge of Asia Minor and all matters pertaining thereto he was easily without a peer. He was a Jew, gifted with keenness of intellect and charm of manner as are few men. He died in the very prime of manhood.—*The Independent*.

W. MALLET PREVOST, M.D. A press dispatch announces the decease of the above named physician, late of Philadelphia, as having occurred May 13, at Fresnillo, Mexico.

J. F. SIMMONS, M.D., of Houston, Texas, is reported by telegraph to have been fatally shot by Robert Owen. It is stated that the physician was at the house of his assailant, having been summoned there to see a sick child. The assailant also shot his wife, but not fatally; he then committed suicide.

WILLIAM M. THORNTON, M.D., of Boston, Mass., May 23, aged 49.—Robert L. Mintie, M.D., of Chicago, May 21, aged 45.—Mary H. Thompson, M.D., of Chicago, May 21, aged 62.—Ezra Pascal Allen, M.D., of Athens, Pa., May 21, aged 74.—W. L. Blickhan, M.D., of St. Louis, May 20, aged 33, superintendent of the St. Louis City Hospital.—J. D. Carter, M.D., of Knoxville, Tenn., May 19.—Jay Guy Lewis, M.D., of Sparta, Ore., May 12.—S. W. Beck, M.D., of Washington, Ind., May 16, aged 78.—James H. Fore, M.D., of Baltimore, May 16.—Chauncey R. Fairchild, M.D., of Kansas City, Mo., May 16, aged 77.—David Youngman, M.D., of Boston, Mass., May 11, aged 78.—J. J. McManus, M.D., of Rutland, Vt., May 15.—G. S. Butler, M.D., of Edgefield, S. C., April 28.—Fred. Barrett, M.D., of Duluth, May 17.—J. R. Flowers, M.D., of Columbus, Ohio, aged 59.

## PUBLIC HEALTH.

**The Food of the Black Belt.**—The Department of Agriculture at Washington has established a department for research concerning the quality and quantity of food-stuffs consumed by the colored population in the black belt of our Southern States. It is located at the Tuskegee Institute, Tuskegee, Ala.

**Vigilance at Quarantine.**—The *Mexican Prince*, from Rio de Janeiro at New York quarantine May 25, was detained by Health Officer Doty to investigate the cause of death of a passenger during the voyage. The death was presumably due to consumption, but as there is yellow fever at Rio, Dr. Doty deemed it advisable to make careful inquiry.

**The Plague is Quarantinable.**—Under the last Regulations of the Treasury Department the diseases to be quarantined at ports of entry are cholera, yellow fever, typhus, variola, leprosy and the plague. The latter disease is now again rampant at Amoy, China, with fifteen deaths from that cause daily; so that the Pacific coast will have to be on the *qui vive*.

**Making Vaccination Odious.**—If it be true, as reported, that two physicians of the New York City Board of Health recently vaccinated 1,000 children in nine hours, that is a fraction over 18 a minute, the following comment of the Bangor (Me.) *Commercial* is just and timely: "To say that vaccination could be properly performed at this reckless, break-neck rate is simply ridiculous. But possibly these eminent practitioners wanted to give the impression that vaccination is a humbug and did their work with that end in view."

**Janitors' Homes in Public Schools.**—A case of diphtheria having occurred in the family of the janitor of public school No. 89, in a New York City up-town district, the school was closed and 2,000 pupils will take an unexpected vacation. These cases nearly always beget a certain amount of friction between health officers and the Board of Education. The short way out of it seems to be to have the janitors live near by rather than in the school edifice. The loss to the pupils of their enforced exclusion from school privileges, to say nothing of the possibly greater dangers of infection among the little folk, is not easily calculable. It is not infrequently through some species of favoritism that the janitor is crowded into a building—so that he can avoid rent-paying—which was never designed to have a family residence in the lower regions.

**Canned Horse.**—The suggestion in the *JOURNAL* of April 13, concerning the utilization as a food supply of the immense droves of wild horses in Oregon, Washington, Idaho and Montana, has developed the fact that some of the salmon cannery on the Pacific coast had already turned their attention in that direction. One firm has put "canned horse" on the San Francisco market where it has been served in restaurants. The local papers say the flesh resembles beef in appearance, and can not be told from it by taste. "The grain of the flesh is fine, and dozens of people have sampled the canned horse, and are unanimous in pronouncing it good, though there was not one of them but confessed to a prejudice against the eating of horseflesh." Another firm has organized at Portland, Oregon, for canning on a large scale; it has bought 6,000 horses at from \$1 to \$5 apiece and is contracting for great numbers, expecting to supply a palatable, nutritious flesh-food at one-quarter to one-half the price of beef. It only remains for the learned lexicographers to put a name to it; "horseflesh" obviously will not answer; it is too suggestive.

**Another Typhoid Epidemic.**—Out of a population of about forty thousand inhabitants, Lancaster, Pa., had at the close

of May not less than one hundred cases of typhoid fever under treatment, with an average of ten to twelve new cases reported daily. The water supply of the city is obtained from the Conestoga creek, a large stream which courses through the county and which supplies the city reservoirs. It is claimed that the Conestoga is polluted from various sources, so that its waters are a highly favorable culture medium for all forms of pathogenic bacteria. Reports say that the local board of health is using energetic efforts to check the spread of the disease and the State health authorities, who alone have power over the water courses, will take measures to remove the cause of the epidemic. Already there have been several deaths, and some well-known citizens are prostrated by the disease.

**Persistence of Diphtheria Contagion.**—At a recent séance of the Medical Society of the Paris Hospitals, MM. Sevestre and Méry communicated some extremely significant facts showing that the Löffler bacillus may persist in children who have been rapidly cured by the antidiphtheritic serum. This brings up the question, how long is it necessary to isolate diphtheritic children after disappearance of the false membrane and of the symptoms in general? They mention a case in which virulent inoculable bacilli were found forty days after removing the tracheal tube. Other observers have noticed a much longer duration, *e. g.*, Belfanti (*Reforma Medica*) reports a case of contagion after an interval of seven months. A bacteriologic examination is the only means of assuring us of the disappearance of the danger; but while this is easy in hospitals, it is difficult in family practice. We must not insist on too prolonged isolation in families with small means, where the children are numerous and the dwelling small. It seems that fifteen days' isolation after complete disappearance of the false membranes, when there are no more clinical symptoms, and especially when there is no more discharge from the nose, is sufficient. In cases of prolonged virulence for thirty or forty days, while this lasts it is advisable to continue the isolation as well as the irrigation of the mouth and nose.<sup>1</sup>

**Attacking Sanitary Merit.**—The usual biennial fight against Dr. Henry D. Baker, the able and useful Secretary of the Michigan State Board of Health, is on in the General Assembly of that State, and a legislative inquiry into the methods and value of the Board and of its Secretary was recently concluded. The *JOURNAL* is glad to note that the press of the State, generally, take an intelligent view of the situation, the *Detroit Journal* of a recent date characterizing the present attack as instigated by the "personal animus of two disgruntled ex-clerks," and asserting that, while the Board conclusively refuted every important charge, "the investigation has given most humiliating evidence of the ease with which small-minded men, smarting under fancied grievances, can pull the Legislature around by the nose. Dr. Baker declared that one clerk was insubordinate and the other lazy and incompetent. Their attacks on him were relative to small things, which may be found in any public office." In reviewing the work of the Board during the past years, in "stamping out" the communicable diseases and in investigating their causes with the view of finding means of prevention, our lay contemporary says: "The credit for the usefulness of the State Board of Health was very cheerfully accorded to Dr. Baker in a large measure by the present and former members of the Board, who testified before the committee. He is a broad man and has more administrative ability than is usually seen in men of science. He is not yet an old man, and Michigan can not afford to dispense with his services now." To which the *JOURNAL* would add that neither can the country at large nor sanitary interests generally afford to dispense with his services for very many years to come.

<sup>1</sup> *L'Union Medicale*, May 2, 1895.

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, JUNE 8, 1895.

No. 23.

## ORIGINAL ARTICLES.

### HYDROTHERAPY IN FEVERS, ITS RATIONALE AND TECHNIQUE.

Read in the Section on Practice of Medicine, at the Forty-sixth  
Annual Meeting of the American Medical Association, at  
Baltimore, Md., May 7-10, 1895.

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In every febrile condition, whatever its specific cause, there is exhibited a complexity of abnormal physiologic activities, a reaction of the animal system dependent upon the essential properties of protoplasm and nerve energy. The most obvious of these disturbed functions common to all febrile conditions are: increased oxidation, elevation of temperature, increased though still inadequate elimination of waste products, increased frequency and weakened force of the respiratory and cardiac impulses, perverted metabolism and loss in muscular tone and neural vitality.

Heat energy in the healthy body is the result of chemic change in its proteids, fats and carbo-hydrates through processes of oxidation. Welch in his Cartwright Lectures, maintained that the production and dissipation of heat is kept in equilibrium in health by the direct control of a heat-regulating nervous system. He affirms that "fever producing agents act directly or indirectly upon this nervous mechanism which regulates the harmonious relations of heat loss and heat production." In like manner we may conclude that all the disturbances of physiologic functions manifested in the state we call fevers are, in reality, so many symptomatic expressions of a toxic derangement of neural resistance and neural control.

The efficiency of any measure instituted for the treatment of these functional disturbances will depend upon the reliability of our knowledge of the invading causes and the processes by which these disturbances are accomplished. All therapeutics aimed at symptoms or effects instead of seeking to remove or limit these causes where possible, or to reinforce neural resistance and control against them are certainly irrational and may be worse than useless. The search for specific remedies carried on for ages has brought to light but two that approach specific results in fevers. With all our increased knowledge of the special germs which produce each characteristic form of febrile disturbance, we are still unable to expel the invader and, with the exceptions noted above, the relentless warfare is continued until immunity is established on one hand, or, on the other, death ends the conflict. During these ages the battle has been waged against that chief symptom and bugbear, elevated temperature. The patient has been depleted by purgatives and venesection; he has been starved and sweated by turns; the nervous energy of his heart has been depressed by cardiac sedatives to lower his temperature. The introduction of

the coal-tar antipyretics marked the culmination of the antithermic craze. Experience has taught every teachable physician that only harm can come from artificial antipyretics. It has been demonstrated that they impair neural resistance and control, that they obtund nerve sensibility and retard metabolism and the elimination of normal waste and morbid products.

Pyrexia may be considered normal to every febrile disease. Indeed, it may be one of nature's conservative processes in the systemic reaction of protoplasm and nerve energy against the offending infection. It may be a useful ally in combating, limiting or destroying the invading microbe, just as inflammation through processes of reaction throws up its defensive walls to the enemy. If this be true, the normal temperature of any febrile affection can not be interfered with by direct artificial antipyretics without injury to the patient. Normal reduction of temperature must be secondary and a natural sequence to the limitation or removal of the trespassing cause.

The treatment of fevers by the cool bath is as old as the teachings of Hippocrates, and yet so new, by reason of the apathy of the profession and neglected study of its rationale, that even most medical teachers and writers of text-books seem to understand but imperfectly the scope of its physiologic actions and its therapeutic possibilities.

Hydrotherapy properly used in fevers is not hydrophathy, is not a panacea, is not primarily antipyretic, is no longer empiricism. The classical demonstrations of Winternitz, Voit and Schüller in Europe; of Baruch, Draper and Thayer in America, have clearly defined the basis of its physiologic action and placed it in the front rank of rational therapeutics. A brief summary of their investigations shows that the cardinal principles of the physiologic action of the cold bath in fevers depend:

1. On the physical properties, thermic and mechanical, of water itself acting directly as neural stimulants. Water absorbs heat and parts with it quickly. It may be applied in solid, liquid or gaseous form to the whole body or any part of it. Its application may be continuous or intermittent, alternating from hot to cold, or modified by any desired temperature or pressure. In short, we have always at command a most flexible agent with which to meet a wide range of indications.

2. On the susceptibility of the sympathetic nervous system to these stimulants and its control over the vascular and glandular organs of the body. This stimulative action takes place primarily on the cutaneous surface. The skin is a threefold organ, at once the richest in sensory nerves, the greatest in vascular expansion, and the largest in glandular supply of all the organs of the body. What a field for therapeutic operation! How easy of access and how

quick to respond! Every physician has noted the effects of the rapidly alternating cold and hot bath in resuscitating the asphyxiated newborn babe. No harm results to the delicate infant; no one charges cruelty when these extremes of thermic effects are thus employed. In syncope what can bring the flush to the pallid cheeks and reestablish respiration so quickly as a stimulating dash of cold water upon the face? In hysterical paroxysms how quickly the explosions of an unstable nervous condition give way to perfect control through tonicity imparted by the same mechanical and thermic effects of water. We need not multiply instances to show that the stimulating properties of water, appropriately used, are responded to by prompt and definite physiologic activities.

3. On the reflex action of the stimulated nerve centers, on (a), respiration; (b), circulation; (c), metabolism; (d), elimination; and (e), pyrexia.

(a.) Stimulation of respiratory centers is the first and immediate reflex action from the application of cold water to the cutaneous surfaces. Deep spasmodic inhalations take place and improved oxygenation of the blood is at once manifest.

(b.) Circulation is quickened by reaction on the cutaneous vascular system, which is heightened by friction. In this way the relaxed capillaries are given muscular tone and are successively emptied and filled by cutaneous massage. The impulses thus set up are conveyed throughout the whole vascular system, relieving stasis and organic congestion, and in conjunction with improved respiration stimulate the cardiac centers and a slower, steadier strengthened impulse of the heart is definitely established. The effect on the circulating medium itself is still more wonderful. Winternitz, at the International Congress at Rome last spring, gave the results of some recent investigations of thermic effects on the composition of the blood in health. He demonstrated that all applications of cold to the entire or greater portion of the surface of the body, when proper reaction was secured, led to three remarkable results, viz., an increase in the number of leucocytes, an increase in the percentage of hemoglobin and an increase in the specific gravity of the blood. Local applications of cold, followed by reaction, accomplished the same results in the local blood supply. This affords us now for the first time a rational instead of empirical basis for the employment of cold compresses and poultices.

Thayer, of Johns Hopkins, has shown that blood drawn from the lobe of the ear of a typhoid fever patient after a Brandt bath, had three times the number of leucocytes as blood drawn from the same source just previous to the bath. It is not credible that so great an increase in the number of leucocytes can take place by reproduction in so short a time, but it is probably accounted for by the increased activity of the circulation, under the stimulus of cold and friction which sweeps them from out-of-the-way places into the quickened circulation. (Baruch).

(c.) Metabolism, both constructive and destructive, is greatly promoted. This is a natural sequence of the improved blood supply carried to the glands and tissues. Schwann first employed the term to express the changes wrought by living cells upon substances coming in contact with them. This is constructive through nutrition and destructive through tissue change. The action of the leucocytes, may be

considered a form of destructive metabolism and takes place in the blood, glands or tissues wherever the toxins and microbes of fevers are found. The investigations of Vaughn and others show that the antitoxic and antiseptic effects of the blood are due to leucocytes and their nucleins derived from their cell contents. When leucocytosis was increased the antiseptic and antitoxic power of the blood was also increased. If, then, it is established that cold baths, under proper reaction, increase these leucocytes in the circulation even to threefold, then the destruction of microbial products must be wonderfully increased.

(d.) Elimination of toxic products through the emunctories is increased by the improved functional activity of all of these organs, as a result of increased pressure, and improved blood supply. Juergensen demonstrated that the specific gravity of the urine was increased after the cold baths through increase of urea. Roque and Weil demonstrated that the toxicity of the urine was increased sixfold after the Brandt baths in typhoid fever, while by the expectant plan of treatment it was only twofold, and when antipyretics of the coal tar series were used it was the same as or even less than that of normal urine. Liebermeister and Voit showed that cold baths in fevers greatly increased the elimination of carbon-dioxid by the lungs.

(e.) Pyrexia is a symptomatic expression of a toxic derangement of neural resistance and control. When the nerve centers begin to recover from the profound intoxication which has disturbed neurotic equilibrium, abnormal temperature begins to subside. Heat reduction, therefore, is a resultant of the combined effects of the cold baths on respiration, circulation, metabolism and elimination. It begins to approach the normal status in direct proportion to improvement in these physiologic processes, and is secondary and incidental to them. Nor is heat reduction due in any considerable degree to heat abstraction. If it were so the temperature would begin to rise again as soon as the cold applications were discontinued. On the contrary, I have observed time and again that the temperature continues to fall until it reaches the lowest point in one to one and a half hours after removal from the Brandt bath, in typhoid fever. By repeating the bath *pro renata*, as indicated by the toxic effects on the general condition of the patient, to which the temperature alone is not always an infallible guide, we can more safely and definitely enhance the resistance of vital forces against toxic agencies and promote their elimination than by any known symptomatic drug treatment. As the surgeon gives free and open drainage to the products of infection in a septic cavity so may the physician, by cold baths with reaction, favor the physiologic drainage of toxins from a body charged with thermogenic poisons. It is a mistake, and a generally prevalent one also for which our text-books are largely at fault, to regard the cold water treatment of fevers, especially that of Brandt in typhoid as an antipyretic measure chiefly. Hence resort is had to less troublesome but more dangerous means of reducing temperature. Pepper's System of Medicine, vol. 1, p. 327, says concerning the various applications of cold water in typhoid fever: "They all act in the same manner and depend for their efficacy upon their power of abstracting heat from the body and are useful just in proportion as they do this."<sup>1</sup>

<sup>1</sup> Pepper, Vol. 1, pp. 117-118, last edition, 1893: Undoubtedly, one of



Nothing can be more misleading. Brandt, who published his paper on "Hydrotherapy in Typhoid Fever," in 1861, made no such claim for his treatment. He attributed its benefits to the stimulative effects primarily with fall of temperature as a secondary result. Heat reduction in continued fevers *per se* is of little practical value. It is not heat but poison which is the disturbing element. Heat is a symptom, one of the effects of the operating toxemia. Heat reduction in itself can not eliminate toxins or destroy microbes, and all therapeutic measures used for antipyretic effects which do not limit or remove disturbing causes, are both unscientific and absolutely dangerous. Experiments just cited prove that artificial antipyretics are worse than useless, in that they retard toxin elimination.

Upon these deductions rest the claims of hydrotherapy as a rational and scientific treatment in fevers. If we have rightly interpreted the physiologic activities which are stimulated by the appropriate thermic and mechanical effects of water, then we have at hand an agent universally adaptable to the treatment of all thermogenic diseases. No known drug remedy can so quickly and definitely influence the functional activities of living cells in nerve, gland or muscle, or protoplasm itself, as water when appropriately used in fevers.

If clinical experience is the highest court of appeal in all therapeutic questions surely the evidence is overwhelming, and the medical profession of America must stand convinced of its truths, and convicted for its apathy towards so great a life saving measure. It is not the province of this paper to give the clinical evidences, statistics and opinions of eminent men who have had large experience with hydrotherapy in fevers. We refer to the latest editions of Strümpel, Hare, Osler and that most excellent little book, "Uses of Water in Modern Medicine" by Simon Baruch.

It is sufficient to say that in over one hundred thousand tabulated cases of expectant treatment of typhoid in hospitals, the mortality has been 21.8 per cent. With mixed treatment consisting of medicines and the cold bath, more or less fully carried out, the percentage of mortality has decreased just in proportion as efficient bath treatment predominated. Under strict cold bathing alone, in over three thousand cases a mortality is recorded of 1.8 per cent. Brandt reports 2,150 cases where this treatment was begun before the fifth day, without a single death.

It is conclusive that the earlier this treatment is instituted the more favorable the results. My own practice is not to wait for a diagnosis but to institute some appropriate bath for all fever patients at once. Nothing but good can come of it, no matter what the diagnosis, and in the event of typhoid everything is to be gained. Where the life of the patient is in jeopardy no unavoidable risks can be taken by the attendant, without censure.

#### TECHNIQUE.

The technique of hydrotherapy in fevers has been fully described and illustrated by the authors just cited, but apparent difficulty in carrying out proper measures in general practice has led the majority of

the most important indications which must be met in the great majority of cases of typhoid fever is that for reduction of temperature. A large proportion of this mortality (in typhoid) comes directly or indirectly from the baleful influences of the pyrexia. The only way in which this can be met safely and effectually is by the external use of cold water.

Flint: Of all therapeutic measures those directed toward the reduction of the fever take the first rank. Pp. 929, edition 1894.

the profession to believe it practicable in hospitals only. Accordingly halfway measures, like ablutions, spongings and cool packs are substituted. Measures which in no way meet the indications of the full bath. Others ignore bathing in any efficient form and still adhere to the expectant plan or to symptomatic medical treatment, with indifference to the old-time mortality.

The most efficient of all hydrotherapeutic measures



Fig. 1.—Frame folded.

in the treatment of fevers is the full bath. There are certain obstacles in the way of putting it into practical use, chief of which are:

1. Entire absence of, or imperfect facilities in, the home for giving the full bath.
2. Dangers and annoyance to the patient, from handling to and from the tub, in another room, or even at the bedside.
3. The exhaustive labor imposed on attendants.
4. The objections and prejudices of patient and friends to the discomfort of the plan as ordinarily carried out.

To overcome these by no means trifling objections



Fig. 2.—Frame open.

I have devised a portable folding tub for use in the bed of the patient, which I believe will commend itself at once for the ease with which it may be employed under all circumstances with the utmost comfort to the patient and attendants and prove a valuable addition to the technique of cold baths in fevers. It consists first, of a large rubber sheet with rings attached by elastic tapes near its margins; and of a crib-like wooden frame with fastenings along the outside of the lower rail, to hold the sheet when in use. This frame can be folded into a space two by three inches by eight feet long when not in use. The accessories are a three-quarter inch hose with a metal elbow for a siphon, a bath thermometer and a sponge of good size.



Fig. 3.—Tub complete, with siphon in operation.

In use, the sheet is first slipped under the patient and brought up over the pillow, and its edges tucked up alongside the body. The frame is then unfolded and placed down over the patient, pillow, rubber sheet and all. The edges of the sheet are now drawn up over the top rail of the crib and down the outside to the lower rail where it is held fast by its rings. This completes a light and perfect tub capable of holding twenty gallons of water, if desired, and capable of being emptied quickly by the large siphon.

The bath is now initiated with the patient resting

comfortably on his own mattress and pillow, with but slight disturbance. Any gradation of temperature from 90 degrees down to 65 degrees may be employed, or changed rapidly or slowly as desired, while friction over the entire body by constant rubbing is practiced for ten or fifteen minutes. The bath completed, the water is siphoned into tubs or buckets on the floor. Any excess is sponged up, the edges of the sheet are then unfastened and dropped inside the frame, which is lifted, folded and set away. The sheet may be slipped from under the patient or remain at will, with fresh linen over it, for the next bath.

The many advantages derived from this simple and comparatively inexpensive tub are so evident as to require no enumeration. Spongings or ablutions, however well done, can not take the place of tubbing. They are feeble substitutes and fall short of the chief effects of the full bath, viz.: the greater reflex stimulation with corresponding sequelæ engendered by the contact of cold water over the entire cutaneous surface. Cold packs preclude the constant chafing and friction over the whole body which is an essential feature of the full bath to maintain tonic reaction of the cutaneous circulation. These less rigorous methods, however, may serve to educate the patient in the beginning and lead up to the more effective full bath.

If one chooses to employ the graduated bath of Ziemssen, which consists in gradually reducing the temperature from 90 degrees to 72 degrees for half an hour with gentle friction, a plan much in favor at the Tübingen University clinics, or the prolonged warm bath of Dr. L. Riess of Berlin, which consists in immersing the patient in a bath at 88 degrees whenever rectal temperature reaches 102 degrees and continued through the day, or day and night if necessary, till temperature in rectum registers 100 degrees, then the comforts and utility of the tub here presented are still more manifest.

The day is at hand when the therapeutic resources of water no longer dictated by empiricism, but placed on a firm and rational basis should be mastered by every conscientious practitioner of the healing art. Until specific medications have become established, we must yield to the claims of one of its early apostles: "Febrifugum Magnum, or Common Water, the Best Cure for all Fevers." (Dr. Hancock, Lothbury, Eng., 1723).

#### DISCUSSION.

DR. DAVIS—I have been for a number of years a very hearty advocate for the use of the cold bath in typhoid fever. I do not believe, however, that it in any degree shortens the course of typhoid fever, but it does make the fever very much less dangerous, and contributes to the patient's comfort. It seems probable that the typhoid state, so-called, is the result of perverted metabolism. It therefore appears likely from the results that we get clinically by the use of cold baths that by their employment we are treating more the typhoid state than we are the typhoid infection. Hence we get a decided change in the appearance of our patients by the use of the cold bath. They lose the mental dullness, particularly if the bathing is begun very early, and we find our patients remaining cool-headed, with tongue and mouth moist; and there is an excretion of a moderate quantity of urine of a fair specific gravity. In regard to this apparatus, it is extremely convenient, without any question whatever, and deserves a very general and large use. For more than a dozen years I have constantly employed a rubber sheet, used as in this instance, placed under the patient lying in bed, and drawn well up over the pillow, and then water is applied with large sponges, so that a quantity accumulates around the patient. Dr. Burr's apparatus, however, makes it possible to give the full bath with just as little inconvenience as the method I have described.

DR. BORDER of Pittsburg, Pa.—In one of the principal hospitals in Pittsburg we have made use of the cold bath treatment, and clinical reports are very favorable. However, there is a fact in the use of water that has not been touched on prominently, and that is the increased secretion of the skin, the most important of the three great excretory organs, the bowels, kidneys and skin. The bowels may be constipated for three, four or five weeks. I have known myself of a young woman who did not have a movement of her bowels for over three weeks, without any difficulty other than a slight tendency to drowsiness during the day. We are all aware that the entire suppression of the urine will result in death, in the majority of instances, in less than twenty-four hours. I think we are also all aware that the entire suppression of the functions of the skin causes death in the majority of cases within three hours. I think, then, in the use of the cold bath we lose sight of the importance of this, the most important of the three excretory channels.

DR. WEBSTER—May I ask the speaker what evidence there is to support his statement that if the secretion of the skin is suppressed for three hours death ensues?

DR. BORDER—I am not certain that I can recite precisely the experiments that these conclusions are based upon. I think the statement came from Rome, Italy, many years ago, where several small boys, I think 4 or 5 years of age, were covered with gold leaf, and placed in a procession to go around the city for one or two hours. Before the gold leaf could be removed from one apparently healthy child he had died.

DR. STOCKTON—The important matter seems to be the therapeutic use of cold baths in the treatment of fevers, as compared with other methods of treatment. Two years ago, in the meeting of this Section in Milwaukee, this matter of the treatment of typhoid fever by cold water was before the Section, and I for one greatly regretted to see how many men of prominence throughout this country opposed the treatment; 1, because it was inconvenient; 2, because it was unnecessary; and 3, because it was dangerous to their patients. It seems to me that it has been shown to-day that it is unobjectionable, and I think the experience of two years has confirmed the views of those of us who stood for cold bathing.

DR. SUMMERS, N. Y.—I desire to thank Dr. Burr for his ingenious contrivance, which I shall try to avail myself of, and also wish to express the desire that others will speak for the cold bath, so that it may be used in small communities as well as in large hospitals. At that meeting in Milwaukee, you will remember that Dr. Christian Sihler, of Cleveland, spoke of his experience in the use of the cold bath treatment in the houses of the poor in the city.

DR. S. SOLIS-COHEN—I rise to congratulate the reader of the paper upon having made more possible the use of cold water in private houses, in small towns, as was just said. My first experience with the use of water in typhoid fever began when as a student I went through the wards of the German Hospital of Philadelphia, in which the cold bath treatment of typhoid fever was carried out, though not with the rigor of the Brandt method; it was only applied in suitable cases, when thought to be necessary, and not with the thorough system laid down by Brandt. The experiences there gained convinced me thoroughly of the utility of the treatment, and ever since I have been practicing medicine I have used cold water in the treatment of typhoid and other fevers with ever increasing success. Some time ago a student of the University of Pennsylvania, Mr. Boston, devised an apparatus upon the same principle as that shown here to-day, which I tried to employ in two cases. It was not as perfect in its details as this; a heavier rubber was used, because such a sheet as shown here to-day was not possible. The great objection to that, instead of the full bath, seemed to be at variance with the experience related by Dr. Davis. The gathering of a small pool of water around the patient, instead of the full plunge at once into the bath, seemed not to be advantageous, and so, although I have continued to use this device in certain cases where immersion at once into the full bath was not practical, I am fully convinced that it is not equal to it. The reduction of temperature by bathing is only an incident to the treatment; it is the effect, not merely of the abstraction of heat, but of the removal of causes of pathogenic heat production.

DR. TURCK—Not only are we indebted to Dr. Burr for the ingenious contrivance, but also for presenting to this Society the various facts elaborated that are known up to recent times of the effect on the circulation, upon the number of leucocytes, and also the effect that it has in elimination. There is another point to be emphasized, namely, the restora-

tion of the equilibrium of circulation. We are not all dealing with typhoid fever, but how frequently we are dealing with cases of passive congestion of the viscera. When we remember that a few vessels can contain all the blood of the body we can realize how readily this passive congestion can affect the metabolism of the body.

DR. PERTIJOHN—While I commend heartily the explanation of the use of this apparatus, it seems to me a little mixed in the effects that we produce therefrom. If we want to produce lower temperature, the cool water must be continually applied, and the effect produced is not from the cold application, but from the evaporation of the water on the body. So if you pour water on one part and then on another, you heat it unequally, and therefore I maintain that the general sponge bath, or keeping the surface of the body wet for a length of time is very efficacious in cooling the surface. Provided you have congestion of the internal organs, and desire to establish an equilibrium on the surface of the body, the application of cold, like a plunge bath, will at first contract the vasomotor system of the skin, and then the patient will react and the skin become red. So you must produce not only evaporation but an even temperature of cold. If our patients have not a bath tub in their houses, we can do a vast deal toward handling the surface of the body, and the establishment of the surface circulation, by simple continuous sponging. If you want to produce evaporation, put a thin cloth over the body, and sprinkle water over it.

DR. ROCHESTER—I think the last speaker is forgetting what the water is for; it is not simply for reducing the temperature, as was carefully stated by Dr. Burr in his paper. We want to know the tonic effect of the cold bath on the nervous system of the patient; that is the chief effect, and that is the point we should bear in mind. Moreover, as far as the excretions of the skin are concerned, some of the speakers seemed to forget the matter of friction, which is most important. It is not simply the reduction of temperature, but the effect upon the nervous system, and the friction plays a prominent part in this.

DR. JAMES TYSON, of Philadelphia—I want to say that from quite a large experience I feel with others here that every effort should be made by those who have experience to impress upon those to whom it is a somewhat inconvenient measure that under all circumstances, cold bathing should be used in the treatment of fever. The fact that it does give a good deal of inconvenience, and is a severe task upon the attendants and assistants. I think is very decidedly obviated by this apparatus. The use of the bath in the treatment of typhoid fever we do not exactly understand, nor do we understand its exact rationale. It is very interesting to hear from Dr. Burr as to the various explanations of the way in which it may operate. The fact is, however, that although we are all ready to admit that it is not the temperature that we particularly desire to combat, still there is something which goes with the high temperature—whatever it is—and the high temperature is the index, and with its reduction goes the danger from this particular source. I think it is desirable that we should not lose sight of the fact that it is not an invariable cure. I have myself lost cases, particularly those which terminated in perforation and in hemorrhage, which seemed not to have been reached in my experience. I think Brandt says of the treatment, that even in ulceration and hemorrhage, danger is averted if the treatment is begun sufficiently early. This is a fact of importance, which coöperates with what Dr. Burr has said as to using it, even where the diagnosis is uncertain. Therefore, I think if there is any truth in what Brandt says, that we ought not to wait for diagnosis before this treatment is made use of. As to the effects of sponging as contrasted with the cold bath, there is no doubt that the gentleman who last spoke is exactly right in what he says of the effect of evaporation in the cooling of the body, and that in sponging properly to secure this we get the best effects. I have so often contrasted the effects of sponging carried out in the most careful and scientific manner, and the difference between that and the cold bath is so utterly trifling that even nurses say that it is like wasting one's time to administer the sponge bath when the plunge bath is available. If the plunge bath is not available, we should have recourse to sponging.

DR. HOLLISTER—I would like to inquire of Dr. Tyson his experience or his judgment of the use of the bath in scarlet fever.

DR. TYSON—I have no experience.

DR. J. M. ANDERS, Philadelphia—An article such as we have just listened to is certainly most refreshing, because

while rational criticism, which is always allowable, has dominated the clinician in the treatment of typhoid fever in the past, we have to-day an effort made to furnish experimental data to show how the cold bath treatment should be used and how it does good. It is an evidence of the fact that the scientific element of the profession have formed a procession, which is moving steadily in the direction of the treatment of the cause rather than the effect of pathologic processes—an evidence of great progress. It occurs to me that a paper on the subject of the treatment of typhoid by cold baths must be incomplete without reference to contraindications. I do not wish to make any unfavorable criticism upon the paper, as it is impossible to bring out all the points in a single article upon the subject. To my mind, it is highly important, once hemorrhage has occurred, that the Brandt method should be omitted for a time. After hemorrhage has taken place, the danger of its recurrence is made much greater by removal of the patient to the bath.

DR. SYKES, of Ohio—I have listened to the paper with a great deal of interest, and have no doubt that the method carried out is a good one. Physicians who are practicing in small communities, however, can not always get one of these tubs in time, but there is no town where you can not obtain some of the common oil cloth that is used for covering tables. This might be procured and the patient placed on a low, old-fashioned bedstead, and the oil cloth used as a quite effective substitute for Dr. Burr's apparatus.

DR. HOFF, of Ohio—I have treated typhoid fever very successfully, using shower baths and sponging all over the body, also, when necessary, flushing the bowel with cold water injections. I am rather surprised to think that cold water has not been so generally used, because I used it for almost my first case of typhoid fever, some forty years since, and I can recommend it to the profession. It is an old treatment, and a rational one, and something everybody should employ in typhoid fever.

DR. BURR—It is a matter of gratification to me to see the interest taken in the discussion of this paper. It will be impossible to note in detail the comments made for and against this method of treatment. I will refer principally to two or three points. Dr. Davis is right in his opinion about the shortening of the term of typhoid fever. Brandt did not make such a claim for the treatment. The great claim is that it does *modify* the fever in various ways. The systematic carrying out of baths in typhoid fever, begun at an early date changes the whole clinical aspect of the case. Some have claimed that this treatment increases liability to hemorrhage. Liebermeister, who has had experience enough to give him some authority, distinctly controverts that. Out of 861 cases without cold bathing there was 8.4 per cent. of hemorrhages of the intestines; out of 882 with the cold baths the number of hemorrhages was 6.2 per cent.; a difference of 2.2 per cent. in favor of the cold baths. One gentleman does not seem to understand that the reaction is kept up during the whole fifteen minutes by successively emptying and filling the cutaneous blood vessels by gentle friction over the whole body. There would be a great risk in putting the patient in that tub of cold water without friction. Drs. Stockton and Summers referred to a paper read in Milwaukee. I want to say that the paper of Dr. Sihler, of Cleveland, in which he showed that this method was practicable in the poorest of practice, was what inspired me to get up something more convenient to be carried about and used than the ordinary tube. Another thing: with regard to the urine, the patients will frequently urinate in the bath, and keep up an increase in quantity. This treatment is one of the greatest stimulants to the action of the kidneys that can be given.

## IRREGULAR OR ATYPICAL GOUT—HOW SHALL WE KNOW IT?

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY JAMES TYSON, M.D.

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It has always seemed to me that if the department of medicine as contrasted with surgery is to make advances, it must be by the application of accurate methods. This is equally true of nomenclature as of clinical investigation. In no subject in medicine has there been greater looseness in the application of

terms than in that of gout, and in some recent studies of this interesting subject I have been so impressed with this fact that it occurred to me it might be worth while to attempt to formulate, briefly, criteria by which to judge of the presence of gout in its more irregular forms, with regard to which alone as contrasted with regular or typical gout the confusion really exists.

While many theories have been advanced and many experiments performed with a view to explaining the method of its accumulation, all pathologists agree that the fundamental condition of gout is an excess of uric acid in the blood. The shape in which uric acid exists normally in the blood has commonly been considered to be that of an acid salt, the biurate chiefly of sodium, also the chief constituent of gouty tophi. Recently, Sir Wm. Roberts has attempted to show with apparent success that it is the quadriurate, a salt shown by Bence Jones many years ago to be the principal constituent of the so-called amorphous uric sediment. In this compound, four equivalents of acid are combined with one of soda. It is nearly agreed to, that the local symptoms of gout are the result of an irritation produced by local deposits of the acid salt in the affected tissue. Under certain abnormal conditions the normal quadriurate splits up into biurate and uric acid; the latter being eliminated by the kidneys, while the former remains in the blood until deposited; or the quadriurate may be transformed in the blood into biurate which may be deposited in different parts of the body. But, while uric acid deposits in the joints and elsewhere are commonly the cause of attacks of pain, this is not always the case. Tophaceous deposits are by no means always painful. Hence some, and notably, Pfeifer who has lately done much experimental work bearing on the subject believes it is the uric acid in solution and not when deposited which causes the attack of gout.

In true or typical gout we have a definite morbid state, the tendency to which is commonly inherited, but which may also be acquired, and corresponding to this set of definite symptoms. These may also manifest themselves in an irregular manner and degree, constituting the irregular forms of gout. Among these, however, are constantly being included complexes of symptoms which are erroneously ascribed to gout, and it is with a view to point out and discourage such erroneous association that I have written the present paper.

It is more particularly irregular gout, under which are included certain ailments not legitimately ascribable to it. This is not surprising when it is remembered that there is scarcely a form of visceral or external pain, functional or organic derangement which has not been by some one or other declared to be gouty in origin—often, indeed, with reason and propriety. It becomes, therefore, extremely important that we should elect some data on which to base a decision, and the more so since gout is growing in frequency in this country.

First as to irregular gout whose existence has been acknowledged by all authorities on gout from the time of Sydenham down to the present day. What is it? A leading authority of the present day, perhaps the leading authority, Sir Dyce Duckworth says: "Gout manifesting itself anywhere but in a joint is to be considered irregular or incomplete." He says further: "Such phases of the disease may be anom-

alous, but they are very common, and as such are so far regular as to comprehend a number of ailments which pertain chiefly and in some cases exclusively to persons of gouty heritage and diathesis." Also: "Without doubt many morbid states have often been flippantly or erroneously set down to irregular gout which own no such designation, and thus a cloak for ignorance has always been at hand to throw over careless observation, ignorance or willful misinterpretation of symptoms." Both sentences last quoted sound very well, but when we attempt to look up the number of ailments "which pertain chiefly and in some cases exclusively to persons of gouty heritage and diathesis" they are hard to find, especially when we are informed by the same authority that the absence of tophaceous deposits, or of the history of an attack in a big toe, or of heredity, or of personal history, calculated to promote gout, does not necessarily exclude the ailments from the category of gout. And further "that it is just in cases where no marked coarse objective signs of gout exist that we should look for the presence of the minor tokens of the affection, and just in such cases that we commonly find them." These statements are so contradictory that it is plain that nothing can be deduced from them. I propose briefly to point out certain conditions under which ailments may be legitimately regarded as gouty, and though ailments truly gouty may sometimes be excluded by reason of absence of such conditions these must be very few. It is to be remembered that we are speaking of irregular gout, for regular gout is easily recognized by definite symptoms which it is not my purpose to allude to.

It is in place, however, to name some of these ailments. They include first in the words of another acknowledged modern authority on gout, Sir Prescott Hewitt: "Dyspepsia, more or less troublesome; frequent deposits of lithates; slight eczematous eruptions from time to time; anomalous pains in various muscles; sharp deep-seated pain in the tongue, existing for two or three days and then disappearing altogether for a while; crackling about the cervical spine on slight movements, more or less; sometimes a mere suspicion of knottiness about the smaller joints of the fingers." The muscular pains may be anywhere and "flying" in nature, but the muscles of the back of the neck, the lumbar muscles, the adductors of the thigh and gastrocnemii are especially liable. The pains are apt to come on in the night and are bad in the morning on awaking, but improve as the day advances. In addition may be mentioned articular pain, nodosities and deformities about the finger joints of other than tophaceous composition. From these are to be excluded, except in very rare instances, Heberden's nodosities which are not usually of gouty origin but belong to rheumatoid arthritis which is distinctly not a form of gout—although unfortunately also called rheumatic gout. Among them are, however, certain vesicular eminences on top of Heberden's nodosities described by Paget and Garrod.

In the same category are included headache of every variety including migraine; tingling and pain in the palms of the hands and soles of the feet and heels, and tendo-Achillis; also follicular inflammation especially about the end of the nose, scleritis, keratitis and conjunctivitis with white spots (tophaceous) in the cornea and eyelids. Asthma, bronchitis, tonsillitis and pharyngitis, dryness of the mouth and tongue are considered the result of gout. Then there



are the various skin affections, also gastric pain, flatulent colic, urethritis, orchitis, prostatitis and cystitis with hemorrhage into the bladder in men, and ovaritis, metritis, dysmenorrhea in women, as well as meningitis, neuritis, endarteritis and the whole category of affections known as visceral and retrocedent or metastatic gout, including gout of the stomach and heart and cerebral gout or *apoplexia arthritica*. Various psychopathia including irritability of temper and capriciousness, especially melancholia with suicidal tendency, insomnia—all of these are at times of gouty origin. In fact, as already stated, there is scarcely a single ailment which has not been ascribed to gout. I will only allude further in this place to one of these symptoms of undoubted gouty origin the nature of which is often overlooked and that is hemorrhage into the bladder. I have known a medical man given up by his attendants as hopelessly ill from malignant disease of the bladder, which was filled with blood, simply the result of gouty hemorrhage, as proved by autopsy several years later.

In view of these facts, does it not seem necessary to establish some criteria whence we may judge whether the ailments mentioned which so evidently arise from many causes, are due to gout or not? Casting about for such, it has seemed to me that the following conditions may at least serve as a guide to aid one in determining the etiologic relations inquired after:

It is plain, first of all, that if uricacidemia can be demonstrated to be present it may be regarded as strong presumptive evidence that any one of these events is gouty. Unfortunately it is rarely possible to test this fundamental condition of gout, because of the want of the special skill and apparatus necessary for the purpose. For it is to be remembered that uric acid deposits in the urine are no criterion of the quantity of uric acid in the blood. This can only be determined by blood analysis.

2. The supervention of an attack of regular gout simultaneously with subsidence of some one of the ailments named, or an alternation of any one of these with regular gout. This is one of the most valuable criteria, which may be regarded as almost conclusive, let the ailment be almost what it may. One need not go far to find many remarkable instances.

3. The history of previous attacks of regular gout. This must be taken in connection with the absence or presence of other causes capable of producing the same ailment.

4. The presence of traceable hereditary tendency to gout. This has a value similar to the preceding, and must be similarly considered.

5. The history of exposure to lead poisoning or other symptoms of plumbism. The association of plumbism with gout or saturnine gout as it is called, is one of the most interesting features in the history of gout. It is undoubted although the frequency varies greatly in different countries. Thus in France, Germany, Ireland and Scotland it is rare, while in England, especially in London, it is common.

6. The history of a habit or mode of life which furnishes the conditions of acquired gout.

7. The constant presence of a high-colored scanty urine of high specific gravity with a tendency to lateritious sediments and uric acid gravel. It does not often happen that gout and gravel coexist. More frequently they alternate, the passage of gravel ceasing with the appearance of gout, and *vice versa*, and

the supervention of any of the ailments named on an attack of uric acid gravel makes it seem reasonable that such ailment may be of gouty nature.

Now it is well known that these phenomena of lateritious sediments and scanty urine are a part of the lithemic state, and the question of the relation of gout to lithemia suggests itself at this point. It is also well known that in addition to the characteristics of the urine just mentioned there is a commonness of other symptoms. The headache, migraine, depression of spirits, shooting pains, cramps, palpitation and vertigo which characterize gout are a part of the symptomatology of lithemia. Nay, more; the same causes which lead to one lead to the other. Free living in the broadest sense of the term, including the luxury of habit which is associated with the possession of wealth, is the cause of both, but while a similar train of symptoms exists in both the resemblance stops at the joint affection. In lithemia there are no tophaceous deposits. If there are, the lithemia has become gout, an event which sometimes comes to pass. Why is it then that one man acquires lithemia and another gout under the same mode of living? The answer, it seems to me, must be that the lithemic person is not really gouty; that is, does not possess the inherent tendency which favors the development of gout. It is well known that lithemia is a common disease among Americans while the English of all people are most subject to gout. The American, as a rule, is not yet gouty. On the other hand, the American is rapidly becoming gouty. I find the number of gouty cases in my own practice increasing, and they include the grand-children and children of those who have not been gouty, but who were poor and had to work hard. I also find among them the children of families where there has been gout, but where it has been kept in abeyance for a generation or more by the same causes.

8. The presence of glycosuria in association with gout, or in alternation with it, or in certain members of gouty families is an undoubted fact, and establishes a very close relation between these two conditions. I have nothing to do here with the question as to whether such glycosuria should be called true diabetes mellitus or not. It may be mentioned, however, in passing that the cardinal symptoms of diabetes, thirst and polyuria are often wanting and that such cases of glycosuria are the easiest of all to control. Such glycosuria may alternate with uric acid sediments or may be associated with them, and its presence should always suggest a suspicion of gouty nature to a concurrent or alternating ailment.

To a much less degree the presence of chronic interstitial nephritis, which I believe is always sooner or later the fate of the victim of gout, should also receive consideration.

10. Finally, here as in so many other cases, therapeutics comes into play as a factor in determining the nature of an ailment. Should such be relieved by the typical treatment for a gouty paroxysm, its gouty nature may be regarded as established.

Thus it will be seen that there are a number of data which may help us to a correct diagnosis, and that random guesses are not necessary in the majority of cases. It is true that a conclusion can not always be arrived at with promptness, and a careful and even prolonged study may be necessary before such conclusion is justified, but I hold that in the

vast majority of instances it can be made, and that there is no excuse for the carelessness so often practiced.

## DISCUSSION.

DR. ANDERS—I can not forbear saying a few words on an interesting paper like Dr. Tyson's. What I wish particularly to call attention to is the fact that Dr. Tyson has distinguished clearly between what has been called since Richardson's time, latent gout or lithemia. I am particularly pleased to hear that differentiation made, and I do not think it can be made too often. I would go a little further, and say that I do not think that lithemia necessarily leads to gout at all. That we have the uric acid state in lithemia is undoubted, and that we have the symptoms that closely resemble gout is undoubted, but that there is any distinct relation between the two in the matter of tendency I have great doubt. The diagnosis can, I believe, be made from lithemia without much difficulty.

DR. HERRICK, of Cleveland—I have enjoyed the paper very much. Barber has published a work in which he indulges in very nearly the same view. I also rise to the point of the terminology of the disease. It should not be regarded as atypical. Gout is a term not expressive of any particular phase of trouble. What we desire to express is the departure from the normal, and also looking to its source. The author to whom I refer speaks of its source as the digestive tract. I think we will all agree in the opinion that the disease is one referable to disturbance of the digestive tract, or to excesses of food, or general hygienic conditions of that character; deficiency of exercise, with much indulgence in nitrogenous food and alcoholics. It seems to me that we have large hopes in the line of investigation of this class of difficulties, because as the paper says, there are multiple evidences affecting different parts of the body.

DR. ANDERS—I rise to obtain information from Dr. Tyson. It was mentioned by him that one of the main factors for diagnosis was the history of heredity, and in that I fully concur. I have also observed that gout is markedly hereditary in the families of the poor as well as in those in the opposite condition of life. My observation teaches that it is much more hereditary through the female than the male, and in this I am not alone. I should like to hear an opinion on this point from one who has seen so much of gout as Dr. Tyson.

DR. TYSON—In answer to Dr. Anders, I may say that while I am aware of what he says, and agree with the authorities in regard to the heredity of gout through the female, I can not in my whole experience add anything to the knowledge on the subject. As to the kinship between rheumatism and gout, I tried to avoid that question, except from this standpoint: one of the facts that we have most frequently to contend with is that rheumatism is called gout a great deal more frequently than it should be. My idea in forming criteria was partly in order to know whether certain cases are rheumatism or gout. The symptoms of acute gout and the symptoms of rheumatism are widely different. In chronic gout we have a lack of similarity in certain symptoms, and I feel that enough care is not exercised by physicians in this particular.

THE CHAIR—I should like to ask whether there are not certain cases in which it is impossible to make the distinction between rheumatism and gout?

DR. TYSON—There are cases in which it is extremely difficult if not impossible to decide. The only point is that we may decide with care more frequently than we ordinarily do.

DR. ANDERS—I should like to ask Dr. Tyson whether he considers rheumatism an infectious disease?

DR. TYSON—Yes, I regard acute articular rheumatism as infectious.

## THE CONDITION OF THE TWO VENTRICLES WITH REFERENCE TO THE ADMINIS- TRATION OF DIGITALIS.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The commonly accepted indication for the admin-

istration of digitalis is cardiac weakness in its broadest sense. More precisely drawn this indication is furnished by weak, rapid, perhaps irregular action of the heart, low pulse tension, a mitral murmur indicating regurgitation or stenosis, dilatation of the right ventricle with or without leakage of tricuspid valves, and dropsy. Cardiac dilatation without valvular disease is also considered to indicate digitalis. Whatever differences may exist in the cardiac conditions, there is always present relative arterial anemia with venous hyperemia. Yet that something else beside mere cardiac weakness exists upon which may depend the usefulness or injury of digitalis is illustrated by the following case:

Case 1.—Oct. 29, 1894, A. D., male, age 12, was seen in consultation. It was a typical case of mitral insufficiency with lost compensation. Hyperdicrotism of the pulse as shown by the sphygmograph, great dilatation of all the cardiac chambers, particularly of the right ventricle, mitral systolic murmur and the classical signs of tricuspid leakage, with greatly enlarged and pulsating liver, ascites and considerable edema of the lower extremities, great pulmonary congestion and moderate hydrothorax in the right pleural cavity. Two examinations of the urine subsequently revealed a few granular casts, 1 per cent. of urea and slight albumin. Diuretin-Knoll and a brisk purge removed anasarca and greatly lessened the ascites within the next two or three days. The hyperdicrotism and the manifold signs of pulmonary and venous congestion seemed to plainly indicate cardiac tonics. Convallamarin one twenty-fifth of a grain, t.i.d., was ordered. No improvement resulting after two days, the condition on the contrary seeming rather worse, a fresh infusion of digitalis (U.S.P.) was made from English leaves by one of the most reliable druggists of Chicago. Of this infusion 1 drachm was given every six hours for three or four days. The pulse grew progressively smaller and more hyperdicrotic if that were possible, while the cardiac impulse became more diffused and feeble but not irregular. Strophanthin one hundredth of a grain was then ordered and given for about twenty-four hours. Then came one evening two alarming sinking spells which necessitated the free use of stimulants. At this time the enormously dilated right ventricle, could be felt, feebly pulsating in the intercostal spaces to the right of the sternum, and the sounds at this point took on the rhythm of the *bruit de galop*. The urine had progressively diminished to about eighteen ounces in the twenty-four hours. The patient's condition was truly alarming and we realized the necessity of resorting to urgent measures. Strophanthin and digitalis had not only proved useless but apparently injurious; accordingly nitrate of strychnia, one-fiftieth of a grain was ordered, subcutaneously every four hours, alternating with one minim of a 1 per cent. solution of nitro-glycerin every four hours and 2 drachms of whisky three times a day. A hydragogue cathartic was also administered. The next day to our astonishment the pulse had fallen from 122 to 92 and was perceptibly fuller and less hyperdicrotic. The galop rhythm over the right ventricle had disappeared as well as the pulsation in the jugulars. Improvement was steady and ten days or two weeks subsequently, 1 drachm of digitalis infusion, together with moderate doses of diuretin-Knoll, t.i.d., was well borne and caused removal of the ascites and edema, the urine increasing to one hundred and twelve ounces per diem. The subsequent history of this case does not call for recital here.

Here was a case in which all conditions laid down by Bartholow for the administration of foxglove were present, and yet it was manifest that had the digitalis been pushed the patient would have succumbed. It can hardly be urged in explanation that the infusion was inert since it was made out of English leaves. To what then was the failure of this drug to be attributed? Before attempting to answer this query permit the brief recital of a second case:

Case 2.—Dr. E., male, something over 50 years of age, physician, was seen in consultation last January. The chief complaint was of frequent and harassing dry cough, with dyspnea and rapid feeble pulse on slight exertion. To make a long story short, suffice it to say, there were found moderate dilatation of the left ventricle; first sound being feeble, sec-

and pulmonary sound greatly accented, recent pleuritic adhesions at the base of the left lung, moderate congestion of liver and kidneys, no râles or distinct physical signs of hypostatic congestion of the lungs. Peripheral arteries showed slight thickening; urinalysis by Dr. C. W. Purdy had revealed the existence of chronic interstitial nephritis of moderate severity. The harassing cough and dyspnea were attributed to weakness and dilatation of the left ventricle with consequent pulmonary congestion. This case seemed preëminently one indicating digitalis. A fresh carefully prepared infusion was ordered therefore and taken in 3 drachm doses, t.i.d. The urine increased in amount, pulmonary congestion diminished and the cough was entirely relieved.

Here, then, was a case in which the drug displayed its happiest effects. Wherein did the difference in these two cases exist, so far as referred to the administration of digitalis?

If one will search authorities, both in materia medica and therapeutics, as well as in clinical medicine it will be noticed that, with but very few exceptions, no reference is made to the action of digitalis on the right and left ventricle respectively. It seems to be taken for granted that its action on these two chambers is the same. That this may not be the case was first suggested to me by some statements made by Openchowski in his discussion of Leyden's paper, "*Ueber die Prognose der Herzkrankheiten.*"<sup>1</sup> This led me to search out Openchowski's original communication,<sup>2</sup> wherein is published the account of his experiments with digitalis. As a preliminary work, he first investigated the effect of vasomotor dilators, as amyl-nitrite, on the pulmonary vessels and determined that they were wholly without influence on this system. Tension within the pulmonary artery became increased secondarily as a result of lowering of the blood pressure within the aortic system. By means of the kymograph he found that small doses of helleborin failed to increase blood pressure within the pulmonary artery or right ventricle. In fact, the pressure fell somewhat at the beginning of the experiment. He observed furthermore that if injections of helleborin and digitalis were given and the living heart then excised and immersed in a weak salt solution, the left ventricle continued to beat long after the right had ceased, the reverse of what happens in hearts not poisoned with these agents. Moreover, in animals killed by these poisons the left ventricle was found post-mortem firmly contracted, while the right was relaxed. Upon exposure of the heart in the living animal, previously poisoned by digitalis, the left ventricle was seen to beat more slowly and three or four times as long as the right. The left coronary artery was distended with blood and small ecchymoses were found in the myocardium of the left ventricle; whereas the right coronaries not only were not distended but seemed somewhat smaller in volume, and no ecchymoses were ever discovered in the area of distribution of this vessel. He explained the production of these ecchymoses by the pressure brought to bear on the turgid vessels by the strongly contracted myocardium. The reaction of the coronary arteries to digitalis was similar to the effect observed by Lukianoff, of ligation of these vessels. Constriction of the right was followed by turgescence of the left, whereas dilatation of the right did not follow ligation of the left.

Openchowski concludes, therefore, that the coronary

arteries possess an eliminating or regulating influence over the action of digitalis on the right ventricle. He thinks this conclusion borne out by clinical experience; that is, by the observation, that in case of disease of the right coronary artery, the effect of digitalis on the right ventricle is injurious. He cites in support of this statement a case of mitral stenosis in his own ward in which dyspnea and death followed a few small doses of digitalis and in which the right coronary was found atheromatous after death. In referring to his experiments and conclusions in the discussion of Leyden's paper above cited, he mentions also that A. Fraenkel has published three cases of mitral stenosis, in which the administration of digitalis was promptly followed by dyspnea and cardiac failure. I regret to say I have been unable to get access to this paper of Fraenkel. I have, however, carefully perused an address by Leyden,<sup>3</sup> to which Openchowski alludes, and find he says essentially as follows: "The beneficial effect of digitalis in cases of mitral disease would seem to point to its chief action being on the right ventricle, but as other experience seems to warrant an opposite conclusion, this matter will have to be left undecided. Although this remedy may be indicated and often beneficial in hypertrophy and dilatation of the right ventricle in mitral disease, it is often useless when this condition of the ventricle depends upon chronic bronchitis and emphysema or kypho-scoliosis with dyspnea and dropsy. So that, as Leyden says, the right ventricle seems to acquire but little energy from digitalis on account perhaps of the small volume of its myocardium."

In this connection may be cited the experiments of M. Heger reported in *Bulletin de l'Académie Royale de Médecine de Belgique*, and of which a resumé may be found in the *American Journal of Medical Sciences* and the *Therapeutic Gazette*, 1892. This experimenter concluded that the action of digitalis was exerted chiefly on the left ventricle and aortic system; that its effect upon the right ventricle was similar but much less powerful; that it exerted no direct influence upon the pulmonary vessels, but it was capable of relieving stasis within the pulmonic system through its action on the left ventricle. He likened this action therefore to a veritable bleeding from the lung. It will thus be seen that although Heger considers digitalis to exert more influence upon the right ventricle than does Openchowski, he agrees with the latter in finding no direct action upon the pulmonic system and the effect on the right ventricle subordinate to that on the left.

Whether or not Openchowski has proved experimentally all he claims concerning the action of foxglove, there seems to be clinical evidence sufficient in the opinion of such men as Leyden and Fraenkel to render doubtful its utility in all cases of dilatation of the right heart. To return now to the case of the lad described above. All the recognized indications for digitalis were present and yet it was manifest at the time that this and kindred remedies did harm. It is not easy to explain why this was so. Disease of the right coronary artery with consequent inability to regulate the drug's action on the myocardium, was not likely in a boy of 12 years. There was enlargement of the left ventricle and, so far as I could determine, this enlargement was due to hypertrophy rather than dilatation although this latter condition

<sup>1</sup> Deutsche Med. Wochenschr., 189.

<sup>2</sup> Das Verhalten des kleinen Kreislaufes gegenüber einigen pharmakologischen Agentien besonders gegen die digitalis gruppe. Th von Openchowski zeitchrift für klin. Med. Berlin, 1889, XVI, p. 201.

<sup>3</sup> Über die Wirkungsweise und die indicationen der digitalis. E. Leyden, Deutsche Med. Wochenschr., Berlin 1881, VII, 345, 358.

undoubtedly existed. There was an evident disproportion between the strength of the two ventricles in favor of the left, the right being in a state of extreme dilatation. Moreover there was free regurgitation through the incompetent mitral valves. When digitalis was administered its effect, if we may trust the results of experiments, fell chiefly on the stronger of the two chambers. Its contractions were strengthened as could be determined by the pounding impulse against the chest wall, while their rate was but slightly diminished.

The failure of the drug might be theoretically explained as follows: instead of discharging a larger volume of blood into the aortic system, as should have been done, the ventricle may have emptied the larger part of its contents through the wide open mitral orifice; therefore, instead of aspirating the blood out of the over-loaded pulmonic system, the ventricle threw back again the increased volume which had accumulated within it during its somewhat lengthened diastole. The dilated and feeble left auricle could not withstand the shock which consequently must have fallen upon the right ventricle. Distension of this latter was promoted rather than decreased.

However the failure of digitalis in this case may be explained, its effect plainly corroborates the position taken by M. Huchard, who declares that excessive dilatation of the heart furnishes a contra-indication to the administration of digitalis. He advises first the withdrawal by venesection of from eight to ten ounces of blood, which will remove the over-distension of the organ.

In my case a purge was administered in addition to nitro-glycerin and strychnin. The result was the accomplishment of just what had failed to be done by the digitalis.

In the second case described above, the left ventricle was the chief seat of weakness but the mitral valves were competent. Here the drug lengthened diastole, thus permitting a better filling of the ventricle and energized its contractions. Blood was aspirated, as it were, out of the lungs into and through the left ventricle into the aortic system. Hence the action of digitalis was displayed in its perfection. Could anything be more striking than the difference in these two cases?

Whether or not the *modus operandi* in the first case has been properly explained, that is, whether or not the failure of the digitalis can be ascribed to any of the reasons laid down by Openchowski and Heger, or to the theoretical explanation I have given, the case furnishes clinical evidence that digitalis may fail to favorably affect the right ventricle in cases in which it most urgently demands a tonic. To my mind it furnishes a strong degree of clinical proof that the administration of this drug and its congeners depends for its indications upon the relative condition of the two ventricles. It is not assumed for a moment that these two cases settle this question; it is only hoped that the recital of these cases and the reference to Openchowski's work may open up a line of discussion in this meeting and a path of clinical investigation which will prove of future value.

Venetian Building.

## CARDIAC INSTABILITY DUE TO ACID AUTO-INTOXICATION.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The study of the phenomena occurring in the human body would be attended with vague and impenetrable mystery were it not that we know something of chemic affinities and aversions. A great deal of the light that has recently illuminated the medical realm is reflected from the chemic laboratory. Chemistry and microscopy have been extending their arms of light in the attitude of a prolonged benediction over our science for at least a decade. No methods of investigation have merited and received such universal adoption. The only cases that can now be admitted to an audience with the advanced physician without contact with reagents or microscopic scrutiny are hypothetical ones. The man who is satisfied with the dictum of his unaided eyes, ears and sense of touch in physical examinations is behind the procession. These methods of inquiry introduce us into the arena of vital action, and make plain to our understanding the pathologic processes. Much that has hitherto been attributed to diathesis and temperament finds explanation through the medium of study associated with changes that are chemical and molecular. Instability in bodily life appears in harmony with the rule that the more complex the molecule the more varied the incidents associated with its activities. The somatic functions are known to be subservient to molecular caprice. The molecule being dominated by chemic affinities and aversions the demeanor of individual parts and organs is correspondingly inconstant. Invariably nature varies. This unstable demeanor of the chemic equivalents brings the pathologic line very near to the normal. So that, if to-day the citadel of life is besieged by the acid forces, to-morrow every fort may be dominated by the bases and salts. Through the infinite window of the microscope we may now observe the aerobic bacterium dignitary felicitous in his oxygen bath—and anon he will be seen wallowing in the filth and excrement of the anærobic laggard. Under one administration the aristocratic white corpuscles dance along the epithelial sidewalks of the arterioles, and under another they are displaced by their ruby democratic constituents. All this may obtain because of the change of control taking place between the acids and the alkalies.

Many facts have been observed in the recent past, by means of the acids referred to, which demonstrate clearly the presence of chemic forces in the production of otherwise unsolved mysteries, and these can not longer be ignored. Numerous insidious, but, nevertheless potent changes, continuously going on within the economy, can be accounted for only by the traffic in acidulous elements. There have been repeated and tangible evidences, in my experience, of abnormal heart phenomena that have linked them inseparably to acidulous conditions, as betrayed by lowered alkalescence of the blood, and what is equivalent thereto—hyperacidity of the other bodily fluids. Few of us have not had startling and hapless results from unsuspected heart malady



which were not accounted for by conditions present, or by any antecedent causes, so far as we could determine. After investigating in this realm a number of cases of cardiac instability, I have convinced myself that the mal-behavior and myocardial deterioration are sequelæ to a prolonged acid auto-intoxication.

It is almost universally admitted that a large excretion of acids is contemporaneous with an irritable condition of the heart and circulatory apparatus. The presence of much acidity, no matter how produced, always and persistently coexists with this state of the circulation. Theoretical and chemic testimony are corroborative, and investigations have sustained the assumption in nearly every case. After prolonged mal-behavior superinduced by acid conditions the heart shows weariness. And if theoretical and chemic proofs were wanting, this empirical evidence—that acid conditions may induce nutritive lesions in the myocardium—can not be successfully denied. Symptoms of intermittence of impulse rapidly pass from the neurosal into the organic form. If the cases continue there follow the results commonly found in similar conditions of the heart from dissimilar causes, viz., dilatation from myocardial changes and inefficiency of the valves from peripheral traction; or in other words, relative or muscular incompetency. We have not far to seek for authority to prove that acid impressions extend beyond the nerve influences and when toxic, even in a slight degree, the symptoms appear as involving the regular action and accustomed functionation of organs—especially the heart; for it is well known that all troubles which involve a waste in the residual nerve force entail marked depression that leads to disintegration. Doubtless we have all observed the influence of acid conditions brought about by dyspepsia and the coincident tumultuous behavior of the heart. We may not have attributed these symptoms to the direct irritation of the acidulous blood upon the heart, yet all have recognized the symptom.

Chemic combinations of the blood are known to play a great and important part in the action of the heart, probably in two ways: 1, by direct disturbance of the sub-endocardial ganglia; and the endocardium in close relation to these ganglia; and, 2, by irritation directly conveyed through the coronary arteries and their branches to those ganglia situated in the muscular tissue. The presence of irritating materials in the blood does not specifically limit its pernicious influence, but it prevents proper elaboration and metabolism. In addition to this, it crowds out the material most needed for cardiac nourishment, which influence has its first and most natural expression through the trophic nerves and ganglionic cells. Although in early stages this condition is curable, if long neglected it is followed by an ingravescent asthenia, from which there is no recovery.

So much is now known of the influence of acids upon the heart that we are sure they first exhilarate, then shorten the duration of the systole and subsequently render it less and less powerful until contractions cease altogether and the ventricle remains at rest in diastole. When introduced gradually, and their presence protracted, there is a gradual degree of tolerance cultivated which masks the results somewhat.

Acids influence the entire circulatory apparatus

through the nerve supply. Vasomotor effects are extremely liable to betray themselves in the periphery by cold extremities and chilliness of the surface. Reduced alkalinity causes contraction of all the arterioles in the body and may induce spasm of certain areas. Contraction of these vessels is so universal, and the cold surface and extremities so constant, that high tension is to be supposed whenever the degree of acid auto-intoxication is reached. High pulse tension has been produced at will by several experimenters, by foods, medicines and drugs that were known to influence the acidity or alkalinity of the bodily fluids. When high pulse tension and confusion in the nerve supply of the heart coexist, there is a want of adaptation of the central organ to the circulation throughout, and a season of confusion follows, during which there is an increased demand upon the heart for systolic force and a lessened capacity for its achievement. In addition to the mal-behavior superinduced in the heart by the ceaseless traffic in blood of lowered alkalescence, it meets with considerable and effective opposition in the spasmotic demeanor of the pulmonary arterioles. The heart encounters its most deplorable opposition in the pulmonary apparatus. Pulse tension thus influenced in the presence of any renal disability would surely be followed by albuminuria and nephritis. If the heart is deprived of the aid of these emunctories the acid tide rises, the cardiac muscle grows weary, and dropsies, nervous accidents, headaches, dyspnea, etc., supervene.

The acids taken into the body and others which are the products of chemic changes within the body are constantly passing out of it through the lungs, skin and kidneys. Complete oxidation is essential to a perfect balance, but, from the very nature of things this can never be. The organs and tissues act as dialyzers, and, as far as they have the capacity, they set about to neutralize the superfluous acidity. If the liver is flooded with acid it may elect to store it up until a more or less remote opportunity for elimination arrives, or it may cause it to assume some other chemic state. The spleen has accorded to it similar capacities. The kidneys and skin soon divest themselves of its irritating presence. The stomach and digestive tube decompose it and pass it along to other parts, with more or less celerity; or expel it as gas, vomit or fermentative stools. But the heart is minus such function and is constantly subjected to its irritative influence without means of defense. Acidity, which is produced from neutral salts, as frequently occurs after dialysis, may have immediate contact with the heart and circulation.

The acids which are introduced into the system in foods constitute a very tedious list. Those which are met with as natural or normal elements in the various processes of nutrition are similarly extended. When the digestive tract is converted into a fermenting apparatus other combinations are formed, and their number and variety are vastly augmented. When acids appear in the free state in the system they are found in the urine unchanged. There is a hypersecretion of hydrochloric acid that may contribute to over-acidity, and a similar result obtains in an indirect way by too small a quantity, which will permit fermentation.

Much animal food favors acidity on account of its large contribution of acid salts. Beer, ale and light wines conduce to acid conditions.

It is assumed that the liver stores up uric acid. From thence it is conveyed to the kidneys, and there is only a partial excretion and this admits of an overflow by the renal veins causing its appearance, to a small extent, in the general circulation. Thus it gains entrance to all the organs. It is shown that in cartilages and joint tissues, and also in the bony structures, acid is stored. These parts being less vascular than most portions of the body, acid deposits are not rapidly removed, even after the blood alkalinescence is recovered. But the presence of nodosities and deposits of this kind, pre-supposes a condition of high acidity in itself. The line may extend, in those of exceedingly acid dispositions, beyond the uric acid mark.

Special stress is laid by some upon sarcolactic acid. This is formed by muscular exertion, and at the same time there is deposited carbonic acid.

With all these channels through which the blood may reduce its alkalinity and the body become an acid storehouse, it is not to be wondered at that there is a probability of acid auto-intoxication at any time. But if it so happen that excessive formation and defective elimination appear at the same time, the difficulties would become apparent.

Defective elimination of the acids may be due to diseased condition of the lungs, skin and kidneys, or possibly to want of physiologic stimulus to the exercise of their functions. Acid exaltation follows every temporary suppression of the emunctories, and this is accompanied by decline of blood alkalinescence.

Very slight impressions made upon an individual by his environments will exert modifying influences. The temperature of surroundings deserves consideration. A hot room promotes perspiration and diminishes acidity. Conversely, cold and damp diminish excretion and raise the acid line. By this suppression of the perspiration in those of low alkalinescence of the blood there will follow irregular heart action, intermittence of the pulse, increased peripheral resistance and elevated blood tension, accompanied by dimness of vision, vertigo and numbness of the extremities. These symptoms may come on insidiously but oftener are very precipitate, as in the presence of all the various means by which the acid tides in the body rise. It must of course be known that there is a constant ebb and flow with most if not all. However, there are some persons who live just upon the acid line and everything not decidedly alkaline will force them into the acid realm. There is a distinct nocturnal acid tide period. High acidity during sleep is the rule. There is a diurnal tide rise beginning about 3 P.M., and continuing until 5:30 or 6 P.M. These are free from changes incident to ingestion of foods and are, in the major part, of alkaline influence.

There is no doubt that the recurrence of these acid tides and continuous exposure to their influence imparts to the tissues an aptitude to take on inflammatory conditions, and incline toward perverseness of nutrition, from which tissue change and fragility may reasonably be expected and do arise.

In passing, it may be well to note that the period at which the most lamentable accidents in heart lesions occur, corresponds to the hours when the acid tide is at its highest, viz., during the quiet of the night. This is the season when the circulation should be reposeful, and yet it is in a great many cases, the time most prolific of cardiac anguish. This acid tide

rise corresponds to sudden deaths which occur without suspicion of heart malady. It also gives a rational explanation for some others which have been regarded as inscrutable acts of Providence. Let us review briefly, a typical case of heart change due to acid auto-intoxication, in that most gradual process which would include the entire life of the individual:

We will assume that the blood at birth flows purely alkaline. During the first twenty-four hours after birth nothing occurs to disturb this condition, even the alimentary canal is free from fermentative actions and reactions. From this time onward, numerous infinitesimal vegetations begin their perilous work in the *prima via*. Bacteria, ptomaines, etc., henceforth continue their merciless crusades. The tissues and fluids take on the acidulous character in consequence of the presence of acid in the body. And thus the never-ceasing cycle of acid activity is begun.

Hydrochloric, lactic, acetic, butyric, sarcolactic and other acids struggle toward the emunctory outlets. The excretions are all acid. Some extraneous influences ever and anon suppress the functions of the skin and there is a coincident acid rise. The heart makes its first misstep—it has been guilty of an intermission. Amid the acid ebb and flow, and varying stress incident thereto, the child heart must respond to the unceasing demand for development, so that at the end of two years it may have doubled its bulk, and at each quinquennial thereafter redouble it until it has arrived at the period of bodily maturity. Meanwhile new features and strange processes are inaugurated, including those important changes incident to puberty and adolescence. Together with an over-consciousness of a generous nerve supply is vouchsafed a vasomotor and circulatory system rendered specially sensitive because of the constancy of the lowered alkalinescence of the blood traversing it. For a time the circulation is spurred onward and the vital activities are pushed to their zenith point. In such a subject, plethora is extremely liable to come on early. The subject finds himself a slave to his cravings for foods and drinks with scarcely enough will to resist the simplest demands. In consequence he is prone to supply material for oxidation so freely, by over-feeding, that the contribution of oxygen is inefficient to secure complete combustion. Because acid elimination occurs at every point, there is a constant desire for fluids and foods to replace the acid output. Acids are freely ingested, and acid foods preferred. The emunctories are overworked and lag in their energies. About this time in the progress of acid auto-intoxication the subject's feelings trace for him, a diurnal curve in his bodily acidity, and the heart is very commonly in a tumult.

The constant and protracted irritation of the intrinsic cardiac nerve supply and the vasomotor excitement produce general mal behavior of the circulatory apparatus. It appears as a purely nervous phenomenon, but close analysis will give it a different interpretation. The respiratory limitations are becoming more and more evident. Especially is dyspnea noticeable when the ingestion of acid and gas producing foods combine mechanical obstruction with demands for large oxidation. The heart now yields, in these paroxysms, the stethoscopic and physical signs of weakened myocardium, and is on the verge of valvular inefficiency from peripheral traction.

The prognosis is that some day there will be a call

at the patient's door to which he will not respond, or may be, that surrounded by a social circle his eyes will suddenly lose their luster, his tongue forget its cunning, and he will thrust into their experience the deplorable, foudroyant and overwhelming sequence of cardiac changes due to acid auto-intoxication.

The corollary conclusion is that acids should not be employed freely or promiscuously in our foods and drinks. That in most cases they act as irritants to the circulatory apparatus. This fact is especially to be noted in cases of heart weakness or circulatory lesions. The principal demand upon the physician is that of oversight of the ingesta. Numerous cases will demand the employment of alkalies and antiseptics to overcome acidity and fermentation.

### THERAPEUTICS OF THE SENILE HEART.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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In this paper I purpose to dwell exclusively on my method of treating the lesions and functional derangements of the heart in old age.

Naturally, with the term "old age," there is pictured in the mind the infirmities and decrepitude of accumulated years: the coldness of withered fingertips, the odor of decay accompanying lack of oxygen from the weakened circulation, due to the worn-out organ which has labored so faithfully for threescore years and ten.

Yet this is not invariably the condition. Time can only be computed by externals; organically, a man may live, develop, enjoy, suffer, linger and die of old age at 45. Circumstances—the most finite of all things—alone determine our length of days, and the period at which we shall begin to deteriorate. Much, very much depends upon our environments; the strain to which this mortal machine has been subjected, and the degree of mental force expended. Given, an ordinarily healthy man's body, his capacity for endurance is determined by habits of life, manner of living, and general trend of thought.

It has been the popular opinion in order that a man may live out his full number of years that the heart must be strong in the beginning. When the human being comes into the world our first solicitude is for the heart; it is our key to all phenomena of strength and weakness. From birth throughout his progressive development of childhood, adolescence, middle age and decay, our finger is on the wrist, our ear at the chest.

What is the typical "senile heart" and by what signs may we recognize it? A thorough distinction between physiologic and pathologic changes must here be made. Physiologically, the heart in old age seems naturally to resume certain conditions which it lost with childhood, the most common of which may be seen in the quickened pulsations.

The familiar comparison of the heart to the size of the person's fist would be as inappropriate in old age as it is in infancy. While this enlargement as found in old age may generally be classed as a pathologic condition, to which we give the name "hypertrophy," we must remember that it is not an invariable indication of heart-failure. Again, as in the blood vessels: in infancy the coats are thin and frag-

ile, rendering them susceptible of rupture. In old age we meet with pathologic conditions which bring about very similar results, by loss of elasticity of the coats of vessels; rendering them friable, with consequent liability to rupture.

In the first instance—that of the infant—we have a physiologic condition, coming, if I may be allowed to so express myself, from physiologic functioning in an immature organ or system, while in the latter case—that of old age—we meet with tissue that has been worn out or weakened by long use, or improper treatment; "the muscular fibers becoming weary with too much work, or impoverished by scanty nutrition;" the debility being brought about by various means. Unnatural demands upon the contractile fibers of the heart bring about the features of cardiac senility, let the age be what it may.

We might theoretically claim that the heart would never cease its pumpings if the motive power supplied by the contractions of its muscular fibers were never lost. But heart tissue, as with all striated tissue, fails after awhile to respond to exorbitant demands, or it may become exhausted from mal-nutrition. By this it may be seen that heart failure may arise in itself, on account of impairment of its nervous or muscular elements, or by reason of some mechanical impediment to its workings, or, as Foster tells us, "by nervous influences proceeding from the brain, or brought into operation by means of the central nervous system."

In old age the alterations in structure of the walls of the blood vessels are always in evidence.

### TREATMENT.

Three factors,—which from their close relation are of equal importance, enter into the treatment of the senile heart, viz., diet, rest, and medicine. Let us consider the

*Diet.*—With increasing years we generally find a cessation of the ordinary stomach troubles which are so common in early life, and with their disappearance we have consequent increase of appetite, by the indulgence of which the fat-producing powers of the tissues are increased and their power becomes weakened thereby; the muscular fibers of the heart suffering from the same fatty degeneration which all muscular tissue undergoes when subjected to like conditions, and as the excess of general nutrition calls for extra exertion on the part of the heart which the weakened fibers are unable to accomplish, the result is dilatation and irritability of the heart substance.

Excessive eating and drinking is fatal in cardiac troubles. We find the person complaining of breathlessness after taking sufficient food and drink to satisfy his voracious appetite, and he is glad to lie down and keep quiet for an hour or two, until the pressure has subsided. Fortunate the person who has led an abstemious life, for the sacrifice will not be so great. The gourmand will tell you that he would forfeit several years from his life rather than relinquish the pleasures of the festive board and adopt the rigid diet his condition demands; for there can be no cardiac disturbance after middle life which does not call for total abstinence from all undue indulgence of physical appetite.

Our investigations should not begin or end with the heart alone; they must include the habits of the individual; the everyday things which go to make up

the person's sum of living—mentally as well as physically—for at this period of near approach to absolute knowledge it would be absurd, and indeed a most abject admittance on the part of the physician or physiologist to deny the close relations existing between the mind and body, or to ignore their interdependence upon each other for the perfect health of either, or that the body can be in healthy poise with the mind ill at ease. Objective conditions can never be separated from the subjective; as we wrestle with the problems which deal with our physical man, the mental is equally squaring itself with the vital organism.

The young plant, with its superabundance of vitality will grow and develop almost without sunshine, and with sparsity of soil. It is after the plant has passed maturity, and the sap of vitality runs slowly, and the electrical principle is on the wane, that we are called upon to protect it and give it artificial support. At this period we may look for parasitic growths and unhealthy phenomena. So it is with the living animal organism. While development is going on, the organic powers are, in the untainted body, equal to all physiologic requirements. It is after the fires of life have lost their sparkle and the animal powers are running low, that we may look for organic lesions,—especially of the heart. Energy and life may be considered synonymous terms, and nature never intended that either one should terminate abruptly. We are the *alter ego* of nature, and no natural phenomena begins or ends abruptly.

In the details of our treatment we must be guided by the various symptoms as they present themselves. Stimulants, so generally recommended in the weakened condition of the aged are, as a rule, to be avoided. In edema, all liquids which are not absolutely necessary to quench the thirst of the patient must be withdrawn; and the periods between meals of sufficient length to prevent any encroachment upon active digestion by a fresh relay of food. In cardiac weakness, digestion goes on less rapidly from insufficiency in quality and quantity of the gastric juice, hence the periods between meals must be longer than when in health, and less food should be taken at a time. Let the heartiest meal be at noon, and the lightest at night. Cardiac troubles of themselves often create an abnormal appetite, and this, together with the fact that our most frequent sufferers are those naturally fond of the good things of the table, renders regulation of the diet the most difficult thing for the physician to carry out. Even the specter of sudden death loses its power to frighten the victim of an abnormal growing hunger.

*Food.*—No matter what the patient's habits may have been, I take from the *menu* all condiments and stimulating foods, all fruits unless they go to form part of the regular meal, also all vegetables with the exception of small quantities of mealy baked potatoes, eaten with cream or milk. Vegetables are composed of more or less water and woody fiber, are bulky, and fill the stomach and bowels with gas; their nutritive qualities do not compensate for the space they occupy.

While we can not (and it would be unwise for us if we could) treat our patients like so many machines, to be fed at will, we must yet insist upon regularity as to the time their meals shall be taken.

Flint says words to the effect that the man who closely watches his digestion, timing every article of

food which he puts into his stomach, as it is being acted upon by gastric digestion, watching its progress from thence outward, never escapes being a victim of dyspepsia. From this, as well as other reasons, I hold no argument with my patient as to what he shall eat, or in what manner it shall be prepared, but simply put before him certain rules—verbally or in writing—which he is to follow, and these need not necessarily be so limited as to give him any real cause for complaint.

Probably the total withdrawal of tobacco in any form will cause as much rebellion from our male patients, as any deprivation in the way of food or drink.

Just before meals a teaspoonful of bovinin in a tablespoonful of water is a most excellent adjunct to the food, increasing the flow of gastric juice and obviating flatulency. Raw oysters may be eaten, but should not constitute the meal. Of fish, we have cod, halibut, shad, perch, and pickerel broiled, with butter sparingly. Of fresh meats, sirloin steak well done, with a little butter, chopped beef with one-tenth of fat breakfast bacon, poultry, pigeons and game. All meats should be recently slaughtered, and all fish freshly caught. The cooking should be done expeditiously. With the meat and fish may be eaten such relishes as watercress in its season, dandelion greens, spinach, asparagus and celery, in very small quantities. A small amount of baked sour apple may be eaten with the evening meal with bread and butter and a teaspoonful of pineapple juice as a digester. The honeycomb part of tripe broiled will be an acceptable change to the diet occasionally, if the patient likes it. Bread should form a considerable part of every meal; it must largely take the place of potatoes, and wholly so that of cake, puddings, and all kinds of pastry and confections. The bread should be toasted at night, and should always be so eaten if there is much edema present. The proper way to toast bread is by first putting it in the oven and letting it dry slowly, then brown it quickly over the coals. The bread in every instance should be made of baking powder in preference to yeast.

The daily amount of food eaten should be so regulated that the same quantity will be taken at every meal. The breakfast should be at either 7 or 8 o'clock, the midday meal at 12 or 1, and the evening meal at 6 or 7 o'clock.

*Drink.*—As to the drink, many physicians say that hot water possesses most salutary properties in heart troubles, but I prefer some weak aromatic tea, as checkerberry, ginger, clove, or other aromatics of like nature; of these the patient never seems to tire. In fact I have generally found it preferred to the cup of washy, weak tea which, after having drank it strong all their life they can never be reconciled to have diluted. They prefer aromatic drinks a thousand times over, as these give them no painful contrasts of past days of freedom and unrestricted.

Let this thing be always borne in mind: the danger lies in eating too much, rather than too little, and also that wines, malt liquors, and distilled spirits are not food for the heart, and do not by their use tide over dangerous symptoms.

*Clothing.*—A few words regarding the clothing and care of the body, and then we will proceed to the medicinal treatment: in summer the patient should wear next his skin, light weight silk underclothing with light weight cotton and wool shirt over it; in winter these should be of medium weight. After



many careful observations with different textures and weights this has proved to be the best. Dressed like this the patient will seldom get cold, or be cold, or get into a perspiration.

*The Bath.*—Only warm baths should be used in cases of senile heart, and the temperature should not be high enough to heat the blood. No exact rules as to degree can be given, as the sensitiveness of the individual varies with his condition and the state of the atmosphere. Hot sponge bathing and hot shower baths are of great advantage. Hot-air baths will be found useful in many cases, but they must be of short duration and given understandingly.

*Remedies.*—The great object of the treatment is to increase the muscular power and nutrition of the heart, and give comfort to the nervous system. The drugs most potent to accomplish this are digitalis, strophanthus, convallaria, spartine sulphate, adonis vernalis, barium chlorid, nitrate of strychnin, sodii arsenias, glonoine, paraldehyde, chloralamid, chloralose, cimicifuga, collinsonia, cactus grandiflora, prunus virginia, pulsatilla, salicinum, sodii valerianas, tablets of nuclein solution, proto-nuclein powder, glycerophosphate of lime, gaffein, quebracho, kola nut, morphia, atropin, iron, copper arsenite, gold, calomel.

The earliest indication that the heart is growing old is a feeling of emptiness and uneasiness in the cardiac region of the chest, radiating around the nipple. The heart beats will be feeble, the pulse compressible. Regulate the diet and habits of the patient, remove constipation and indigestion. Give 30 grains of bicarbonate of soda one hour before meals in four ounces of water or aromatic tea. This treatment will also be aided by the following:

- R. Tr. Cimicifuga . . . . .  
Tr. Apocyni cannab . . . . . āā, ½ dr.  
Tr. Hydrastis . . . . . 1 dr.  
Tr. Zingiberis . . . . . ½ dr.  
Aqua cinnamon . . . . . 10 oz.

Mix. Give one to three teaspoonfuls after meals.

If this plan is followed out, this first downward step will be turned backward, and the patient be made comfortable, if he will obey orders. If there is indigestion, give 10 grains of peptinzyne before and after meals, with 2 grains of proto-nuclein.

If the patient comes to us with swelling of the feet, when exertion, though light, brings on dyspnea, then we must give the patient *rest*, which must be *absolute*, for a few days or even weeks. Carefully regulate his diet, and give the following:

- R. Tr. digitalis . . . . . 2 dr.  
Fluid ext. berberis aq . . . . . 1 dr.  
Tr. cimicifuga . . . . . 1 dr.  
Tr. rhamni, pursh . . . . . ½ dr.  
Tr. apocyni cannab . . . . . 1 dr.  
Aqua gaultharia . . . . . 5 dr.  
Glycerina . . . . . āā 5 dr.

Mix. Give one to two teaspoonfuls after meals, in wineglass of aromatic tea. Three grains of the iodid of strontium may be given in connection with the above. Continue this for one week or ten days, and then give the following:

- R. Strychnin nitras . . . . . 1 gr.  
Acidi nitrici . . . . . 2 drops.  
Tr. ferri chloridi . . . . . 5 drops.  
Aqua . . . . . 4 oz.

Mix. Take one teaspoonful before meals, in a wineglass of water.

- R. Fluid ext. pruni virgi . . . . . ½ oz.

Take from ten to fifteen drops after meals, in tablespoonful of water, and at the same time, five drops of liq. sodii arsenitis.

In attacks of angina, nitro-glycerin is of great ben-

efit; one one-hundredth grain tablet three or four times a day will quickly relieve the pain. In some cases the patient will require an active cholagogue purge; the following is an ideal one:

- R. Podophyllin, res . . . . . 4 gr.  
Ext. rhamni pursh . . . . . 10 gr.  
Euonymi, res . . . . . 20 gr.  
Irisin, res . . . . . 5 gr.  
Ext. colocynth, comp . . . . . 10 gr.  
Ext. rhamni pursh . . . . . 10 gr.

Mix. Make twenty pills; take from one to three pills after supper, and repeat as required.

We often have to use narcotics to quiet pain and induce sleep, that

"Knits up the ravelled sleeve of care."

The following is a good model:

- R. Morphin sulph . . . . . 20 gr.  
Atropin sulph . . . . . 1 gr.  
Caffein . . . . . 1 dr.  
Sodii benzoat . . . . . 2 dr.

Mix. Divide into one hundred and twenty powders.

Give one powder once or twice during the twenty-four hours, either per mouth, rectum or hypodermically.

When there is considerable ascites, forming part of the general dropsy, it is best to aspirate, as it saves a good deal of time, most of the serum is gotten rid of, and then the remedies will act more kindly. I usually aspirate from the scrotum, and not wait for the abdomen to fill. Every ounce of serum can be drawn from the limbs in this way. In women, aspirate from the labia.

If at any time the patient should have severe dyspnea, give the fluid extract of quebracho, in doses of fifteen to thirty drops, every three or four hours in water. I have found it invaluable.

In cases of sub-acute rheumatism the following will give quick relief:

- R. Fluid ext. cimicifuga . . . . .  
" " pilocarp . . . . . } āā 5 dr.  
" " manaca . . . . .  
" " piscidia . . . . .

Mix. Give twenty drops every three hours, in a tablespoonful of water.

If the parts are painful, the following will give quick relief:

- R. Ichthyol . . . . . 1 oz.  
Aqua . . . . . 8 oz.

Mix, and apply to the parts every four hours; cover with cotton.

In cases of senile heart, when we find the patient loaded down with fat, a lax abdomen and distended intestines, the following will give good results:

- R. Rubidii iodidi . . . . . 2 dr.  
Fl. ext. adonis vernalis . . . . . 1 dr.  
" rhamni pursh . . . . .  
" euonymi atrop . . . . . } āā 1½ dr.  
" leptandra . . . . .  
Elix. simp. glycerini . . . . . āā 2 oz.

Mix. Take one-half teaspoonful before meals, and one hour after, in a wineglass of water.

The whole body should be well rubbed with the following ointment: take of equal parts of beef marrow and leaf lard, recently prepared, eight ounces, oil cinnamon, oil eucalypti, and creasoti, of each one drachm. Mix and use once a day, special attention being given to the abdomen, for at least fifteen minutes each time.

If pneumonia supervene, the following can be given:

- R. Calcii chloridi . . . . . 4 dr.  
Strychnia nitras . . . . . ½ gr.  
Tr. pulsatilla . . . . . ½ dr.  
Infusi serpentaria . . . . . 8 oz.

Mix. Give one teaspoonful every two hours, in wineglass of spearmint tea.

When we have a gouty condition existing with senile heart, I have given the following with especial benefit:

R. Auri et sodii chlo . . . . .	16 gr.
Sodii arsenias . . . . .	15 gr.
Sodii bromid . . . . .	1 oz.
Aqua . . . . .	8 oz.
Syr. simp . . . . .	8 oz.

Mix. Give from ten to thirty drops after meals, in wine-glass of water. In some cases one to two drops every two hours will do better.

The following is well adapted for nervous fluttering about the heart in nervous women:

R. Fl. ext. pulsatilla . . . . .	
" caulophylli . . . . .	
" cactus grand . . . . .	aa 1 dr.
Aqua camphora . . . . .	4 oz.

Mix. Give one teaspoonful every three hours.

For the "tobacco heart," in elderly people:

Strychnin arsenate . . . . .	1 gr.
Quinin arsenate . . . . .	2 gr.
Salicin . . . . .	1 dr.

Mix. Make sixty powders. Give one powder after meals, or half a powder every three hours for six doses, dry on the tongue. This not only tones up the heart, but destroys the appetite for tobacco.

#### DISCUSSION ON PAPERS OF DR. BABCOCK, PATTEE AND ENGLISH.

DR. ROCHESTER—As to Dr. Babcock's paper, there are one or two points upon which I wish to take issue with him in regard to the indications for digitalis. He said that in those cases he reported there were all the indications for digitalis present, and then he states there was unequal action of the two ventricles; that the action of the left was greater than the action of the right. If we find the left ventricle acting strongly, it seems to me that it is an absolute contra-indication to the use of digitalis. The subject under discussion is the matter of the use of digitalis in certain conditions of the two ventricles, and his conclusion in that case, I think, was absolutely contrary to his own reasoning.

In regard to Dr. English's paper, as to acid intoxications, there is no question in the mind of the profession, I think, that we have numerous acids produced in the body, and have acid auto-intoxication creating cardiac instability; but to attribute to that cause the sudden deaths from cardiac instability is pushing the matter too far. There are a great many things which enter into the production of a weak heart; we must take into consideration that we have toxemias of various kinds in the body when we have that condition he described, in which the excretions showed great acidity. We must not consider simply the acid alone of the toxemias present. The careful investigation of the excretions, as to amount and chemie constituents, is of more importance than the simple acidity or non-acidity, or the lessened alkalinity of the blood itself.

In regard to Dr. Pattee's paper, it seems to me that the Doctor has gone wild over the matter of medication, giving us all the possible drugs that could be used in any way in connection with the heart. It seems to me that the present trend of medical thought is to simplify our treatment, and find out the actual physiologic action of drugs before giving them. He says that stimulants are contra-indicated in almost all cases. It would seem that this is not true, as we find in the condition of age the worn-out tissues which need stimulation if stimulation is ever needed at all, and these would appear to be the very cases in which whisky should be of use. It is a mistake to consider the heart without relation to the rest of the body. We must consider the heart in relation particularly to the capillary circulation, and in that matter I think we find the key to our treatment of all these senile hearts. In the capillary circulation if we find the vessels hard and thick as they generally become in advanced years, then before giving any medicine whatever to increase the force of the heart's action, we must relieve as far as possible this contraction of the capillaries, and that can be done by various physiologic methods of procedure, by baths and by properly given friction. That, I think, is of more importance than the administration of drugs to cause sweating, such as the pilocarpin—or the use of cholagogue cathartics, etc. The main thing, it seems to me, in old people is to keep careful watch of the capillary circulation. Then if we find that

there is marked deficient action of the heart, we must pay attention to the nervous system, and in my opinion there is no drug that comes up to opium in that matter, in controlling the action of the heart and enabling the system to go on as it properly should.

DR. H. B. SEARS, of Wisconsin—I think if we could speak of conditions perhaps more than of remedies, we should be more likely to agree, as well as be more logical in our use of remedies. It seems to me that the two cases related in Dr. Babcock's paper cover the case very well, and illustrate the use of heart tonics or stimulants. In the case in which he had the bad effect from the use of digitalis he says that he treated an enlarged liver, with the accompanying condition of what we might call venous stasis or peripheral edema. I believe it is conceded to-day that heart tonics, of which perhaps digitalis may be the type, should not be given when there exists edema or ascites until the edema or ascites is first relieved by aspiration, when the heart tonics will be effectual. Tonics are also contra-indicated in high temperature. I think these points are very important. It is not that the heart tonic is at fault, but the conditions are unfavorable for its absorption and favorable working. If we have the blood vessels already pressed upon by transudation, we can not expect that the heart will recover under this unfavorable condition. If by aspiration, or perhaps by the old-fashioned bleeding—which is, however, unnecessary—we can relieve this transudation then we can, by proper measures, bring about a normal condition.

Dr. Pattee said he would aspirate the scrotum or the labia until the edema left. It seems to me that if he would give purgatives and then give his heart tonics, strychnia included, he would accomplish all that is desired.

DR. CHAPMAN, of Louisville—I was deeply interested in the paper read by Dr. English, and am also glad to find that the trend of the papers has been toward a study of auto-intoxication as a cause of disease, for it seems to me that scientific research just along this particular line will, in the near future, explain to us a number of conditions, particularly as to the etiology of disease, in which the microscope has entirely failed. Dr. English, in speaking of the instability of the heart and its relation to an acid auto-intoxication has mentioned facts in which I heartily concur. At the same time it seems to me that if he had carried his investigations a little further he might have been able to make out the particular acid and the particular disease of the heart. For instance, within the last few months I have been making some investigations as to the chemie change in the stomach as the cause of disease, particularly rheumatism. Out of twenty-five or thirty cases that I have examined carefully, in no instance have I failed to find lactic acid present in the stomach. Lactic acid, it has been known or believed for years, is the cause of rheumatism, and I am satisfied that that assertion is sufficiently established in the minds of those present here. Accepting that as a truth, I have taken twenty-five or thirty cases of rheumatism, both muscular and articular, and examined the contents of the stomach to see what acid we would find there, or whether we would in all instances find acid present. I have conducted the examinations in this way: we know that lactic acid is present while food is being digested, that is for one or two or three hours after the meal has been taken. It is then normally in the stomach. But Boaz and Ewald have proved that lactic acid is abnormally present after the third or fourth hour. I have proved by reagents, by the ferric chlorid, that lactic acid is present in these cases of rheumatism, and this leads me to the point I wish to make, that we see in all cases of rheumatism, or nearly all cases, valvular disease of the heart or endocarditis; then if lactic acid is the cause of rheumatism, this is the agent in rheumatism which causes the heart lesions.

DR. STOCKTON—I do not feel that I am called upon to enter into a discussion on this subject, but I can not allow the occasion to pass without protesting against the theory that cardiac diseases are commonly caused by the acid of the blood. Nor can I refrain from criticising the last speaker in his statement that lactic acid is found or that it has anything to do with the matter whatever. Where it does occur in very large amount you do not find heart disease nor do you find rheumatism.

DR. WEBSTER, of Chicago—I want to call attention to the points which Dr. English makes as to the danger of acids, and to the fact that he draws no distinction between vegetable acids and mineral acids. He would lead us to infer that if we give vegetable acids these increase the acid, or rather diminish the alkalescence of the blood, because we never have an acid reaction in the blood in health. If there

is any one fact that seems well established, it is that the giving of vegetable acids increases the alkalescence of the blood. There is another important point, and that is the elimination of carbon dioxid. Oxygen is necessary in the carrying on of life processes in the body, but it is just as necessary that the waste tissues should be eliminated. We know that carbon dioxid is carried away from the tissues where it is produced, to the lungs where it is eliminated as a bicarbonate of soda. I must congratulate Dr. English on calling attention to this important point, and to the part which acids play in this condition and, especially, one point that he emphasized, probably the keynote to the whole question—the fact that the blood pressure is increased by the presence of acids in the circulatory system, and the increase of peripheral resistance increases the work of the heart. Anything that increases the work of the heart must lead either to its hypertrophy or, if that work be thrust upon it suddenly it must lead to its fatigue. I do not believe that death is ever caused by auto-intoxication in an otherwise healthy heart, and I contend that there is no condition in which there is an acid state of the blood during health.

DR. ENGLISH—I thank you for the reception which you have given my paper. I would simply respond to the first speaker, that he must not imagine from the fact that I have given my views on the acidulous conditions that these are the only views that I have with regard to heart disease. Of course it may seem, when defending a cause of that kind, that this is my peculiar view, and my only one. I feel that there are a great many things in which the paper is not complete, it having been reduced from one more elaborate. If I have called the attention of some of the other minds in this ASSOCIATION to the need of investigation in this realm, I think I have done all that I could have hoped.

## LECTURES.

### LECTURES ON INTRACRANIAL SURGERY.

#### XI.—THE SURGICAL TREATMENT OF INSANITY.

BY EMORY LANPHEAR, M.D., PH.D.

ST. LOUIS, MO.

(e.) Insanity due to softening. That portion of the cortical substance most prone to embolic and thrombotic softening is that which is supplied by the parieto-sphenoidal branch of the middle cerebral, or Sylvian artery, the left being much more frequently affected than the right. That softening of the brain—even of quite limited extent—often gives rise to insanity has for many years been a well-established fact; but the proposition to trephine in such cases is, so far as I know, wholly original with me, as I can nowhere find record of cases similar to my own. By the term “softening,” I do not mean *cerebral abscess*—all surgeons would trephine for abscess if its location could be determined—nor to that condition formerly called “red softening,” which is in reality only the initial stage of a suppurative inflammation and which if not arrested leads to destruction of the nerve fibers and cells by pyogenic microorganisms; but to that condition that follows cerebral hemorrhage, embolism of some vessel beyond the circle of Willis, or sometimes thrombosis in like region. We know that soon after the injury takes place the process of softening begins and gradually advances until a group of convulsions or even a whole hemisphere becomes but a creamy mass, containing degenerated nerve cells, masses of dark granules (blood vessels in a state of fatty degeneration), remains of connective tissue, etc., but no pus; the boundaries of such areas of softening are often quite distinct from the healthy brain tissue surrounding, which has led to the erroneous opinion that the degenerated substance becomes “encysted;” this is particularly true of softening following cerebral hemorrhage. If the skull be opened in such cases

the brain and its membranes will often look swollen and feel as if there were a sac full of fluid beneath; the puncture allows the escape of the softened mass, semi-fluid in consistence, of purulent appearance, but in reality not pus. Here, one would naturally think, is a complete hemiplegia, a total aphasia, a hemianopsia, a one-sided deafness or other manifestation of an obliterative process in the brain, with softening as the pathologic condition—a state of hopelessness that should debar even the most venturesome surgeon. Perhaps so, if there be evidences of destruction of a whole hemisphere; but frequently the focus of softening is but a limited one, as in embolism of that branch of the middle cerebral which supplies the arm center and the speech area. This particular region is selected as one for illustration because it is not infrequently affected by embolic softening and because its contiguity to the frontal gyri often causes symptoms of mental irritation; though we often see patients affected by hemiplegia without aphasia, due to either embolism, hemorrhage or thrombosis, presenting evidences of profound irritation or disturbance in those convolutions which preside over the intellect, long after the subsidence of immediate pressure symptoms.

Every physician can call to mind, patients whose characteristics were irritability, irascibility, fits of mental aberration and even homicidal and suicidal impulses, of whom he has said to friends: “You must bear with this man as well as you can as he is not responsible—he has softening of the brain and nothing can be done for him.” In former years I made this assertion many times, but now I am not so positive; in fact, I am convinced that many such cases are amenable to surgical treatment; not, indeed, as an operation to be made with the object of improving a paralysis or other manifestation of destruction of the cortex or communicating fibers, but of clearing out a quantity of irritating material and substituting one (like the blood serum or cerebrospinal fluid) which will within a brief period fill the cavity and will not give rise to symptoms of irritation.

The technique I have followed is this: the scalp having been properly cleaned and protected, a large flap of scalp and periosteum is turned back and a button removed at the point indicated by cerebral localization or otherwise. When the dura is exposed it is palpated; if indications of softening are not now present, the bone can be replaced and the scalp closed—no harm being done. If there be sufficient evidence of softening, another button is removed and the two openings joined, or the trephine hole is enlarged with forceps; when large enough to allow the underlying structures to be manipulated with ease the dura is cut with a good flap. Inspection proving the correctness of the diagnosis, a free incision is made through the pia and the softened brain tissue allowed to pour out. The cavity is irrigated with hot salt solution (temperature about 105 degrees F.) and left full of the same while the dura is closed with fine interrupted catgut stitches and the scalp sewed with a continuous catgut suture. No drainage is used and a firm compress of bichlorid gauze is applied with proper dressings. That such an operation is wholly practicable and may lead to improvement I have positively demonstrated. As an illustration the following case is cited:

*Insanity from Softening of the Brain—Operation—Complete*

*Relief.*—A. M., of Derby, Kan., age 56; had cerebral hemorrhage six years before my examination, involving speech center and area. At first he was completely hemiplegic and totally unconscious. After a few days consciousness gradually returned and later on the use of the leg was restored. At the time of examination the following note was made: "Aphasia is total, *i. e.*, practically so, his vocabulary being limited to 'You do, you do,' for yes, or acquiescence, and 'Um-um,' for no, or negation. Agraphia is total, but he recognizes some written or printed words which have been read and explained to him many times. His memory is fully as good as before the 'stroke,' but his intellect appears somewhat affected. Paralysis of right arm is complete, but a fair use of leg has been acquired. At times he is very irritable and has repeatedly threatened the life of his wife; for this, subsequently, he indicates that he is very penitent, and intimates that the impulse is beyond his control; in his sane moments he answers yes, very vigorously when asked if he regrets his mental irritability and moral irresponsibility; he complains of a band-like sensation around his head and often suffers intensely from headaches." Upon examination I made a diagnosis of softening of the brain involving the region of the lower part of the Rolandic fissure and possibly also a part of the sphenotemporal lobe as well as some of the parietal convolutions. I explained to him and to his doctors that no one beside myself had ever made the proposal to operate for cerebral softening, pure and simple, and that it was purely experimental, as well as not wholly without danger. The reply was that any danger would be encountered for a bare possibility of even incomplete relief from the fearful maddening sensations in the head.

Under such circumstances on June 27, 1892, assisted by Drs. J. F. Binnie and J. D. Griffith, I removed a considerable portion of the skull over the affected region. On turning back the dura there was disclosed a cloudy infiltrate in the pia and an apparent fluidity beneath. Taking sharp-pointed scissors I plunged them into the middle of what should have been the third frontal convolution, and withdrew them, open. There followed a gush of broken-down brain and other *débris* of creamy consistency to the amount of fully a pint; but no pus. The large cavity was carefully washed out with sterilized salt solution (*no antiseptic solution ever being permissible inside the skull*, except possibly in cases of abscesses) left filled as nearly full as possible with the fluid, the dura was replaced and stitched, and the scalp sewed into place without drainage, after careful arrest of all bleeding, and a firm compress of bichlorid gauze applied. The operation lasted but a few minutes, and the patient was put to bed without shock. He slept better that night than for months, awakening the next morning with the smiling indication that his head was better. There was a rise in his temperature to  $99\frac{3}{4}$  on the second day when he insisted upon sitting up in a rocking chair. On the third day he was up, around the halls of the hospital with a profoundly cheerful "You do, you do," in reply to inquiries if he felt better.

The improvement was not temporary, as was predicted by some who heard for the first time my proposition that such cases can be relieved by operation. He was discharged on the fourteenth day in excellent condition mentally and physically.

To this day he has had no recurrence of the bad symptoms, is passing an enjoyable life in traveling, and has sent me, I believe, six other cases for trephining; and with his grateful "You do, you do" is spreading the good news that for such hitherto helpless cases there is a possibility of relief in surgical interference. There is no improvement in his speech nor in the use of his arm, but he thinks he has far better control of the leg than before the operation.

(f). *Insanity of chronic hydrocephalus.* Chronic over-distension of the ventricles, as well as subarachnoid effusion, may end in terminal dementia. I have heard of only one operation for hydrocephalic insanity, and the result I have been unable to ascertain. It is justifiable.

3. *Epileptic Insanity.*—It is a natural and correct inference that so serious a disease as epilepsy would often lead to the development of insanity. Bucknill and Tuke calculate that epileptic insanity constitutes about 6 per cent. of all cases admitted to asylums; this does not include that very large class of cases

in which epilepsy exists merely as a complication of the mental disease. In view of the number of cases, and the frequency of operations for simple epilepsy, I am surprised that I can not find any published reports of trephining for epileptic insanity. There certainly must have been many such operations already made. I know of two cases in this city, in the practice of Dr. A. B. Shaw, the history of neither having been published. The points of interest are these:

*Epileptic Insanity—Operation—Some Improvement.*—Mr. —, who had been epileptic for many years, was suddenly seized with furor epilepticus. He was violently insane and at the end of ten days manifested no sign of improvement. He was therefore trephined upon both sides of the head. The skull was very thick and eburnated—fully one-third of an inch and like ivory, but there was no increased vascularity of the diploë as is so often met in general paresis. An opening,  $2\frac{1}{2}$  by  $2\frac{1}{2}$  inches, was made upon either side and the dura freely opened. It was exceedingly thick. No abnormal condition of the cortex of the motor region was discoverable. Upon his recovery from the anesthetic it was found that the insanity was gone. He had no recollection of any event which transpired during the ten days of his maniacal state. The epilepsy vastly improved for a long time and he was in good mental condition, but the openings finally became filled with firm, unyielding, fibrous tissue, after which the epilepsy gradually grew worse, then epileptic insanity developed and he was sent to the insane asylum where he now is; a second operation being refused.

*Epileptic Insanity—Operation—Change of Form of Insanity the only Result.*—Miss —, age 32 years, developed epilepsy at puberty. The general health became impaired, the epileptic paroxysms assumed a very severe character and at about 30 led to the development of chronic delusional insanity. The same operation was performed as in the case just mentioned. She seemed much better for a time and the epilepsy was entirely relieved for eight months. Then the convulsions became bad again, delusions once more were established with marked prominence and the insanity was fully as bad, if not worse, than before the operation. The only change which occurred was in the form of the insanity—she had a severe grade of melancholia taking the place of simple delusional insanity.

The effect of the operation in this case was much like that of my second illustration of the traumatic variety, from dementia to melancholia. While these cases do not count for much in the way of encouragement, I still feel like advising experimental trephining in every case of epileptic insanity where there is any localizing symptom; and I am not sure but Shaw is right in making double windows in the skull over the motor region in cases presenting no localizing signs.

4. *General Paresis.*—In general paralysis of the insane we have far more numerous reports than in any other form of mental disease. It is in the first stage of this malady, if at all, that I shall look for beneficial results, for here we have a mental disease (so-called) which is dependent upon gross lesion, generally slight in extent at the outset. According to Maudesley, morbid adhesions of inflammatory origin, slowly spreading, between the cortex and its investing membranes, constitute the most characteristic lesions, being absent in only a small percentage of cases. If then, by surgical means, we can arrest the spread of the trouble while it still involves that part of the brain which presides over the higher mental powers and ethical feelings—the centers which first fail almost uniformly—we may prevent implication of the motor, sensory, trophic and vasomotor regions. Upon this argument numerous operations have been made and excellent results have been recorded, notwithstanding the teaching we have been wont to accept, *viz.*, that the pathologic changes are



not purely cortical, superficial, but involve cells, vessels, fibers, neuroglia, and the ependyma of the ventricles; and that the degenerative process sometimes begins in the spinal cord. But we are compelled to accept clinical results regardless of our ideas of pathology—"conditions, not theories, confront us."

Claye Shaw has reported two cases of unquestioned general paralysis trephined at the Bamstead Asylum, in which the adhesions were broken up, iodoform dusted in freely and great improvement obtained. Another case was operated on at the Brockwood Asylum with the result that "there was marked relief of several prominent symptoms." (*British Medical Journal*, September, 1891.) Rey records a case (*Le Progrès Médical*, Aug. 15, 1891), which was able to return home in six weeks and afterward remained calm and quiet instead of the opposite conditions, which were pronounced prior to operation. The subsequent history is unknown.

One operation for general paresis was made by Wagner at the Utica Asylum. Much fluid escaped from the sub-arachnoidean space, estimated at six ounces, and a number of adhesions were relieved. There was great improvement but the patient died in six weeks. The autopsy showed pachymeningitis interna chronica hemorrhagica with cerebral atrophy. Quite a large number of other operations have been recently published—nearly all with encouraging results.

5. *Syphilitic Insanity*.—This form of insanity may depend upon minute structural changes in the brain and meninges which can not, says Fournier, be distinguished from the lesions of diffuse, interstitial meningo-encephalitis; but much more often it is caused by gumma or gummatus infiltration (the disseminated miliary nodules of Engelstadt and Lancereaux). Gummata are most frequently situated in the dura and subarachnoidean space as: 1, somewhat hard, dry, white circumscribed tumors; and 2, grayish-red, moist, gelatinous, semi-transparent masses. Manifestly some of them can be readily removed by the knife; and as internal medication only palliates—rarely cures—such cases are typically of a surgical character. I have already detailed one successful operation for syphilitic intracranial growth characterized by insane symptoms. There can be no doubt about the propriety of operation whenever there is any certainty as to the location of the irritating deposit. And even if no marked local disease be found there may be decided improvement following operation—though just *why* the change occurs I can not explain. Through the kindness of Dr. William Fuller, of Grand Rapids, Mich., I am enabled to present this history of such a case:

*Syphilitic Insanity—Operation—Improvement but not Cure—No Lesion Found*.—The patient was a man of 30 years of age, who was insane for seven years; the disease was unquestionably of syphilitic origin, but he had been flooded with mercury and iodid of potassium without benefit. The most violent epileptic seizures were of frequent occurrence. His mental condition was one of almost total wreck; his mental reflexes were nearly perfect but disconnected—he could entertain but one idea at a time. For example, when his mother visited him after a separation of three months he greeted her as if he had parted from her but an hour before; while talking with her the dinner bell rang, when he at once left her and walked to his meal and did not remember to return. He was never vicious, nor showed any evidence of interest in surrounding things or persons—he was perfectly apathetic. Examination showed marked asymmetry of the head; the right parietal eminence looked like a saucer and careful investigation showed this want of symmetry to be acquired, not congenital. From this aspect it was presumed that some

motor disturbance would be found upon the left side of the body, but this was not the case. The right side of the body was somewhat atrophied, and much weakened in its muscular contractility; the epileptic seizures were at first confined to the right side, and after they developed into general convulsive epilepsy the spasms invariably began in the right side. The right pupil was permanently dilated but was still sensitive to light. There was some incoördination. Although the external indications pointed to trouble upon the right side of the head, the localizing symptoms positively indicated the left hemisphere as the seat of irritation and at the operation these, instead of the local signs were followed. The greater portion of the left parietal bone was removed; the bone varied greatly in thickness at various points, being more than a half inch thick at the Rolandic region. The dura was not affected and the subjacent brain appeared normal. There was considerable enlargement of the Pacchionian bodies.

There was little shock from the chloroform or operation. Two hours afterward he awakened, and asked: "Has my wife gone home?" a moment later: "Has mother gone, too?" and a little later: "Did they go together?"—three questions connected with each other, in logical sequence, something unknown in the history of his disease. He improved rapidly, so that in two weeks he went all about the city with his nurse, paying carfare correctly, obtaining proper transfers, making purchases, introducing friends to each other, etc. The change was marked and gratifying. Several weeks after the operation he again became subject to epilepsy—having many severe convulsions close together; he finally sank into a comatose condition and appeared to be dying. Dr. Fuller was called and found the patient profoundly unconscious, pulse almost imperceptible, the respirations about eight to the minute, the face cyanotic and the general appearance that of a man in *articulo mortis*. The opening in the skull was greatly elevated and tense beneath the scalp instead of being depressed and pulsating. He therefore thrust a bistoury through the scalp and dura just as one would lance an abscess. Several ounces of serum escaped and two or three ounces of blood from a cut vessel in the meninges. This was caught and an antiseptic dressing applied. The cyanosis and other bad symptoms immediately subsided and in a short time the patient was up as if nothing had occurred. He soon after developed suicidal impulses and was sent back to the Michigan Asylum, where he died nine months after the operation in the post-epileptic stage of a severe convulsion. No autopsy was permitted as the asylum physician characterized the operation as a gross outrage, in spite of the marked improvement!

Had an operation been performed upon the right side of the head, subsequent to the one upon the left, the probabilities are that cure might have resulted. It is certain that operative treatment is the only one which promises much in syphilitic insanities. As I said in speaking of intracranial gummy tumors, we are puzzled at the inefficacy of internal medication; the symptoms occasionally yield temporarily to our remedies but return again and again. The conclusion at which I have arrived from a study of quite a large number of cases of cerebral syphilis is similar to that of Mr. Horsley, viz., the only hope of permanent relief lies in removal of the affected area whenever it is accessible; nor is it absolutely necessary that any lesion be found in order to effect a cure, as sometimes the insanity yields to simple craniotomy. Whether or not such a result is due to the curative action of the operation *per se*, as claimed by J. William White, matters little so long as the mental trouble is cured.

6. *Paranoia*.—Burckhardt has detailed six cases of this form of insanity with marked hallucinations, which he subjected to operative treatment. In the two cases he aimed to intersect the paths of association, which he thinks transmits the pathologic impressions coming from sensory parts and certain ideogenic areas of the brain; a portion of the frontal and parietal lobes, before and behind the ascending convolutions were removed with very satisfactory results in one case,

the other dying from convulsions on the sixth day. In three other cases the hallucinations were more or less acute and in these the operator attacked the centers through whose injury sensory and motor aphasia are produced, and removed a part of the first temporal and the third frontal convolutions on the left side, which appeared diseased, and with satisfactory results. In one patient, ablation of portions of the right superior parietal convolution and the supra-marginal gyrus caused paralysis of the left arm for seven weeks and transitory paresis of the left leg. Recovery from the paranoia was perfect. From these experiments it seems possible that with additional experience and a minute study of the pathologic changes seen in the brain, the knife may be the means of restoring to reason many cases now considered incurable.

#### RULES FOR TREPHINING FOR INSANITY.

1. Every depressed fracture of the skull should be subjected to operation at the time of accident, regardless of the amount of depression and irrespective of pressure symptoms.
2. Every case of prolonged unconsciousness following a blow in the frontal region should be trephined for exploratory purposes; upon both sides if necessary.
3. The skull should be opened in all cases of insanity dependent upon trauma, at the earliest possible moment after development of the mental symptoms.
4. Operation is justifiable in every case of serious suspicion of tumor, abscess or softening of the frontal (or any other accessible) region.
5. Operation is advisable in every insanity following cerebral or meningeal hemorrhage in which localization is possible, the clot accessible and the mental trouble of recent development.
6. Every case of insanity developing in the history of otitis media suppurativa deserves immediate exposure of the favorite site of cerebral abscess.
7. Trephining for the purpose of breaking up adhesions of an old meningitis has been successfully practiced though it is not to be strongly advised.
8. Establishment of permanent drainage beneath the scalp is permissible in the beginning of a terminal dementia succeeding chronic hydrocephalus.
9. Operation for epileptic insanity is advisable whenever there are symptoms pointing to a focal lesion.
10. Experimental trephining in the early stage of general paralysis of the insane is considered worthy of further trial.
11. Operation should be done for even a suspicion of the existence of a gummy deposit in the bone or meninges.
12. The formation of fenestræ in the skull is permissible whenever there is evidence of intracranial pressure, even of unknown origin.

## SOCIETY PROCEEDINGS.

### Association of Military Surgeons of the United States.

[Special correspondence of the JOURNAL.]

*Fifth Annual Session, at Buffalo, N. Y., May 20-23, 1895.*

The meeting this year was in every respect an unqualified success, to which the lavish entertainments of the citizens of Buffalo greatly contributed. In a professional paper like the JOURNAL, these should be passed over with a few words,

but at least an enumeration of them will be permitted as a slight commemoration of the successful efforts on the part of Buffalo.

A *conversazione* of the Microscopical Society, a similar entertainment at the Iroquois Hotel, a magnificent full dress reception at the Buffalo Club, a carriage drive to Fort Porter and other points of interest in the city, a promenade concert, review and parade, tendered by the Colonel and officers of the 65th Regiment N. G., N. Y., and a well-planned excursion to Niagara Falls with a visit to the electric power plant, composed the official program of festivities, which were interlarded with private dinner parties and luncheons, notably those given by Professor Park and Dr. Chauncey Pelton Smith.

These entertainments induced a closer acquaintance among the medical officers present and aided greatly in the harmony of the meeting. The sessions were opened at the Star Theater with a prayer by Rev. William C. Wilber, followed by Hon. Herman T. Rogers, who welcomed the visiting surgeons, on behalf of Governor Morton, to the State of New York. He was succeeded by Hon. Edgar B. Jewett, the Mayor of Buffalo, who spoke for the city of Buffalo, and then by Prof. Roswell Park, President of the State Medical Association. The latter gave a very interesting historical review of the status of the military surgeon. Col. Geo. C. Fox then welcomed the Association on the part of the National Guard, and eulogized the efficiency and progressive spirit of its surgeons. Announcements were then made on behalf of the Buffalo Committee of Arrangements by Major Albert H. Briggs, Chairman. (It may be proper at this stage of my report to speak of the very successful administrative labor of Dr. Briggs, as the elaborate program of the committee did not fail to connect in every detail.)

General George M. Sternberg, Surgeon-General U. S. Army, and President of the Association, then delivered the annual address. While giving credit to the superior facilities of civilian surgeons for gathering experience, he laid stress upon the necessity of special training for the military service. If more of this had existed at the outset of the War of the Rebellion, a great number of lives, sacrificed not only through wounds, but by disease, might have been spared. He illustrated from his experience at Bull Run, what unfortunate conditions resulted from the want of organization. Very little surgery can be done at the fighting line, and a well-trained corps of sanitary soldiers will in future wars greatly facilitate the immediate care of the wounded.

He then enumerated the changes which will take place in military surgery owing to improvements in firearms, small arms as well as artillery, and gave a description of the Hebler tubular bullet, the very latest projectile devised to still more reduce the weight of ammunition and increase the flatness of the trajectory.

The address was replete with practical instruction and it is to be regretted that no more space can be given it here.

The meeting then adjourned to the amphitheater of the University of Buffalo, where thereafter the sessions were held.

The first paper on the program was

#### CONSERVATIVE SURGERY UPON THE BATTLE-FIELD,

by NICHOLAS SENN, Surgeon-General, N. G., Ill. It was so full of practical advice that it will be difficult to give a synopsis of it, and be just to the great amount of well-digested information. The following are the main points: military surgery will no longer countenance mutilating operations except when nutrition of the limb is arrested by the injury. Prompt aid on the battle-field is first to be aimed at, and only to be obtained by a well-trained hospital corps. This embraces the treatment of hemorrhage, to counteract shock, primary dressing, immobilization and transportation. As to hemorrhage ligation can not be relied on. The best measures are elevation of limb, digital compression, forced flexion with fixation, elastic constriction (with regard to the latter it has been found that it can be borne for from four to six hours without danger of gangrene or paralysis), antiseptic tamponade. In hemorrhage of the three cavities the great triumphs of antiseptic surgery can be achieved. Favor the escape of blood from the brain by antiseptic drainage. In penetrating wounds of the chest, pack the orifice with an antiseptic tampon and secure immobility by gunstraps or other means at hand. The same means should be employed in abdominal wounds, adding to them compression of the aorta, if the injury appears below the bifurcation; direct compression in the direction of the track of the bullet. Where possible, seize

the bleeding vessel with hemostatic forceps, leaving them temporarily in the wound if necessary. Ligation will usually not be done on the battle-field. Silk is a much safer material than catgut. The ligature should not be tight enough to rupture any of the coats of the vessel. Veins should be sutured in incomplete wounds, in the same manner as Lembert's suture. Hot water will seal smaller vessels. Styptics should be condemned. Infusion may become necessary and the 6 per cent. salt solution, about 1,000 grams, is safest. Auto-transfusion by ligation after elevation may be necessary. As to shock, its effects are felt immediately after injury, while in hemorrhage the intensity of the symptoms increases progressively. Inhalation of nitrite of amyl and hypodermic injections of strychnia, one-fifteenth to one-twentieth grain, repeated are the best treatment with alcoholic or diffusible stimulants and recumbent position. The primary dressing should consist of the antiseptic package to be carried by each soldier. The best place for this is sewed inside of the cartridge belt; half an ounce of salicylated cotton, embedded in it two grams of boric acid and half a gram salicylic acid with a triangular gauze bandage. The immobilization should rely on extemporized aid, fastening sleeve to the coat, supporting the arm by lapel pinned up, rifle, saber, bayonet splints.

Improved methods of transportation are necessary, owing to increased distance of dressing station and hospital from firing line.

At the field hospital, the hemostasis will be made permanent, abdominal and cranial cavity opened if necessary. Probing is discontinued. If a bullet probe is to be used, it should be as nearly as possible the same caliber as the projectile. Craniectomy is indicated in every case of penetrating wound of the cranium. Laparotomy is advisable and feasible in penetrating wounds. Primary amputation is only justifiable by extensive injuries of the soft parts and fractures and joint wounds complicated by injury of large vessels and nerves. Primary resections for gunshot wounds of joints are obsolete. The main object will be to prevent complications by disinfection, removal of bullet, if in close proximity of joint, gauze drainage and immobilization.

The second paper, although read first, was "Asepsis in Military Service," by EDWARD BOECKMAN, Assistant Surgeon-General, N. G., Minn. He explained the best and most convenient methods of aseptic surgery, exhibiting his portable sterilizer and aseptic dressings.

The next paper, "Septic Bullets and Septic Powder," by CAPT. LOUIS LA GARDE, Assistant Surgeon U. S. Army. He related experiments in addition to those reported heretofore in Vol. LVI of the *New York Medical Journal*, showing that bullets can carry disease germs. He also demonstrated that of the various kinds of powder used, the black powder, being only consumed to the extent of 57 per cent., if fired close enough, might carry microorganisms, and may explain infections like tetanus and malignant edema in a fair proportion of the cases, while the Peyton smokeless powder contains a substance which inhibits the growth of bacteria of less resistant forms of germ life.

The next paper was on the

#### LOCATION AND DETECTION OF MISSILES,

by PROF. ROSWELL PARK of the University of Buffalo, late Brigade-Surgeon N. G., N. Y. After a historical review of the question, he announced as a main topic: 1, under what circumstances is a gunshot wound to be interfered with for the removal of missiles; and 2, how are said missiles to be treated or detected? The answer to the first query is that bullets are to be removed when they do actual harm or for cosmetic effects. The injury due to the presence of a bullet may be ascertained either by the rational or the mechanical method. The former embraces a study of the physical signs—pain, loss of function or sensation, from simple anesthesia to motor paralysis, ecchymoses, the so-called local stupor, the amount and character of hemorrhage.

The mechanical means embrace the various probes used for locating bullets. They should seldom be resorted to, owing to disturbance of blood clot, entrance of air or infection. If probing is resorted to the surgeon should be prepared to complete the work of removal at once. He then successively enumerated and explained the advantages of Nélaton's porcelain-head probe, Culbertson's meerscham-head, Deneux's method, Bauden's tire-fonds, Loulaut's trocar, Baudry's tenaculum probe, Neudörfer's saw-tooth probe; then the various electric probes (Favre, Neudörfer, Rhumkorff, Luini, Sesemann, Liebreich, Maschek, Kovars, Longmore), likewise Fenger's endoscopic method. The latest instruments are those of Professor Hughes, the induction bal-

ance, which failed in President Garfield's case, and the Girdner telephonic probe. Professor Park illustrated the action of the latter on a chloroformed dog, into which for experiment's sake shot was introduced through a trocar.

A paper by CAPT. LA GARDE, "Experiments illustrating the Degree of Powder Burn," is valuable chiefly from a medico-legal standpoint, as it demonstrated that black powder causes powder burn at fifteen feet from a long barrel, from a short one at thirteen feet, at a somewhat lesser distance with the Walsrode and American wood smokeless powder, while it is practically absent in the Peyton powder, which is used in the new U. S. Krag-Jørgensen rifle.

GENERAL J. D. GAFFITH, ex-Surgeon-General, N. G., Mo., read a paper on "Some of the Effects of the New Bullet, and how can a Soldier Protect himself?" The following are his conclusions, which generally agree with the observations of other experimenters: battles of the future will not be fought at artilleristic range; any soldier can protect himself by the use of his bayonet as a pick; the best protection is loose dry earth, the next best loose sand; at distances up to 1,000 yards the explosive quality of the missile is terrific; this explosive quality is most marked in soft tissues and cavities—the brain and lung tissues are terribly torn and the heart burst; when a viscus is grazed by a bullet, it is much mutilated; vessels are cut, not torn, hence death rate on the field will be very great (four killed to one wounded probably); tendons seem to be the only parts of the body turned aside by the bullet.

"The Value of Bromin in Military Surgery," was reviewed in the paper of M. O. TERRY, Surgeon-General N. G., N. Y. After an extended pharmacologic and historic review, he proceeded to submit his observations on this remedy and extolled its remarkable effects in dissecting wounds or cuts of all sorts by poisoned instruments, injuries made by a rusty nail, suppurative wounds, especially of joints with sinuses, and phlegmonous inflammations. His formula is 1 to 64 of bromin with bromid or iodid of potassium, which he uses either in full strength or diluted. He claimed particularly favorable results in phlegmonous erysipelas with 1 to 240, locally applied. In diphtheria he uses Testé's treatment of internal administration of 1 to 3 drops of 1 per cent. solution hourly. In preparation for operations a "weak" solution with carbonate or bicarbonate of soda. In all septic conditions 1 to 3 drops of the 1 to 64 solution every three to six hours.

LEWIS BALCH, Major and Surgeon, N. G., N. Y., read a paper on "Details regarding the Medical Service of the National Guard of the State of New York during the Buffalo Strikes of 1892," an eminently practical paper showing that the surgeons of the National Guard had been benefited by the examinations for the service, by the instruction received at Peekskill, and by the organizing talent of General Josiah Porter, and Surgeon-General Bryant. The sanitary service seems to have been well performed and considerable ingenuity shown in improvisation.

MAJOR C. CHASE WILEY, Major and Surgeon, 18th Reg. Inf., N. G., Pa., read a paper on "Field Hospital Service of the National Guard of Pennsylvania," at the twenty-eighth National Encampment of the Grand Army of the Republic, at Pittsburg, Pa., of which he was Medical Director. He equipped seventeen field hospitals and treated therein 763 soldiers and visitors, the total number of visitors being 250,000. Four hundred civilian surgeons attended this vast crowd. The territory covered by these arrangements was embraced in a circumference of fifty miles. Along the line of march, hospital tents were pitched at intervals of a third of a mile, with ambulances interspersed in the column.

The report of the Committee on Litter, nominated at the fourth annual session, was submitted by Medical Director A. L. GIBON, U. S. Navy. This committee was appointed to report a desirable form of military litter, and to solicit from medical officers plans and models. In response eleven different kinds of litters were submitted in addition to the six of the last session. The committee, whose members reside in Boston, New York and Washington, could not meet to submit the specimens to experimental trials, and therefore did not feel justified in discussing the subject in their report; they suggested that the Surgeons-General of the Army and Navy be requested to convene a joint board of medical officers of the two services for exhaustive tests, and that their decision be submitted to the Surgeons-General of the National Guard, in order that an apparatus for general use throughout the entire country may be selected. On motion, this suggestion was adopted.

An extract from the report of the committee on the organization of the American branch of the Red Cross Association, and its status in connection with the medical depart-

ment of the National Guard and U. S. Army, will show the views of this committee. In substance they report as follows: it would be unwise to place reliance on volunteer civilian aid in the important and dangerous service of the field ambulances. Enthusiasm will sustain individual volunteers in times of danger, but it can not be trusted to carry on the coöperative work of an ambulance service. Men trained and disciplined under the iron hand of military control are the only fit instruments for such work. In well-disciplined military commands the potential energy of the company is infinitely stronger than the mere sum of the powers of its individual components. Military cohesion gives increased courage and coolness to the individual and keeps the command at its post of duty, notwithstanding exposures and losses that would demoralize men having no military training. A company of volunteer civilians is liable to become disintegrated by any unexpected event of an alarming or threatening character, and such events are of common occurrence on the field of battle. . . . But although it is not likely that the American Red Cross Association will be of material service on future battle-fields, the history of the German Association and of our own Sanitary Commission shows that it may be of inestimable value in adding to the comfort of sick and wounded soldiers in hospitals removed from the actual theater of war. Besides, under the "American Amendment" the Association has grand opportunities for administering material relief in times of pestilence, famine, flood or other calamities, as the Michigan forest fires of 1881; the South Carolina earthquakes of 1886 and the tidal wave of 1893; the Texas drought of 1886; the cyclones and floods in Mississippi and Illinois.

A paper on the "Post Exchange from a Medical Standpoint" was prepared and read by MAJOR PHILIP F. HARVEY, Surgeon U. S. A., at the invitation of the Literary Committee. It excited universal interest and was an able, impassionate defense of one of the innovations in the Army for the purpose of decreasing drunkenness, increasing the comfort and contentment of the enlisted men and securing them a fair return for their money as against the extortions of the old tradership system. A careful historical review of the birth and growth of the exchange system under Government surveillance formed the first part of the paper. Testimony from a number of medical officers of the Army proving the beneficial effects on health and morality is quoted profusely, showing an almost entire disappearance of delirium tremens from the service and great reduction in minor crimes and delinquencies. Dr. Harvey in a long argument ably meets the objections of temperance advocates to the sale of light beer in the Exchange. There is an innate craving for a stimulant among all the nations of the earth. We deplore it and bend our energies to overcome it. We would, if we could, banish it with the wave of a magician's wand, but any nineteenth century child knows the impotence of such an expedient. If we can succeed in substituting a comparatively harmless beverage for one that inflames the passions, poisons the blood, and creates criminals and imbeciles, have we not partially solved the problem? It is a matter of common observation that the effects of beer upon the organism are very different from those of distilled liquors, both as they affect the intellectual faculties and the cellular elements. The lunch counter of the Exchange appears also to have its enemies, and Dr. Harvey goes to great length to show that there can be no possible harm in having the ration supplemented by a cheap lunch at the Exchange. He remarks upon the impediments to a perfect operation of the Exchange, viz., imperfect facilities and faulty arrangements, which with Government aid, which is due to an institution under its control, can be easily remedied. The destiny of the Post Exchange in the event of war is an interesting medico-military problem, which offers few difficulties to solve. He concludes by enumerating what we should try to realize in future from the Post Exchange.

COL. DALLAS BACHE, Assistant Surgeon-General U. S. A., read a paper on

#### MEDICAL FIELD SERVICE.

In future wars, he said, we will not be able to count on the litter-bearers, nor can we think of carrying away the wounded *during* the battle; the evacuation of the field in twenty-four hours is all we can hope for. (Billroth, Bardleben.) This will be due to the extension of the zone of effective infantry fire from 600 to 1,800 yards and that of the artillery to two and one-half miles with shrapnel. The percentage of wounded based on former wars can not be relied on; it will especially vary in certain parts of the field, and the medical service can neither be shifted *in extenso* nor pro-

vided for beforehand. He then gave statistics of the percentage of losses in the last few wars, which varied according to the particular conflict. While it averaged about 14 per cent., it rose in the 1st Minnesota at Gettysburg to 82 per cent., and at Gravelotte in the 3d Westphalian Regiment to 37 per cent.

The proportion of wounded to killed is generally accepted as 4 to 1, while if we accept the results of the Chilean war for the new weapons, it will be four killed to one wounded. The whole loss in battle will be increased and provision for 20 per cent. will not be excessive.

The work of gathering the wounded is assigned in all modern armies to the stretcher bearers of the line. This is a fundamental error. These men are trained as fighting soldiers and to divert them to another purpose is illogical and impracticable in the stress of an ordinary campaign. The training of these men will become unavailing too, as owing to the casualties of the campaign extensive changes will take place among them.

These company bearers are useful in garrison and encampment or after a serious battle, but should not be computed as the allowance of *personnel* for field service. Computing carefully everything bearing upon the question, distance of transport, field hospitals, reserves, casualties, the number of the medical service should be 4 per cent. of the force.

We are without a general scheme of arrangement and finished detail, outside of the management of our posts. The organization of our Hospital Corps is suited to a highly divisible administration, that of garrison or post service, but there is no compact cohesion—the men are not a disciplined body. The present division of line of assistance between the troops engaged and the division hospital is the collecting station, 800 to 1000 yards from the line. This is attended to by the company bearers at present, which, as mentioned above, would not be feasible at all times in actual war. This calls for a high degree of military training on the part of medical officers.

The next paper was by LIEUTENANT LINCOLN CHASE, Mass. Vol. Militia, on the "Measures for Prevention and Suppression of Dangerous Diseases in Garrison and in the Field." He showed that during the late wars, from the Mexican campaign to the present time, the proportion of deaths from wounds to those from disease were from 1 to 7 up to 1 to 2, according to the duration of campaigns. Theoretically, all diseases are preventable. The prevention should begin with systematic careful recruiting, especially avoiding acceptance of very young men. Young men from the cities are preferable, unless there is time for a year's training. An efficient sanitary service will, in the field, be a great preventative. Among the special measures of prevention, after enumerating those known to every trained medical officer, he mentions bacteriologic detection of diphtheria and tuberculosis in camp, which seems scarcely feasible.

I regret, that as I am about approaching the consideration of the next paper I find that I have almost reached the limit of the space allotted me for this report, as it is worthy of a full and careful synopsis. If I dispose of it in a shorter manner, it is done with great regret, as a wide dissemination of the unusual amount of information conveyed is most desirable.

#### The paper is the second one of COL. DALLAS BACHE on the SELECTION OF SITES AND THE CONSTRUCTION OF MILITARY POSTS IN RELATION TO PROPER SANITATION.

Three considerations govern the location of every post: military necessity, convenience, and health. The latter has been least consulted. Commercial necessity in construction of cities entails military necessity in the location of works for their protection. But in the construction of our Western posts absolute location in a particular site was not necessary and if sanitary advice had been consulted, loss of life and expensive removals could have been avoided. In the location of the large permanent posts throughout the country we have reason to expect certain sanitary interrogatories and careful consideration of the replies. There is a tendency to ignore the deeper exhibits of the soil, its air, water, temperature, although they have a highly probable relation to health. The regional climatic conditions, such as direction and velocity of the winds, the amount of rain and snows, the prevalence of fogs must be considered, as well as too much or too little shelter by hills. The subjects of ground air and ground respiration are important,—an aerial tide, rising and falling with the ground water, moving readily in all directions, loaded with carbon dioxid, the deadly gas, in some places up to 80 per cent. always under the control of the ground heat. The ground water is another important



sanitary factor. The composition of the soil will teach us its absorption, and the floor of the subsoil its disposition. The diurnal and annual curves, the former reaching four feet, the latter from fifty to one hundred, are of great importance. For example, we know that a soil rich in the products of vegetable decay, freely supplied with moisture by rainfall or from the ground water, especially if the latter is stagnant and superficial, and combined with these a soil temperature of about 65 degrees F. will produce malaria. Tuberculosis, cholera, typhoid fever, diarrhea, dysentery are more or less affected by the condition of the soil. This is not new, but not generally understood. As an example he cites one of the new permanent posts, the ground water on whose site is so superficial that when the foundations were laid the pumps had to be in constant use, while a short distance off a dry ridge could have been selected.

The consideration of the water supply and the disposition of liquid waste are also subjects for consideration. One of our newer posts obtains its water from two artesian wells, and its liquid waste flows upon a sewage farm owned by private parties—a precarious arrangement.

As to the construction of posts it includes quarters for the officers, the non-commissioned staff, barracks, hospital, guardhouse, storehouses, bakery, stables, repair shops, administration building, gymnasium, riding hall and crematory. There should be a fixed amount of floor area, cubic space and rates of air renewal, based in the everlasting change of the composition of our units, on a possible maximum. The bathrooms and closets should not be distributed among the companies, but should be central, under one management, removed from the barracks. The barracks should not be in one building, but separate pavilions.

The result of more careful attention to the sanitary condition of troops is that from 19 per cent. of mortality during the period of 1840-59 it has fallen to 4 per cent., not including war losses, with a corresponding ratio for discharges for disability.

The last paper read was by MAJOR A. C. GIRARD, Surgeon U. S. A., on

DUST A SOURCE OF TYPHOID INFECTION, a histological and clinical essay, based on his experience during the Chicago riots, when a part of the cavalry, who were camped on newmade and probably infected ground, had thirty cases of typhoid fever, while Chicago was healthy, and troops camped on other ground or in the city did not suffer. A whole regiment of infantry, camped on the same ground with the above cavalry, had no cases of typhoid. The water and food was the same for all the troops. The flies were equally bad through the whole camp. By exclusion he believes this to be dust infection, from dust groomed off the horses and deposited in the mouths of the men.

A large number of other papers were presented and read by title. An enumeration would not add to the value of this report.

A pleasing incident occurred on the second day of the meeting, when Major J. V. R. Hoff, Surgeon U.S.A., on behalf of the Association, in an eloquent speech presented to Surgeon-General N. Senn, N. G., Ill., a massive silver trophy in the form of a circular shield about eighteen inches in diameter, upon which was represented a ministering angel with the recumbent figure of a wounded soldier in bas-relief; in the center the red cross in red enamel; around the outer edge of the buckler in raised letters was the following inscription: "To Nicholas Senn, M.D., Ph.D., L.L.D., Surgeon-General N. G., Ill., the Association of Military Surgeons of the United States inscribes this testimonial, in grateful recognition of his services as its founder and first President, and in the advancement of military surgery. Fifth Annual Meeting, A.D., MDCCCXCV." General Senn responded with his usual eloquence.

### Medical Society of the State of Pennsylvania.

*Proceedings of the Forty-fifth Annual Meeting held at Chambersburg, Pa., May 21, 1895.*

[Special correspondence of the JOURNAL.]

The President, DR. JOHN B. ROBERTS, of Philadelphia called the Society to order at 9 A.M. Prayer was offered by REV. J. A. CRAWFORD.

HON. J. STEWART delivered an Address of Welcome.

The Secretary read his report, showing the marked improvement in the membership of the county societies, due to the efforts of the committee on the extension of membership.

The President briefly outlined his views as to the present management of the State Society, by which the details of business are left solely in the hands of the Committee of Arrangements. He urged the reference of the work of the society to the board of trustees. On motion, a committee of five was appointed to consider this idea and report next year. Committee: Drs. W. T. Bishop, of Dauphin; Alex Craig, Lancaster; W. H. Daly, of Allegheny; H. S. McConnell, of Beaver; and on motion Dr. Roberts was made the fifth member.

Report of the Treasurer showing a large surplus in the treasury, and of the Publication Committee, showing the publication of 2,700 copies of the transactions and the mode of their distribution was read. The recommendations of the latter were referred to the special committee of five.

The Scientific Committee reported their work, the adoption of seventy-five papers for the meeting.

DR. A. KOENIG, of Allegheny read the report of the Committee on Pharmacy, giving a concise account of a number of new remedies and their value.

DR. EDWARD JACKSON of Philadelphia, read the report of the delegation to the AMERICAN MEDICAL ASSOCIATION for the meetings of 1894 and 1895. This report congratulated the society upon the expected improvement in the ASSOCIATION JOURNAL as a result of the efforts of this society.

DR. C. L. STEVENS BRADFORD read the report of the committee on extension of membership, showing the awakening of interest throughout the State in regard to county societies, a general effort to increase the membership, and a plan for the extension of university teaching by means of lectures, etc., to be given by prominent members, the traveling expenses, only, to be borne by each society. It was agreed that this work should be continued by a much smaller committee.

DR. H. G. MCCORMICK of Lycoming, read the report of the Board of Medical Examiners, showing the result of the examinations held thus far, etc.

The report of the Rush Monument Committee was read and the committee continued. DR. H. F. HANSELL of Philadelphia, read the report of the committee on contagious ophthalmia, and presented the bill now before the Legislature on this subject. A full discussion ensued, as many seemed to feel this might prove mischievous legislation. Finally the report was adopted. The action of the committee in presenting this bill was approved.

The report of the Legislative Committee relative to the efforts for a law to prevent the disclosing by physicians of communications from patients in the courts, which was defeated, and for the care of the insane, which thus far showed no results, was read and the committee continued.

The afternoon session was almost wholly given to the reading of scientific papers.

DR. I. C. GABLE of New York, read the "Address in Medicine." He gave a review of the present status of thought of the more important subjects which have excited general interest in the past year. The various morbid processes which are grouped under the class of infectious diseases received special consideration. He regarded the antitoxin blood serum treatment of diphtheria and other infections as the most important advance recently made in modern therapeutics. Modern chemistry and medical progress is rapidly enriching the materia medica in the new antiseptics and is making solid advances as to the true action of those medicines, at first employed empirically, which have long been used as disinfectants and specifics. We are largely indebted to bacteriologic science and laboratory technique for the clearer light which we possess to-day of the etiology of many diseases and the true mode of action of many medicines.

DA. T. D. DUNN of West Chester, read a paper on "Sequelæ of Typhoid Fever." Erythema nodosum occurred in three cases; arterial and venous thrombosis in two cases; abscesses and parotitis in two, nervous affections in five cases. These complications were given in full with their treatment.

VICE-PRESIDENT R. ARMSTRONG of Clinton, in the chair, the PRESIDENT DR. J. B. ROBERTS, read a paper on "Treatment of Malignant Tumors with the Toxins of Erysipelas." An account was given of the reasoning by which Coley was led to attempt the cure of inoperable malignant tumors by the toxins of erysipelas. The method of preparing the toxins and the reasons for combining them with the toxins of bacillus prodigiosus were given; the author reported three cases in which he used this method with success. He also referred to the successful cases reported by Coley and others. Stress was laid upon the fact that the only proved cure of malign-

nant disease is early and radical extirpation. The toxins may have to be used in cases that have postponed operation too long, or after the operation, in the hope that recurrence may be prevented. The hypodermic injections of the toxins are liable to be followed by depression of the patient's strength, but are justifiable because they hold out the only hope of success in cases not suitable for operation. Sarcomatous tumors were said to be more amenable to this treatment than carcinomas.

DR. JAS. TYSON of Philadelphia, read a paper on "Typhoid Fever and the Cold Bath," and exhibited an apparatus for the purpose, which was readily used with but little disturbance to the patient.

DR. J. M. BALDY of Philadelphia, read a paper on the "Prophylaxis of Pelvic Inflammations in Women." He alluded to the number of ailments which arise from these. The main, practically the only cause, the gonorrheal infections. These spread over the whole mucous surface, prevent the occurrence of the pelvic infection, and attack the acute endometritis early before it has passed up. The danger of the infection is lessened and the power to create damage in the tubal cavities is diminished. In all cases of acute gonorrhea which have extended into the uterus, the patient must be looked upon as suffering from an acute endometritis. In acute puerperal cases the germs first attack the free blood clots and accumulated exudates in the cavity of the uterus. Here the free use of the intra-uterine irrigator will flush out the infected products and end the trouble. If the patient is allowed to go for twenty-four hours, in all probability the infection has passed beyond the reach of douching. Then we must follow the germs to their hiding places. The curette now comes in and must be used thoroughly. He described the method of operating.

DR. J. M. BATTEN of Allegheny, read a paper on "Tuberculosis." He showed by clinical observation that the tuberculosis habit is visited to the third and fourth generations. That as far as it came under his observation it is not contagious. At least only slightly among those who have not inherited the tuberculous diathesis. He spoke of the cell theory of tuberculosis and the old theory of heredity, and closed by stating that the proper plan to prevent the disease is to educate the young people how they ought to select wives and husbands in order to have healthy posterity.

DR. W. S. STEWART of Philadelphia, gave his experience in the treatment of diphtheria with the subsulphate of iron. He detailed at some length his cases, insisting upon this as the plan of treatment which offered the best prospect of safety.

DR. J. W. ROOF of Harrisburg, read a paper on "Acute and Chronic Cystitis," and its successful treatment with the bichromate of potassium. He alluded to the causation by neglected gonorrhea, the unskillful use of the catheter, sepsis, etc. Remove the cause, rest in bed, keep the urine neutral, and diluted; locally washing out the bladder, then follow with astringents, etc. Boracic acid is best, hydrogen dioxide and the potassium permanganate are useful. The bichromate of potassium had in his hands been of great value, and he did not know of its use by others.

DR. H. R. WHARTON of Philadelphia, read a paper on "Treatment of Nævus." He recommended the application of nitric acid to the capillary nævus, or ethylate of sodium, but preferred the use of the nitric acid in this form of nævus. In the treatment of port wine mark, he recommended multiple scarification or electrolysis. In the treatment of venous nævus he preferred excision in favorable cases, as a treatment which was most thorough and left the least deformity. In cases unfavorable for excision by reason of their size and situation, he recommended the use of the ligature or subcutaneous ligation. He called attention to the importance of early treatment in all cases of nævus, on account of the rapidity of growth in this form of vascular tumor, and insisted upon the importance of watching these growths carefully and if they increased in size he considered it very unwise to delay the prompt resort to some of the various forms of surgical treatment.

DR. E. LAPLACE of Philadelphia, read a paper on one hundred and twenty-five cases of hernia in which the radical cure was performed. This was a detail of his cases, showing the best method for the relief of this trouble.

DR. H. S. ANDERS of Philadelphia, read a paper on

#### THE PRESENT STATUS OF THE SANITARY MOVEMENT FOR THE ADOPTION OF THE INDIVIDUAL COMMUNION CUP.

Attention is directed, at the outset, to the fact that while the possible, even the probable dangers of the communion cup were recognized, privately and several times publicly,

by the members of the medical profession, it has been but little more than one year since the first use was made of the individual communion cup by any church. This method of administering the communion wine is now believed to be the only sanitary, safe and entirely practical and successful procedure. Besides it has the sanction of scriptural precedent, and of ministerial argument and recommendation. One year's history, carefully scanned, reveals marked progress, not only in the awakening of interest and some general study of the grounds for the innovation; but also in the ready adoption of the individual cup in a rapidly growing number of churches of most Protestant denominations. It is hardly necessary before a body of intelligent and wide-awake physicians, to argue in abstract still less in detail, in favor of the change. The writer's paper, "Prophylaxis in Churches needed by the adoption of Individual Communion or Chalice Cups," read before the Philadelphia County Medical Society Sept. 26, 1894, contains the historical, rational (inductive and deductive) and practical argument for the abolition of the common and the substitution of the individual communion cup. Since the first bacteriologic investigation by Dr. Chas. Forbes (U.S.M.-H. S.) of Rochetter, N. Y., of the common cup's rim and the dregs after a communion service, and the writer's studies two months later, so many churches have obtained and used the individual cup method, that it is difficult to estimate their number.

The first church in Christendom, so far as known, to adopt this modification was the North Baptist Church of Rochester, N. Y., at the communion service held May 6, 1894. Within one month thereafter, fourteen churches in that city had made the change, and six more had signified their intention to do so. These included the Baptist, Presbyterian and Methodist denominations.

After the writer's investigations, the Fourth Baptist Church adopted and first used the individual communion cup in Philadelphia. One Presbyterian, one Methodist and one Reformed Church have followed. The Baptist, Presbyterian, and Reformed pastors are agitating the matter in their respective congregations and associations. In New York City, in Brooklyn, in Pennsylvania, Massachusetts, New Hampshire, Ohio, Illinois, Missouri, Virginia, Georgia, and California, and perhaps other States the movement is progressing after calm, intelligent and reverential thought. The State Medical Society might well sanction the wholesome sanitary reform by stamping it with its official approval and adopting suitable resolutions to be forwarded to the county societies, health boards, and church ministerial associations.

DR. J. M. BARTON, Surgeon to the Jefferson College Hospital and the Philadelphia Hospital read a paper on the

#### DIAGNOSIS AND TREATMENT OF ACUTE INTESTINAL OBSTRUCTION.

Within the last few years the public are ready to accept surgical aid with much less deliberation than formerly, but they still deliberate too long in cases of acute intestinal obstruction. Until recently the chance to operate at all, in such cases was extremely rare and unless our successes are greater than they have been there will be but little to encourage the sufferer, in future, to submit to the knife. The mortality is enormous and almost entirely due to delay before operating. If it were done early, while the patient is yet in good condition but few would perish from an abdominal section, lasting twenty minutes, and almost bloodless. Both in hospital and in private the patient is not unusually in dying condition when the operation is agreed to. The writer narrated in full one case where the patient was sent 250 miles, to him on the eighth day of the disease and the fifth of fecal vomiting; the collapse was so great that though the operation lasted only ten minutes he perished a few hours later; if the operation had been performed five days sooner, when fecal vomiting appeared, he would have recovered.

Acute obstruction is divided into four forms:

1. Strangulation by bands or through apertures; this form is most frequent in young adults with a history of previous peritonitis. Vomiting begins early and is generally stercoraceous, constipation is continuous and absolute, tenesmus is absent, there is great prostration. Such cases require immediate operation as death generally occurs by the fifth day.

2. Volvulus. Here the bowel is so tightly twisted as to at once obstruct the nervous and vascular supply and produce immediate prostration. It occurs in males over 40 who have suffered from constipation. Local tenderness occurs early, vomiting appears late and is rarely feculent; constipation is absolute.

3. Intussusception occurs mostly in children. A tender

tumor can be felt in the abdomen and occasionally in the rectum. Absolute constipation is rare; diarrhea with blood is not uncommon.

It is not well to spend valuable time in attempting to determine the character of the obstruction; it is enough to know with certainty that the intestine is obstructed and the obstruction is not due to fecal impaction.

*Diagnosis of Acute Obstruction.*—An individual, probably in perfect health, is suddenly seized with severe abdominal pain which may remit or distinctly intermit. The abdomen is not tender at first, copious and severe vomiting appear early, the matters vomited are first food, then bile, then coffee-ground looking material and lastly they are stercoraceous. Before the coffee-ground vomit appears, mouthfuls of reddish water are often brought up without nausea or retching. Except in cases of intussusception the constipation is absolute, not even wind passing. There is some abdominal distension and marked shock.

Acute obstruction must be differentiated from

1. Ordinary colic from indigestion. This is preceded by signs of indigestion; gaseous eructations accompany the vomiting, gas is freely passed by the bowel, diarrhea usually accompanies or terminates the attack; the vomiting never becomes coffee-ground or fecal.

2. In hepatic colic the pain and tenderness is at the margin of the right ribs. The pain is intense with complete intermissions, the vomiting is never feculent, there is no constipation, gas passes freely, there is no abdominal distension, light jaundice may be present and occasionally chills and fever.

3. In renal colic the pain begins over one or the other kidney, then passes down the ureter to the testicles and thighs. The urine is scanty and may contain blood; it is passed frequently and with pain; there is no constipation and no abdominal distension.

4. In appendicitis the vomiting ceases in a few hours and never becomes stercoraceous, the pain increases and is limited to the right iliac fossa. There is frequently a distinct mass, and always an exquisitely tender spot to be found in the same region; the temperature is usually elevated and constipation is unusual.

5. In general peritonitis a history of injury or preceding disease can usually be found, the bowels act freely and wind passes readily in the early stages of the disease. The vomiting is rarely violent.

Fecal impaction is most common in adult females with mental troubles; there is a history of long-continued and severe constipation, vomiting appears late, is scanty and rarely feculent. The retained feces can be felt in the colon.

*Treatment.*—The medical treatment consists in washing out the stomach, kneading the abdomen, inverting the patient and giving injections of air, gas or water. It is rarely successful, exhausts the patient, wastes valuable time and occasionally ruptures the intestine. In but few of the cases I have examined could any of these methods have produced the slightest effect. If these methods are not immediately successful, the abdomen should be at once opened and under no circumstances should operation be delayed after coffee-ground vomiting has appeared. When obstruction is suspected, all preparations should be at once made for the operation, so that the moment the diagnosis is unmistakable there may be no delay whatever; it ought to be usually done within twenty-four hours of the appearance of the symptoms. If the location of the obstruction is known the most convenient incision is made, if not known a median incision, just below the umbilicus and large enough to admit the hand is employed. If the seat of the trouble be not at once evident, the head of the colon is sought; if it be distended the obstruction is in the large intestine and is readily located. If the head of the colon be not distended, the collapsed cecum is rapidly passed through the fingers until the seat of the difficulty is arrived at. If the obstruction is due to a band it should be removed close to its attachments so that it may give no further trouble. When it is due to an adherent appendix or to Merkel's diverticulum they should be entirely removed. In strangulation through slits or apertures, it is well to close the abnormal opening after the bowel has been reduced. If the strangulated gut be gangrenous it should be removed and an artificial anus made. An anastomosis operation can be performed later if the patient survive. The patient in acute obstruction is never in a condition to have the shortest anastomosis operation performed. A volvulus must be untwisted and an intussusception reduced. If reduction is impossible, an artificial anus must be made above the obstruction. If, after we remove an obstruction, no matter what its nature, the bowel

be much over-distended, it must not be left in this condition, but must be emptied even if we have to puncture it for the purpose or establish an artificial anus. If the patient is in extreme collapse, with a rigid distended abdomen, operation should not be refused. No anesthetic should be given as it is apt to provoke fatal fecal vomiting. Heat and strychnia should be freely used. A short median incision just below the umbilicus should be made, just large enough to permit a finger to enter and bring out the first distended loop of bowel that presents itself; an artificial anus should be made and opened at once.

If the patient is to be sent to a city hospital, wash out the stomach and give stimulants, use strychnia hypodermically, put the patient on a stretcher and surround him with artificial heat. Send short plain history with him. Telegraph surgeon so that the ambulance may meet the train and there may be no delay when the patient reaches the hospital.

#### EVENING SESSION.

The President called the society to order at 8 o'clock.

DR. H. H. LONGSDORF, of Carlisle, read the Address on Hygiene. She entitled it

#### THE MORAL FACTOR IN HYGIENE.

The science of hygiene is under a great onward impulse through the discoveries and researches in bacteriology. The theories based upon these researches have seemed to make the health problem an easy one to solve, but in spite of these tangible results the retrospect and outlook are not reassuring. Many questions on sanitary lines remain unsettled and there is a growing fear that the race product is on a lower average than formerly, that the vigor and manhood which constitutes the real wealth of the nation is declining.

The causes for this must be looked for in the increase of the dissolute and defective classes and the want of restraint put upon their disease-developing power.

Hygiene in its ultimate meaning is *race development*, and from this standpoint it must be considered among the many humanitarian and sociological questions that perplex the thinker and threaten the integrity of the body politic. If prevention is the keynote of the medical thought of the day, it is the height of wisdom to pay heed to the sources of moral contamination. Overcrowding in cities, child labor, unnatural and unremitting toil by the mothers, are some of the most potential of these causes, and they appeal to the hygienist and to the legislator on the basis of race deterioration and loss to the State.

The absolutely dissolute should be isolated and their labor made productive; 1, to prevent the transmission of their pernicious qualities; 2, to relieve the State of the burden of their maintenance in asylums and reformatories.

DR. G. BETTON MASSEY, of Philadelphia, read a paper on

#### RECENT EXPERIENCE IN THE ELECTRICAL TREATMENT OF FIBROID TUMORS AND CATARRHAL AFFECTIONS OF THE UTERINE TRACT.

In the treatment of two classes of fibroid tumors there is no conflict between the claims of electricity and of the knife. There are cases in which electricity in expert hands can give 100 per cent. of practical cures, not necessarily cosmetic cures, but completely satisfactory, in the comfort and well being of the patient. There are also cases in which electricity can only do harm, and in which ablative surgery is not only wise but imperative. In a third class true conflict occurs, and I may specify this class as made up of large tumors causing much deformity, which by reason of their situation or constitution require prolonged efforts for electrical absorption. If the deformity is great it becomes a question for the patient to decide whether the danger of an operation should not be faced. Operations are frequently performed on small tumors, in which a complete and permanent cure can be assured by electricity. Hemorrhagic tumors of all sizes should be placed under treatment of this kind, the author never having had a failure in curing a hemorrhage or pain and reducing the size. Of non-hemorrhagic large tumors, reduction or disappearance is most certain in instances of symmetrically developed interstitial growths. The class in which electricity is not indicated embraces degenerating tumors, quickly growing tumors, and all tumors associated with purulent inflammation of the appendages. One of the most important services of electrotherapeutics to gynecology is the prevention and cure of tubo-ovarian disease. This affection is dependent upon a uterine catarrh, hence the cure of the endometritis is in many cases the prevention of the former. The positive pole is indicated within the uterus and the negative within the vagina at different applications. A large number of young girls have thus been restored to full womanly health in

spite of the fact that some of them had been advised to submit to an unsexing operation.

DR. C. P. NOBLE, of Philadelphia, read a paper on "Movable Kidney." He gave at length the mode of diagnosis, etc. The trouble seemed much more common than he had apprehended when he came to review the number of cases which had come to his notice.

DR. BENJAMIN LEE, of Philadelphia, read a paper on

#### THE NECESSITY FOR A STATE SYSTEM OF REGISTRATION OF VITAL STATISTICS IN PENNSYLVANIA.

It is a matter of profound astonishment to intelligent foreigners visiting this State, and even to residents of neighboring States, that the great and venerable commonwealth of Pennsylvania, while having nominally a Central Bureau of Vital Statistics and a State Superintendent of Vital Statistics, is almost alone among civilized governments in failure to furnish the machinery by which such a system can be efficiently maintained. Apart from the general advantage of such a system and the question of State pride, there is the fact that the demand for its establishment is widespread, and constantly reiterated by a large and intelligent class of our citizens for all kinds of purposes. Inquiries for such information come from professional men, manufacturers, corporations, libraries, literary societies, the various departments of municipal administration and from officials of all kinds. It may safely be said that vital statistics form the basis of all sanitary work. Their registration and tabulation are to the sanitary officer, and therefore to the State, what "taking account of stock" is to the merchant.

1. In order that municipalities may understand the necessity for sanitary work it is not enough to quote to them the statistics of foreign countries. They need to have the subject brought directly home to them, by showing that a neighboring town or village has exactly so many fewer deaths, or so many fewer hundred cases of sickness each year than take place within its own limits, from the fact that the neighboring town has spent more money to obtain pure water by an improved water supply, pure air by abating nuisances, and pure soil by a proper system of sewerage. In Massachusetts and nearly all the New England States, in New York, Michigan, Illinois and many other States of the Union, such systems have been in active operation for a considerable period, and the records have proved of the greatest value, in the direction just mentioned.

2. Registration of vital statistics has an essential use in preventing the concealment of crime. The statement will scarcely be credited that in this State outside of large cities and a certain number of incorporated boroughs, human beings may die and be put under the ground without official record of any kind of the circumstances. The death of a blooded horse or an Alderney bull is carefully registered in the Herd Book, but the man dies and leaves no trace, as far as any record for future reference is concerned. Is it any wonder that grave-yard insurance has flourished in Pennsylvania? In a civilized community no one should ever be buried without a burial certificate issued by authority of law, and a statement of the cause of death attested by a physician.

3. Properly recorded vital statistics ensure the means of proof of personal identity, of right to property, and of substantiating just claims for the pensions for widows and orphans of those who have died in the defense of their country.

4. A ready means is thus afforded of the proof of age for the prevention of election and other frauds.

5. But outside of these conditions, weighty as they are, when we regard the conditions of a State rather than a city, we have to consider those of the growth of the commonwealth and the relative increase of population. It is desirable to know how many children are born each year in the State, whether they are of native or of foreign parentage, and what the relation of the number of births is to the number of deaths, and thus be able to appreciate what is the natural movement of population, independently of increment by immigration.

6. The writer is convinced that there is no State in the Union with a lower general death rate than that of Pennsylvania, but he has no means of showing it to be so. As indicating the value which is placed upon work of this kind in other States, it may be mentioned that New York employs from six to eight clerks on Vital Statistics alone, whose salaries aggregate \$8,000; Michigan employs seven with salaries amounting to \$7,000; Massachusetts five clerks and an editor, with salaries amounting to \$4,220; and the little State of Rhode Island, whose entire population is less

than that of "Greater Pittsburg," one clerk at a salary of \$500. There is a bill now before the Legislature of Pennsylvania providing for the appointment of a clerk in the Bureau of Vital Statistics at Harrisburg, and calling for the very modest appropriation of \$5,000 to inaugurate and carry on this important work. It is hoped that this society will put on record an expression of its approval of this effort to elevate Pennsylvania to the plane of other civilized commonwealths.

DR. T. S. CULLEN, of Baltimore, Md., having been elected a member by invitation read a paper on "Carcinoma Uteri," illustrating it by an admirably prepared diagram of the uterus.

DR. G. S. HULL, of Chambersburg, read a paper entitled "Ten Minutes in Electricity." He alluded to the electrolytic effect in removing hair; the effect is obtained from eight to ten LeClanche cells connected in series. It is cheap, free from odor, and easily kept in order. It may also be used to remove warts, in uterine growths, etc. Here, is need for the skillful only to tread. Electric humbugs are abundant, as the electric inhaler, electric head band, electric hair brush, etc. He alluded to argon which he believed the polarizer causes the skin to absorb, not oxygen as thought, by many. To lie down on a downy couch when overworked or ill, and by a conductor running from an ankle to a polarizer, and with another cord leading from the instrument with its imperishable material to the moist earth or a cake of ice, to cease even from the labor of breathing, and have this perpetual source-of-energy machine force argon into one's blood and give new life to every part—"this were a consummation devoutly to be wished."

Adjourned till Wednesday.

#### SECOND DAY.

The society resumed its sessions at 9 A.M.

The Nominating Committee was announced and retired to prepare its report.

DR. C. L. STEVENS, of Athens, read the Address in Surgery. He urged the use of anesthesia as necessary for the proper doing of the work of the surgeon. Next the need of care in diagnosis, the careful attention to details, to rest in pain, to the need of massage and motion early in joint injuries, to the keeping of limbs in proper position during inflammation, lest we have ankylosis, contraction of muscles, etc. Examine with great care in all cases of pain, in the bowel lest we overlook a strangulated hernia; in all pain and swelling of joints, lest we have pus, when we are only thinking of rheumatism. Regard with much suspicion any breast trouble lest there be cancer and it get beyond the reach of our skill. He spoke of the needed care as to sepsis, and gave at some length the proper method of assuring this.

DR. F. LE MOYNE of Pittsburg, read a paper on the

#### NECESSITY FOR THE ADVERTISEMENT AND ISOLATION OF CERTAIN INFECTIOUS AND CONTAGIOUS DISEASES.

He urged upon the profession the importance of this idea especially in scarlatina and diphtheria. Such affections are conspicuous causes of suffering and mortality and by proper precautions they are to a great extent preventable. Existing laws in our State commit the strange inconsistency of exacting precautions and enforcing restrictions in regard to smallpox, which is to a great extent under control by vaccination, while scarlatina and diphtheria to which a much larger proportion of the population are susceptible, are not subject to proper legal regulations and have almost unlimited opportunities for dissemination. The members of the medical profession are the natural and acknowledged guardians of the health of the people, and it is incumbent upon them to lead the public mind safely in that direction by emphasizing the fact that every case of scarlatina or diphtheria not carefully isolated and plainly placarded is a shameful menace to the surrounding population.

DR. J. J. BUCHANAN of Pittsburg, read a paper entitled,

#### RUPTURE OF THE TENDON OF THE QUADRICEPS FEMORIS,

giving a summary of the literature of this comparatively rare accident, together with the history of a case in which he had opened the knee joint, drilled the patella and sutured the tendon in place. The result was all that could be desired, a strong and useful joint. He quoted the statistics of the injury as compiled by Maydl of Vienna, and Bull of New York, and added cases of his own collection which had been reported since the papers were published, as well as a few which had been overlooked by these authors. The total number of cases given is 120. Suture of the tendon was performed in ten cases, as follows: 1. Lister (1878) in Roxburgh's



case, by a complicated plastic operation repaired an old rupture with buried catgut sutures with a good result.

2. Luning (1880) sutured the tendon with catgut as a part of the repair of an open wound, made by a butcher's cleaver; result a freely movable joint.

3. McBurney (1885) sutured the tendon with catgut and a wire retention stitch; result perfect.

4. Wilkin (1887) sutured the tendon with silkworm gut as a part of the repair of an incised wound of the thigh, with good function and almost perfect flexion.

5. Kaufman (1888) sutured the tendon to the muscle from which it had been torn; complete recovery.

6. Midelfast (1888) operated on a case in which the patella was found driven between the femur and tibia. He sutured the tendon and secured primary union.

7. Bull (1888) sutured the tendon with catgut, with good result.

8. Chaput (1893) sutured the tendon.

9. Buchanan (1894) drilled the patella and sutured the tendon to it with silkworm gut, perfect result. Considering the fact that without operation, an imperfect result has occurred in about half of all cases, the author considers the operative procedure one to be recommended.

DR. JOS. E. WILLETTTS of Pittsburg, read a paper on "Intra-Tympanic Disease."

DR. A. P. HULL of Montgomery, read a paper on "Treatment of Typhoid Fever by Guaiacol." This was a report of thirty-two cases treated during September, October, November, December, 1894, and January, February, 1895. The first eleven with two deaths, and the last twenty-one with guaiacol internally continuously, and externally when necessary to lower the temperature, with no death; an average duration of fever of nineteen days, with the grave symptoms modified and a promptness in getting up after the fever had left them, closing with some reasons why the antiseptic is the rational treatment for typhoid fever.

DA. L. J. LAUTERBACH of Philadelphia, presented a paper on "Deaf Mutes—Can anything be done by Treatment?"

DR. MURRAY G. MOTTER of Lancaster read a paper on the "Clinical Study of Typhoid Fever."

Three cases; three types; a threefold purpose. These cases have been selected because of the following conditions presented:

Case 1.—*a*, differential diagnosis frequently mistaken; *b*, the type and duration of the pathologic process, and the youthful patient's remarkable powers of resistance—both to the disease and to the misapplied treatment; *c*, the complete and under all the circumstances, rapid recovery, under a strictly *noli-me-tangere* régime.

Case 2.—Three initial complications: *a*, pleuritis; *b*, abortion; *c*, acute nephritis.

Case 3.—*a*, the severity of the initial symptoms; *b*, the grave cardiac complications; *c*, rapid subsidence of the fever, under hydrotherapy (Brandt).

The object of this contribution is to demonstrate:

1. The dangerous, often fatal liability of "pathognomonic symptoms," so-called.

2. The folly of any absolute, invariable, "routine" treatment.

3. The urgent necessity, *a*, of recognizing each case as a law unto itself; and *b*, for treating—not the disease nor the symptoms, *per se*, but—the patient.

DR. W. T. W. DICKSON, of Media, read a paper on "Microbes and Moulds." The Doctor gave a brief account of the deleterious effects of these organisms on animal and plant life; where and in what substances they are found—water, milk, animal and vegetable food, etc. The common nourishment of bacterial growths, spores of dangerous diseases. The susceptibility of individuals of low vitality to succumb to germ diseases and their inability to throw them off were next tersely given. Then he alluded to epidemics, septic poisoning, moulds and fungi that attack fruit, grain and flowers. Ptomaines and serums of cholera, tuberculosis, erysipelas cocci and the antitoxin of diphtheria concluded this highly interesting paper.

DR. L. H. ADLER, of Philadelphia, presented an article on "Treatment of Fistula-in-Ano by Lange's Method or Immediate Suture in the Tract." In no instance was there need to regret the operation. He considered it of decided advantage. Even if primary union is not obtained the patient will be in the same position as if no attempt had been made, whereas if healing ensues the gain is a very considerable one.

On motion of DR. L. H. TAYLOR, of Wilkes-Barre, it was

*Resolved*, That the Medical Society of the State of Pennsylvania considers the registration of births, marriages and

deaths at the central bureau of the Capitol of the State a matter of the utmost importance in the interests of medical science, of public health, of protection to human life; therefore

*Resolved*, That the Society respectfully memorializes the honorable the Senate and the House of Representatives of Pennsylvania in favor of the passage of the bills introduced at the present session, to authorize the State Board of Health to employ a clerk for the registration of vital statistics, to confer the powers of a board of health on the school board of each township, and so to increase the appropriation for the board as to enable it to efficiently discharge this important duty as assigned it by law.

*Resolved*, That copies of the preceding resolutions, signed by the President and Secretary, be at once transmitted to the honorable Wesley C. Thomas, President *pro tempore* of the Senate and the honorable Henry F. Walton, Speaker of the House of Representatives at Harrisburg.

At the afternoon session the Committee on Nominations reported as follows:

President, W. S. Foster, Pittsburg.

Vice-Presidents, John Montgomery, Chambersburg; A. P. Hull, Montgomery; T. H. Sharpneck, Nineveh; A. B. Brumbaugh, Huntingdon.

Secretary, William B. Atkinson, Philadelphia.

Assistant Secretary, C. L. Stevens, Athens; Treasurer, G. B. Dunmire, Philadelphia. In addition, censors, delegates, etc. Next place of meeting, Harrisburg.

The report was adopted.

(To be continued.)

### Illinois State Medical Society.

*Abstract of the Proceedings of the Forty-fifth Annual Meeting, held at Springfield, May 21, 22, 23, 1895.*

[Special correspondence of the JOURNAL.]

(Concluded from page 856.)

In the evening of the first day the President, DR. DANIEL R. BROWER, delivered the Presidential Address, selecting for his subject

SOME ABNORMALITIES OF PHYSICAL CONFORMATION OBSERVED IN CRIMINALS, WITH CAUSATIVE AND CORRECTIVE CONSIDERATIONS, ILLUSTRATED BY THE STEREOPTICON.

The speaker prefaced his remarks by saying that we were living in a marvelous age, and that the closing hours of the nineteenth century were full of wonders. It is not a hundred years ago since the great Pinel established beyond the possibility of controversy the fact that insanity is a disease. Prior to that time lunatics were regarded as either possessed of the devil or as victims of divine wrath. As a result of the rapid progress that has been made from time to time there are now scattered throughout this and other civilized countries hundreds of hospitals for the treatment of the insane, and no one to-day considers it other than a disease, subject to the same laws and governed by the same principles as any other affection. Pictures of noted criminals were then projected upon the canvas, their histories detailed, and the peculiar conformations of the head pointed out. Dr. Brower said there was a great difference proportionately in the size of the brain of a criminal as compared with the brain of a normal individual, and to illustrate this point, a picture was shown from Lombroso's book on "Criminal Woman," which conclusively showed that the average size of the criminal brain is very much smaller. Dr. Brower closed by directing attention to the question of marriage, saying that we should have added to the marriage license certain requirements certified to by some responsible practitioner of medicine, giving evidence that both parties are in good health; that they are not criminals, drunkards or paupers, and that their grandparents were not insane, epileptic, suicidal, or in any way degenerates. With such requirements we would see crime, pauperism, and insanity on the decrease, and would some day witness a race of men and women rising up capable of achievements of which the world has never dreamed.

### SECTION II.

*Surgery, Surgical Specialties and Obstetrics.*

Chairman, DR. WM. E. GUTHRIE, Bloomington.

Secretary, DR. J. A. BAUGHMAN, Neoga.

Section called to order by the Chairman.

### ADDRESS IN SURGERY.

The Address in Surgery of this Section was delivered by DR. DUNCAN EVE, of Nashville, Tenn. He said surgery recognizes its true disciples everywhere. It confesses its obli-

gations wherever benefit is conferred. It owes much to the South and West. It gratefully remembers McDowell as the father of ovariectomy. It pays willing tribute to Crawford Long as the discoverer of ether as an anesthetic. It gladly retains the name of Brasher, who triumphantly performed hip-joint amputation. It, with much pleasure points to Gilmore, as the first to successfully remove a kidney. It recalls with pleasure Smythe's successful ligation of the innominate artery. And to Dudley, Pope, Hodgen, Sims, Wyeth, and many others, refers with equal delight for their many and original procedures. There are two names in this State that surgery honors—Nicholas Senn and J. B. Murphy. For the good of humanity, progress in military surgery has been retarded by an epidemic of peace. It is the duty, however, of the military surgeon "in time of peace to prepare for war." Dr. Eve agrees with Senn that the great factors which will modify surgery on future battle-fields will be: 1, prevention of wound infection; 2, conservative treatment of gunshot injuries of the extremities; 3, prompt, direct operative interference in the treatment of penetrating wounds of large cavities. To this end, we find new and important devices, as in the construction of field hospitals, litter carriers, operating tables, dressing cases, travois, etc. Railroad surgery has established a province of its own. Here is tested the utmost endurance and resistance of which vital force is capable; recovery often attained in the midst of despair; fatal results where injuries appear light and hope is buoyant. Here conservatism can hold complete sway. Within the last few years the treatment of railway injuries has in this respect improved so much that the results mark this era as one of the brightest in the history of the surgical world. On account of our increased knowledge of cerebral topography, intracranial surgery has made great progress. Cysts, or abscesses of the brain can now be diagnosed by the use of a fine aspirating needle, introduced through an opening made in the skull by a watchmaker's drill. The different sinuses can be entered, foreign bodies removed and hemorrhage controlled by means hitherto unknown. We can not fail to observe with much satisfaction the wonderful progress that has been made in abdominal surgery. Of the many operations for intestinal anastomosis, Murphy's button deserves special mention. Sufficient time has elapsed since its introduction to place its use on a sound basis. Within the last year we are led to believe that inguinal colotomy has to a great extent superseded the lumbar operation because of the ease with which it can be accomplished; because a better spur can be obtained in the inguinal region, and because of the patient's more rapid recovery, from the operation.

The dreamy speculations of the past have given way to the realities of fact, and the universe is throbbing with the pulse of progress in every department of thought. We are in the dawn of a new era—an era charged with results tremendous in their issues and their influence upon humanity at large. Who can divine what will be the glory of its noon-day splendor? Indeed, it may be said at this moment, having concluded the journey through the wilderness of the past, we stand upon the mountain of view and gaze into the promised land of the future. Our hearts swell with rapturous emotion, while our minds entranced contemplate the vision that rises before us with all the charm of perfect enchantment.

"For I doubt not through the ages one increasing purpose runs,  
And the thoughts of men are widened with the process of the suns."

DR. W. H. SPARLING, of Moweaqua, read a paper entitled

#### FETAL HYDROCEPHALUS.

The author reported two cases. The first patient was the mother of eight children, all of whom were living and healthy. Having attended her during two previous confinements and knowing her to be unusually expeditious, he did not apprehend any difficulty in her case. The child lived for about half an hour from the time of its birth. The mother made an excellent recovery.

The next case occurred in a woman, 25 years of age, who had been in labor for about twelve hours. This was her fourth confinement in less than four years. All of her former labors had been normal.

The cases are both interesting on account of the rarity of the malformation and the difficulty usually attending labors so complicated. La Chapelle's statistics show only 15 cases of fetal hydrocephalus out of 43,545 labors; but Merriman gives 1 in 900.

The question as to what can cause this disease during fetal life would be an interesting one. Tubercular meningitis being out of the question, the most reasonable supposition would be that it is an unnatural secretion of cerebro-spinal

fluid, which pressing upon the bony walls of the cranial vault arrests their development, this affording ample scope, under the more yielding soft coverings of the head for the formation of a tumor of very large size. The deformity is quite frequently accompanied by spina bifida, as in the author's second case, which might indicate a want of proper development in the bony walls of the cranium and spinal column as encouraging the excessive secretion, and so being the original cause. The head may assume an immense size, cases being on record where it measured twenty-five to thirty inches in circumference.

DR. W. C. BOWERS, of LaPlace, read a paper entitled

#### OBSERVATIONS ON SOME FORMS OF PUERPERAL DISTURBANCES, WITH CASES FROM PRACTICE.

Hemorrhage, septic infection and inflammatory troubles in the puerperal state are often so closely associated, so dangerous to life or in any case to future health, and arise so unexpectedly at times that it behooves the physician to be prepared and alert in every case of obstetrics. The placenta is, in some instances, so roughened that it is nearly impossible to determine whether or not a fragment is left in the uterus and in such cases he had always waited for evidence of such retention, in the form of unnatural hemorrhage, or the passage of small fleshy-looking masses with pain and unsuspicious bleeding. In every case his best endeavors are made to leave no part of the secundines in the uterus by reason of a faulty delivery of them. The author's manner of causing their expulsion is by grasping the uterus through the abdomen with one hand and pressing firmly but gently in the direction of the birth canal, varying the direction of pressure within certain limits until he feels the tumor descending. At the same time gentle traction is made on the cord with the other hand in amount which would be slightly more than necessary to lift its possible weight, taking all the time necessary for its gentle delivery, after which it is carefully inspected. He then gives the woman a drachm of ergot, has the patient and her bed made clean and dry, a binder comfortably applied, and allows her to assume any reclining position in which she is the most comfortable. He believes it a good rule, and adheres to it, not to leave the confined woman under one hour from the birth of the child and not then, unless her condition is good. Remaining with the patient this length of time insures good contraction of the womb and removal of clots from the birth canal, should evidence of their presence arise, thereby lessening the danger of any disturbance later in the puerperium. The author then detailed the histories of two very instructive cases and outlined the treatment.

#### OBSTETRICS IN A COUNTRY PRACTICE

By DR. C. M. NOBLE, of McLean. The country practitioner must necessarily on account of circumstances be a specialist in the various branches of medicine. How well he may succeed in his efforts is quite another matter. In this day of a sepsis the specialist on obstetrics would be very cautious about handling any case which might in any way bring contamination to his maternity patient. It is the author's plan to thoroughly disinfect himself by scrubbing his hands and arms, and washing with disinfectants as if he were going to do an abdominal operation. The finger nails should be thoroughly cleansed and scrubbed with brush and soap. The arms of the operator should be bared and the coat and vest removed. The author believes that in the matter of obstetrics that there is no one thing that is less understood by the laity than sepsis. It is astonishing the amount of ignorance displayed by many people as regards this point; and it seems to him we have no more serious question to deal with. Every obstetrician should impress upon the minds of his patrons the necessity of perfect cleanliness, and teach them the manner by which septic poisons are many times communicated to the parturient woman.

DR. A. C. COTTON, of Chicago, read a paper on "Early Care of the Infant."

DR. ELLEN H. HEISE, of Canton, followed with a paper on

#### THE TREATMENT OF ARRESTED GROWTH IN CHILDREN,

in which she reported cases showing the practical application of the principle that, other things being equal, the horizontal position favors increase of stature in young people. In the case of a healthy young girl, who had remained about the same height from her tenth to fifteenth year, she induced the mother to put her to bed for three months, only allowing her to sit up for a few minutes at a time, but otherwise making no changes in her mode of life. She had not the measurements in her case, but the girl had the satisfaction of outgrowing all her clothing, and by insisting on her

passing several extra hours in bed each day for the next two years she gained the height of her mother and was satisfied. In another case a healthy boy of 16 years of age, the son of tall parents, the height was fifty-seven inches, while the arm extension was two inches more. There had been no appreciable growth for about six years. The horizontal position, continued for three months, resulted in an increase of three-quarters of an inch in height, and Dr. Heise confidently believes that the removal of longitudinal resistance to the growth of the skeleton will prove amply advantageous in those cases in which normal growth is too early arrested.

Dr. J. E. Covey, of Lexington, read a paper on

#### THE CARE OF THE PARTURIENT WOMAN.

To act intelligently the physician should be able to recognize the physiologic limits of the symptoms resulting from labor. He believes in the care of the puerpera that the physician will have done his whole duty when he surrounds his patient with those conditions where nature has the least opposition in her reparative processes. Consequently a warm dry bed and perfect rest will be the first things he will secure for her. The child should be kept out of the room for several hours. The room should be darkened and the patient allowed to sleep. No one should be allowed in the room but the nurse. The air in the room should be kept pure and at an even temperature. Cleanliness in all instances should be rigidly enforced. Unless the lochia becomes putrid, or there is dryness and soreness of the genitalia, he does not believe that frequent injections are necessary. The external parts should be bathed with a warm antiseptic solution, and should the secretions become putrid or the vagina become dry and tender, warm carbolized injections will not only destroy the fetor, but give great comfort to the patient. The patient should be directed to empty the bladder during the first twelve hours, and failing to do so, should be catheterized. Diet must be light for several days and should be selected according to the requirements of the patient. Not later than the third or fourth day the bowels should be evacuated. As to the time when the parturient shall leave her bed, the author's rule is to keep them in bed for two weeks and not allow any active exercise for six weeks longer. Lacerations of the perineum will occasionally occur in the practice of the most skilled accoucheur, and he closes them immediately after labor, or within twenty-four hours.

#### ENDOMETRITIS.

A paper on this subject was contributed by Dr. S. M. Wylie, of Paxton. After defining endometritis, the author said the earlier the cases are recognized, and the more energetic the treatment, within certain limitations, the more satisfactory the results will be. The preliminary treatment by hot douches, boro-glycerite, cotton tamponade or ichthyl glycerine, 20 per cent. on wool tampons, giving support to the uterus and ovaries, taking off tension from the uterine ligaments and by pressure as well as exosmic influence, removing plastic products about the uterus and supporting pelvic vessels, will do much toward relieving the congestion and hypersensitiveness and lessen the dangers attendant upon the more radical measures necessary for their relief, which is, first, curettage, which offers the best treatment at our command. After thorough curettage, the application of pure carboloid acid to the entire cavity is used, or the gentle injection of fifteen or twenty drops of compound tincture of iodine, with a Carl Braun syringe, following this with a thorough uterine irrigation with sterilized water, or a 1,000 aqueous sterile solution of iodine without the previous application of the carboloid acid or iodine.

The general treatment of these cases after the immediate causes have been removed consists in keeping the bowels unloaded, administration of proper food that will be easily digested and assimilated, bathing, massage and a free use of water internally for drinking to flush out the sewer gates and unload waste tissue products. Uterine drainage should be regarded as of the first importance, and the author uses iodoformized gauze in all acute septic cases for packing the uterus, as well as in the chronic cases, where repair of the cervix has not been performed. Curettage should be accompanied by a repair of both the cervix and perineum if torn. Dr. Wylie has no faith in so-called intra-uterine medication in this class of cases with mops or applications of acids, astringents and other medicines.

Dr. J. A. Freeman, of Millington read a paper entitled

#### THE INTRA-UTERINE REMOVAL OF MULTIPLE MYOFIBROMATA,

in which he said, after referring to the various methods for removing these growths, that tumors as large as medium

sized oranges, which grow outwardly, or subperitoneally, and which have but a thin, if any, muscular external covering, can be successfully removed *via* the intra-uterine passage. He had in several instances removed quite large ones successfully by that method. He showed fifteen small tumors which he had removed at one sitting from a patient from whom he, twelve years previously, dispersed or caused to shrink to a size so small as not to be felt, a tumor as large as his fist by electrolysis, and which never grew again. After this tumor had disappeared he found two other (smaller) ones growing which he caused to project internally into the uterine cavity by injections of ergot and the internal administration of the agent, and finally removed them. He raised the question, Is it not best to remove these tumors *via* the intra-uterine and vaginal canals in all cases in which it can be done, thereby leaving the patient without any subsequent annoying adhesions, and capable of performing all of the functions natural to a perfect woman?

Dr. O. B. Will, of Peoria, read a paper on

#### SOME GENERAL CONSIDERATIONS ON DIAGNOSIS IN GYNECOLOGY.

He first called attention to the great desirability of devoting a larger proportion of time and effort to the attainment of diagnostic skill; and, also, to the end of studying more closely the actual state and condition of the local system, as well as its individual organs, under circumstances of apparently perfect, or approximately perfect, general and local health. The author then briefly presented the essential features of three cases in illustration of his point of support, which served rather to suggest a lack of attention to diagnostic landmarks and careful scrutiny, than downright ignorance; but viewed in either light, they are rife with information and lessons of a practical character, in that they evidence the necessity of careful, thoughtful diagnostic skill as the very basis of a valuable reputation and a successful therapy. In the diagnosis of gynecologic affections, as of those of other systems of the human economy, the object is to determine the kind and degree of departure from the normal anatomical and functional attributes of the several organs, and their relationship to each other, without the involvement of serious disturbances.

In conclusion, Dr. Will said we should aim at an accurate and decisive diagnosis in all cases. To that end we should study well the attributes of normal structure, form, position and association. To the right minded physician no difficulty need be experienced in securing opportunity. We should use all the means at our command, both natural and artificial, bearing constantly in view the ideal method, embodying preservation of tissue integrity and obedience to the aseptic and antiseptic principles of the age and time.

Dr. CASEY A. Wood, of Chicago, read a paper entitled

#### FOREIGN BODIES IN THE EYE.

The responsibility assumed by the surgeon who undertakes the care of an eye whose envelopes have been penetrated or ruptured, is greatly increased by the fact that not only the vision of the injured eye, but that of the second eye may be at stake. The dreadful possibility of sympathetic or migratory ophthalmia should always be borne in mind. This disease runs such a chronic and painful course and is so disastrous in its effects that when once encountered it is never forgotten. It was not the author's purpose to weary the members with a discussion of certain theories respecting the pathology of ophthalmia migratoria, but rather to indicate some of the principles commonly regarded in dealing with certain ocular injuries and to illustrate these with some cases that had come under his own observation. First of all, ocular traumatism may be empirically, but, he thinks, usefully and practically divided into three classes: 1, those that are serious or not from the standpoint of sight only—where we are mostly concerned in asking whether or not the patient is likely to have useful vision in the injured organ; 2, those that threaten the integrity of the second eye whose vision may at the time be fairly useful. Here the eventual vision of the injured eye must be subordinated to the protection of the fellow organ; 3, those cases, probably the most numerous, in which sight is destroyed in the injured eye and anxiety may be felt in respect to the vision of the other eye.

The author then reported the histories of three cases which belonged to the first class. As examples of the second class he also briefly detailed the histories of three cases. Of the third class, he gave but one example, and said that injured eyes of this class should always be removed.

As an aid to prognosis and treatment, he suggested the following rules:

1. As long as the wound heals without difficulty and no

sympathetic irritation persists I would treat with rest and antiseptics and would not remove any eye whose injury is confined to the cornea, iris and lens.

2. I would not enucleate an eye containing a foreign body where the injury confined to the tissues of the foreign body, could be removed.

3. I would not remove an eye containing a foreign body if there was no injury in the ciliary region, and the missile had passed through the posterior wall of the globe.

4. I would not immediately excise an eye injured by small shot (which are usually aseptic missiles) even if the wound were in the ciliary region, provided the patient could occasionally be seen by an oculist.

5. I would always excise an eye that contains a foreign body that could not be removed.

6. I would excise an eye in which the ciliary body had been injured, even if the sight were not much affected thereby. The only exceptions I would make to this rule are small gunshot wounds, in cases where the second eye is useless or had been removed, and those instances in which there is no continued uveitis of the injured eye, provided always that the patient could be frequently seen by an oculist. For the average man, however, excision or exenteration would be by far the safest procedure in the last instances. Where loss of sight goes along with ciliary involvement there can be no argument in favor of retaining the eye.

7. When once ophthalmia migratoria has set in, it is wise to retain the injured eye if there be any sight in it, as eventually it may be the better of the two.

8. It is safe and proper to remove all tender and inflamed eyes of adults where vision has been lost from a penetrating wound in whatever region of the globe.

9. It is highly desirable to retain the eyeball in patients under 20 years of age, if it can be done with safety to the better eye, since earlier removal of the globe retards the growth and development of the corresponding orbit and greatly alters and mars the facial expression.

(To be continued.)

#### American Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26, and 27, 1894.

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 809.)

#### DR. NEWMAN LAWRENCE, M.I.E.E., read a paper on HYDRO-ELECTRIC METHODS, PHYSICS AND APPLICATIONS.

##### INTRODUCTION.

The term "hydro-electric methods" is, I take it, but a sort of modern glorified edition of the old-time "electric baths." The advantage of its adoption seems to lie mainly in the fact that it offers to the lay mind a halo of obscurity through which there is little chance of recognizing any connection with so common and so medically-despised a "method" as the electric bath.

Judging from what I have seen and heard, the medical profession have very little respect for electric baths in America, and are content, for the most part, to leave the administration of them to the attendants of Turkish baths and similar institutions, regarding the whole business as either a fad or rank quackery.

Looking at the matter as an electrician, it seems to me that electric baths and especially modern developments now designated hydro-electric methods are worthy of better attention and study. For, if it be granted that physicians sometimes wish to place their patients under electrical influence, either local or general (and the very existence of this Association proves this to be the case) it is certain that one way by which this may be done is by electricized water and accomplished by it, moreover, in a manner widely differing from other "methods," as to physical conditions.

Where physical conditions differ, it is reasonable to suppose that physiologic and pathologic resultant influences may differ also; therefore, without in any way trenching upon the therapeutic value of these methods, it may be advantageous to consider briefly some of the physical conditions and problems of hydro-electric therapy.

The questions here dealt with, in accordance with the request of your Secretary, are those relating to the use of constant current only; thus it is manifest that it will be impossi-

ble to avoid going over some ground which is also common to the use of other forms of current.

The subject seems naturally to divide itself into the following heads:

- A. Apparatus required.
- B. The current employed.
- C. The methods.
- D. The patient (considered electrically).
- E. Problems.

And I will ask your attention to each in turn, for a few moments. To consider them fully would take more time than lies at my disposal but I have endeavored to set forth an outline, based upon broad principles, fundamental facts and practical experience, which may prove useful in assisting any member of this Association who desires to turn his attention to the subject.

##### A.—APPARATUS.

A bath tub of porcelain, slate or wood, or perhaps of compressed paper—any way, of non-conducting material, if it is intended to use it for dipolar baths. The German pattern of bath tub is of oak, ovoid in shape, four feet ten inches long and two feet six inches wide. Height at head, one foot eleven inches; at foot, one foot five inches. I have found in practice that the tub may be conveniently a few inches longer and three or four inches narrower.

Electrodes in the German baths are fixed in various positions and communicate with a switch board by means of wires or conducting rods passing through the sides of the tub. This perforation for conductors in the sides of the tub always seems to me a source of weakness. However carefully connected, they often leak water sooner or later and, when once fluid leakage commences, electrical leakage can not be prevented. I much prefer electrodes which may be placed in the water in any position required and connected by insulated wires to terminals outside the bath tub. These, if of suitable size, may be made to answer all the purposes of the fixed German electrodes and entirely obviate the objections above referred to. An adjustable band of strong webbing to support the shoulders when the patient reclines in the bath, having leather straps and buckles or loops and buttons to regulate its length, is a convenient adjunct to the bath tub.

Of electrical apparatus, besides the battery or other source of supply, a switch board, a cell collector or rheostat or both and a milliampere meter reading up to 300 milliamperes are necessary.

I have dealt more in detail with the electrical apparatus under the head of "current employed," but it may be well to state here that any such apparatus used should be of the best description. It need not be elaborate but it must be good and reliable. Such apparatus may be rather costly, as regards first outlay, but once purchased and properly installed it will outlast several sets of inferior quality besides being throughout far more satisfactory to work with.

##### B.—CURRENT EMPLOYED.

This, by the conditions of our program must be what is known as constant or continuous current, but the source of supply may be either a battery or a dynamo or as drawn from the street lighting mains. If a battery be used it must be of sufficient power, i.e., it should consist of 40 to 60 cells having an E. M. F. of not less than 1 volt per cell, and these cells should be of fair size. Three-pint or two-quart Leclanche cells will do very well or any similar simple kind of cell; but complicated and not-get-at-able makes should be avoided. If larger cells are available, they may be used but it must not be overlooked that the size of the cell does not determine its E. M. F., and therefore no increase of size will do away with the need for a number of cells. At least 40 of any kind are needed, be their size great or small, but large cells possess more current capacity and therefore will last longer in proportion to their size. With a battery the means of control are generally either a cell collector or a rheostat or a combination of the two.

All control should allow of very gradual increase and decrease of the current. A cell collector therefore should not switch on more than two cells at a time. Even these small stops must be made without sudden jerks or the least semblance of shock to the patient in the bath, and this is extremely difficult to obtain in a cell collector. I have tested many and can not say that I have found one which satisfactorily overcame the difficulty.

A rheostat, on the other hand, of sufficient power, put in circuit with all the cells, becomes in this respect a perfect controller but is open to the objection, recently brought forward, that current passed through it is more painful, because all the E. M. F. of the battery passes to the patient, the total



energy administered (for an equal current supply) is greater and hence more pain may be produced. To what extent this objection holds good I am not in a position to say, but should expect it to be somewhat counterbalanced by the therapeutic advantages of the increase of total energy; while at the same time it is obvious that less current supply may be used and so the total energy made the same as it would be with greater current supply and lower E. M. F.

A combination of both cell collector and rheostat is sometimes recommended, and may be made to obviate both the difficulties above referred to, though its use is somewhat complicated and in the hands of an ignorant or careless operator may be distinctly dangerous. As an illustration of the latter point—suppose the cell collector acts by 10 cell steps and the rheostat controls within such steps, it will be necessary to move the rheostat switch so as to put in much more resistance previously to switching on ten more cells in order to prevent too great an influx of current supply. A double process of switching which could very easily be muddled so that the patient receives a severe shock.

*Dynamoes.*—In institutions, hospitals and other large establishments having their own electric plant for light and power, the current so generated may be employed for hydro-electric purposes, provided proper precautions are observed to prevent accidents. On no account should it be considered safe to pass such currents direct through a bath with a rheostat only in circuit. The currents used in the dipolar bath are large (sometimes 200 or more milliampères) and their sudden break or increase might have very serious effect upon the patient. There are, however, controllers in the market which are much more than simple rheostats and in accordance with a suggestion, first made I believe by Dr. W. S. Hedley, of Brighton, England, in the *Lancet*, April 9, 1892, include a special safety automatic cut-out and a *shunt circuit for the patient*. The shunt or divided circuit is a very important safeguard, for, by the suitable adjustment of resistance in the two arms, the current in the patient's circuit may be made any desired proportion of that in the main circuit, and the automatic cut-out effectually prevents the passage of any greater current than the maximum to which the apparatus may be set for the time being.

M. Gaiffe, of Paris, has introduced a controller based upon the divided circuit plan which is very simple. To the best of my recollection, it consists of two arms of moderate resistance upon which move sliding contacts forming the terminals of the patient's circuit. By adjusting the contacts the E. M. F. of the patient's circuit may be anything from 1 or 2 volts up to the full voltage of the supply.

*Street Mains.*—In using the current from the street supply mains the methods of control are those given for use in institution installations. The two cases are almost identical and though the E. M. F. of the supply may differ, yet it would in all cases be greater than that required for hydro-electric application and therefore would have to be controlled.

*General Precautions.*—In all electric bath installations it is absolutely necessary to pay great attention to insulation of all leads and conductors. Water is a fairly good conductor and metal pipes are excellent conductors. Where electric light leads are about, in the same building, it is very common to find an "earth" or "ground" more or less marked, the consequences of which may be very serious. I have seen a patient, when in the electrical water, receive quite a shock on touching one of the water taps that supplied the bath, and this though on careful testing it was found that the insulation of the bath installation itself was perfect. In order to obviate this risk I recommend that the water taps and any others in metallic connection with the earth be placed so far out of reach that no person can touch them when in the bath or, if they must be near, that they be made of porcelain or glass, or at least well coated with some insulating substance. Damp woodwork, whether of wall, floor or bath casing, is a fruitful source of electrical leakage; the dry wood is in most cases a sufficient insulator. All switches, controllers, measuring instruments, etc., should be placed well out of the range of splashes and may be advantageously protected by a box with glass case front.

#### C.—METHODS.

These may be dealt with under two heads, dipolar and monopolar. The older forms of electric bath seem to have been, with little, if any, exception, administered with both poles in the water. Hence the name, di-polar. There are varieties of the dipolar bath in which one of the electrodes is brought into contact with the patient's skin and which therefore may, to some extent, be called monopolar, but it seems to me more correct to class all methods as dipolar

where the electrodes are placed under water, no matter whether they be also in contact with the patient or not. It follows that monopolar baths or methods are those in which only one electrode is placed in the water. The electric douche may be either dipolar or monopolar, but it is more generally the latter.

*Dipolar.*—The dipolar bath consists in the complete or partial immersion of the body in some conducting fluid, usually water, and the passage of a current through the composite conductor, fluid and body, by means of electrodes immersed in the fluid and generally kept apart from the patient's body. Sometimes one or both of the electrodes are made to touch the patient, while still kept under the water, with the idea of concentrating the lines of force at a given spot.

*Monopolar.*—In this form of bath, one electrode only is used in the bath water and the other is placed upon some part of the body not immersed. By this means either pole may be made the more active by concentrating the current at the non-immersed pole and widely diffusing at the immersed pole. For instance, if a patient be sitting in a bathtub full of water and one electrode be placed in the water and the other attached to his shoulder, the current will be diffused more or less over the whole of the immersed portion of the body but the entire current, be it great or small, must pass through the shoulder under the other electrode and is therefore concentrated upon an area many times smaller than that of the immersed body.

The monopolar form of bath may be used under circumstances which preclude the dipolar, for, while the latter requires a bathtub of considerable length and depth, the former may be efficiently administered with a sitz bath or even a good-sized basin and a sponge. A little water in the tub or basin covering a plate electrode forms the diffusing pole and the sponge, duly connected electrically, makes a convenient concentrating electrode. The patient sits or stands, as the size of the vessel will permit, while the sponge electrode is applied to such parts as need the special localization of current or is passed gradually over the whole body so that each part, in its turn, receives the stimulus of localized current. It will be readily understood that both forms of bath are capable of many variations to suit special cases. The general conditions only are here referred to.

*The Douche.*—For a long time it was doubted, in England at any rate, if electric currents could be administered to the body by means of fluid douches in any other form than in one strong jet or stream. I remember having some correspondence with the late Dr. W. E. Stevenson, Physician of the Electrical Department at St. Bartholomew's Hospital, London, on the subject, and in offering to prove to him that, with a properly constructed rose or sprinkler, electrized spray might be obtained. Unfortunately, the early death of that distinguished and careful electro-therapist prevented the proposed demonstration. Shortly after, however, I was able to prove the matter to Dr. W. S. Hedley, with the result that some interesting experiments, which leave no doubt on the subject, are published in his admirable work on "Hydro-electric Methods in Medicine." All that is necessary to insure that the water or other fluid is electrized when it reaches the patient is to have the nozzle so constructed that the jet or jets of water form continuous streams for a reasonable distance after they leave the metal conductor within the nozzle. A little attention to the mechanical construction of the nozzles will secure this. Broken up spray will not conduct the electric current any more than a broken up copper wire would do. There must be fluid continuity if we would have electric continuity. Dr. Hedley records that with a 2-inch rose nozzle, having forty-nine perforations, he was able to administer 5 milliampères of continuous current to a patient when the nozzle was held one inch from the body, with plain water. When salt was added to the water 7.5 milliampères passed over one and one-half inches with that particular nozzle; while with a single jet nozzle he passed 20 milliampères over eighteen inches. With coil current the effects were much more marked, and when treated with a telephone in circuit showed the presence of current at very great distances.

Measuring instruments, or at least current indicators, are a necessary part of any electric douche plant, for without them it is impossible to know to what extent the apparatus is working or even if it is working at all. Speaking from personal experience and numerous observations, I think the douche application stands alone as a means of producing maximum concentration and localization of current with

minimum pain. It is essentially an instrument of precision and in skillful hands is capable of graduated and modulated effects through the widest range. It is suited to internal as well as external applications and, owing to the perfect way in which fluids penetrate all the interstices of the orifices of the body and the electrization of the whole fluid, the electric douche forms a sure means of electrizing parts which could hardly be brought under the influence of the current by any other form of electrode.

I am strongly of opinion that the electric douche is worthy of careful attention and test by physicians, especially where internal electrization is required, and I look forward with pleasurable anticipation to the paper by Dr. Cleaves, who I understand has found the electric douche a most valuable adjunct to other methods in certain cases.

#### D.—THE PATIENT, CONSIDERED ELECTRICALLY.

It is manifest that the usual figures given for the resistance of the human body do not hold good when that body is immersed in fluid. Roughly speaking, the greater the portion of the body immersed the greater will be its conductivity and the less its resistance, but other factors have this influence. The body with dry skin possesses resistance several hundred times greater than that of plain water at ordinary bath temperature, say 95 degrees F. The difference is still greater when medicated fluids are considered. The resistance of the body rests mainly in the outer skin. Consequently, if the body be immersed in either plain water or medicated fluid its resistance will be reduced almost immediately and after being well soaked in the fluid the resistance may be brought down to between three or four times that of the fluid. Dr. Hedley tested a patient under bath conditions, as nearly as he could imitate them, and found his resistance to be 540 ohms, while that of the water alone was 140 ohms. It seems practically certain that the resistance of the body is always much greater than that of the bath water, and, even after several minutes soakage, is generally quite three times greater than the resistance of the water in which it is immersed. From this it is manifest that it by no means follows that because a certain battery will pass a certain current strength through a bath of water before the patient is placed therein, it will pass the same current strength when the patient is in position. It will do nothing of the kind, and this leads at once to one of the most interesting and complicated problems in electro-physics.

#### E.—IN A DIPOLAR BATH.

Given a bath tub of water, of known resistance, with electrodes of a certain area and a patient of known resistance before immersion, what proportion of the current strength will pass through the patient when he is immersed in the fluid, and the current is passed from one electrode to the other (a) when neither electrode touches his skin and (b) when one or both touch him under water? Numerous investigators have sought a solution to the problem, but so far, I believe, without success, though some have arrived at what looks like a reasonable approximation. The absence of an accurate determination is to be regretted for without it no reliable data for dosage in the dipolar bath can be established. Dr. Hedley, after elaborate and careful experiment, concludes that the body receives about 5 per cent. only of the total current. Steavenson and Jones previously stated in a broad manner and without giving any experimental data that the proportion is about one-eighth, but the mere bald statement of those last named can not be allowed to weigh against the very full and detailed investigation of the former. Still I can not say that I accept Dr. Hedley's figures as conclusive. I have repeated many of his experiments, conducted others of my own, and tried in many ways to devise some arrangement for measurement which shall fully meet all the conditions, but there is so much that is varying and always variable that the  $x$  of the problem becomes a sort of hydra-headed monster bristling with unknowns in all sorts of unexpected places. For instance, though the diffusion of current in the water alone may be traced, and the lines of force mapped out with fair accuracy, the presence of the body at once disturbs the lines and deflects them or at least many of them from their direct course. This deflection and consequent alteration of the field might be calculated if the resistance of the body, when immersed, were known, but this, the key to the whole problem, has yet to be determined.

Again, the presence of the body raises the level of the water and consequently in those bath tubs where large electrodes are fixed, causes increased electrode surface to come in contact with the water. Thus another disturbing element is introduced. Yet again, with constant current the conduction is electrolytic in the water, and more or less so, in

the body. This means counter E. M. F., and must assume appreciable proportions while the body resistance is being reduced by soakage.

The only way in which this problem can be solved is, I think, by means of specially constructed apparatus wherein the body and the fluid could be studied separately without being separated more than momentarily. Such apparatus I have not yet been able to secure, though I do not think it would be difficult to devise. In the meantime, Dr. Hedley's figures form a useful working basis and enable the physician to have some idea of the proportion of the current which reaches his patient.

Another interesting question is that connected with what are termed local dipolar applications, *i. e.*, bringing one or both electrodes into contact with the patient under water. If the patient was a better, or even as good a conductor as the water, doubtless much useful concentration of current might result; but, as the water has the lesser resistance the current from the electrode must to a large extent radiate outward through the water and away from the limb or other part of the body which it is intended to benefit. Of course when a limb is just between the electrodes the field around it, and to some extent through it, must be stronger than when the electrodes are some distance away but may not this be compensated for or even overbalanced by the fact that the transverse resistance of a limb is far greater than its longitudinal resistance. Having regard to these various points, it is clear that the dipolar bath is, physically, a very inefficient apparatus from the electrical point of view, because only a very small portion of the current used passes through the patient. Therapeutically, however, dipolar baths have a good record, and many physicians are content to waste current in order to produce the special effects that experience tells them is beneficial in many cases.

Monopolar baths, on the other hand, are very efficient, for all the current used *must pass* through the patient. Electrically there be no waste in the process and, if reasonable attention is given to the insulation there will be practically no loss in the connections.

It may be thought that I have, in this paper, given undue prominence to the difficulties connected with hydro-electric methods, and so discouraged their adoption and development in America. I have no intention of doing so, for, as I have more than once clearly stated in the paper, I believe that hydro-electric methods offer to the physician electrical opportunities which can not be obtained by other methods and therefore I would do all I can to encourage their development. It is to further this end, and not to hinder it, that I have given prominence to difficulties and dangers which it would be unfair to pass lightly over and which the true scientist will find pleasure in combating and overcoming.

(To be continued.)

**A Case of Genito-urinary Tuberculosis**, presented at the *Berliner Verein für innere Medizin*, Dec. 10, 1894. Clinically, in addition to the manifest pulmonary and laryngeal phthisis, characteristic signs of genito-urinary tuberculosis were present, and, in particular, the pathognomonic evidence, tubercle bacilli in the urine in abundance, and arranged almost without exception in little heaps and groups, as is peculiar to these bacteria in the urine. Anatomically, a very interesting condition was presented, both in the very unusual intensity which the process attained in the affected parts, and in the limitation of the disease to one-half of the body from the bladder upward. The left kidney was permeated by a series of abscesses with caseous contents. The left ureter was converted into an immovable, rod-like structure, wholly degenerated from tubercle. The bladder was a mass of ulceration, its surface strewn with caseous and chalky particles. Tuberculous foci were found in the prostate, left seminal vesicle and left epididymis. The right kidney and ureter had remained intact. In the localization of the process in the left kidney, the case might be assumed as the rare descending type of genito-urinary tuberculosis, but for the fact that the extirpation of the right epididymis was performed five years before, and vesical symptoms did not begin until long after.—*Centralblatt für innere Medizin*.

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

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W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, JUNE 8, 1895.

THE ADMINISTRATION OF CHLOROFORM.

RICHARD GILL, in the last volume of Saint Bartholomew's Hospital, has an article entitled "Notes on Chloroform Anesthesia," which, as it is based on large experience, will be read with interest. In conclusion, Mr. GILL asks the question: "What is the best sign to be guided by, when chloroform is administered?" He comments thereon as follows:

"This is a question which does not admit of a general answer, because different rules have to be obeyed during the induction of anesthesia, during long and short anesthesia, and also when alterations are made in the patient's position. This much, however, may be stated concerning the induction of chloroform-anesthesia: the pulse may be ignored, but the respiration must be assiduously watched. How do we know that the patient is unconscious? By the alteration which the breathing undergoes; it is no longer controlled by the will; it has become automatic. But the patient being unconscious, how do we measure the amount of chloroform which is safe for the purposes of continued anesthesia? By the size of the pupil. Sometimes the pupil is large and sometimes small, when unconsciousness is induced. The large pupil may mean narcosis; the small pupil is always the sure sign of safe anesthesia. The small, contracted, or pin-point pupil is, then, the measure of anesthesia, and is unquestionably the safest sign to trust; for during anesthesia, and especially during prolonged anesthesia, the respiration may become imperceptibly labored, and its new character may escape detection, the more particularly by inexperienced administrators.

"But while the breathing is becoming impeded, the

pupil is slowly dilating and losing its sensitiveness. This change in its character indicates that the extreme limit of anesthesia has been exceeded. The stage of narcosis has been entered upon, and it is the pupil, not the respiration, that has given the signal. When the patient's position is altered, as from the supine to the lateral, the breathing becomes obviously changed. To rely entirely on the respiration would, in this new condition, lead to a return of consciousness. Here the pulse is of use in determining the right amount of chloroform. Is the pulse of no further service? Undoubtedly. In prolonged operations it is the first to give signs of depression, and must be watched with care and attention, so that when it begins to fail, those means may immediately be put into action which are best known to maintain the flagging energies of the patient. It is thus collapse is anticipated, and, if not prevented, in some degree mitigated."

"LOIMOGRAPHIA," A DESCRIPTION OF THE GREAT PLAGUE.

The Epidemiological Society, in its current thirteenth volume, has a contemporary sketch of the London Plague of 1665. This valuable paper has been rescued from the hidden riches of the British Museum, at the instance of Dr. JOSEPH FRANK PAYNE, the late President of the society named above.

The historian was MR. WILLIAM BOGHURST, an apothecary, who sold drugs at the "White Hart" shop in the parish of St. Giles-in-the-Fields. The manuscript was prepared for the printer, but it was either not printed or was consumed in the great fire, as were many other newly issued works.

BOGHURST was something more than a book-making apothecary. His book speaks of his independence, his skeptical analysis of current theories, his personal investigations at the bedside, and philosophical vein withal. He says of his undertaking to write on the Plague that there were many persons able to do the work better, "who might have saved me the trouble, and have done it better, especially if they had not been timorous, and like Foxes in a storm, run to the next borough."

The author traces the Plague to cases that had existed in London for three or four years prior to the great prevalence, rather than to a recent importation from Turkey through Holland, as is asserted by other writers. He recounts some of the numerous explanations of the rise and progress of the disease, rejecting not a few as fanciful and as drawn from a lack of actual observation. Of himself he says: "I have writt nothing from hearsay, or from bookes, or from the testimony of others, or of my own conceit, but all and only from experience and triall."

The diversity of causes he locates in the "fæces of the earth, and it always arose *ab infra et non de supra*"

by a fermenting action "extracted into the Aire by the heat of the sun and diffused from place to place by the winds." Of the post-mortem appearances of the disease he has little to say, for he was too busily occupied with his large practice among the pest-stricken ones to have time for that line of inquiry. He places much dependence upon the record of the pulse of the sick, and sat for considerable periods at a time holding his patient's pulse. Of his treatment the editor has taken much pains to give the palliatives, poultices and plasters upon which BOGHURST relied. That the latter was not bound up to a routine of practice may be seen from his saying that "one way of Cure will not serve for all, but we must do as contingencies do divert us. By continually following of one course, occasion is given to every Mountebank, tradesman and ignorant Old Woman to practice. The Good and the Bad fared all alike, and if any fared worse, I think it was the Good." He notices the presence, and in certain patients the intercurrent of spotted fever.

The increase of vermin, meaning rats, is noted by the author, a condition paralleled in the late plague in the Chinese cities, with this difference, that our modern interpretation of the phenomenon implies that these animals leave their haunts and come to the surface to die.

Of the "Prognosticks" of the Plague, upon which so much concern and intellect—in the field of fancy and panic—were expended, BOGHURST writes but briefly. His own time being occupied with bedside work chiefly, he was not led away by "other men's weak observations." He contents himself with a general confession of ignorance in scriptural phrase: "I think," says he, "it may be said of the Plague as is said of the Wind, that it bloweth where it listeth, and we hear the sound thereof, but know not whence it came nor whither it goeth."

The word "Loimographia" has an unaccustomed look, but it is recognized in the larger lexicons as one referring to "a description of the Plague and other infectious diseases."

#### THE TREATMENT OF FRACTURED PATELLA.

Which is the best or most successful procedure to adopt in treatment of fractured patella, is a question which has been frequently discussed, but which still remains unsettled. The reasons for this are not attributable to any fault on the part of surgeons, notwithstanding the proverbial difficulty about doctors agreeing, but they are inherent in the very nature of the clinical problem. This was recently very well illustrated in a discussion by the Section on Surgery of the College of Physicians of Philadelphia. At the meeting held April 12, Dr. J. WILLIAM WHITE presented three cases in which brilliant results had followed BARKER's operation. All of them were

in adult males, engaged in mechanical pursuits, who had received simple transverse fractures of the patella. All were confined to bed only a few weeks, two had left the hospital and returned to work inside of two months and one in eleven weeks from the time of injury. The method of BARKER, as described in the *British Medical Journal* (Feb. 27, 1892), is to encircle the patella with a vertical, antero-posterior silk ligature which, when tied, holds the fragments firmly together. The operation is done subcutaneously and the ends of the ligature are cut short. The original operation was slightly modified by PROFESSOR WHITE.

MR. BARKER uses a long needle, which enters the tissues below the patella and passes through the tendon, or ligamentum patellæ, into the joint, and being carried upward behind both fragments emerges from the tissues above the upper fragment. A stout, twisted silk ligature is now threaded through the eye at the point of the needle, and is carried downward behind the patella. The needle is then re-introduced into the lower opening and carried upward again, but this time in front of the patella; now being brought out at the upper opening, it is again threaded so as to carry the other end of the ligature down in front of the patella and out of the lower opening. The fragments are then approximated carefully and the ligature tied with a surgical knot, the ends cut off short, and antiseptic dressing applied.

PROFESSOR WHITE always makes a puncture with a knife, so as to secure an opening through the tendon large enough to discharge clots of blood and serous fluid, before introducing the needle; thus reducing tension and favoring early repair, by drawing off the effusion from the joint.

In the discussion which ensued, the admirable results in the cases submitted were fully acknowledged. The reporter was complimented upon the complete restoration of function, and upon the reduction in the length of treatment. Most of the Fellows who examined the cases thought that the union was bony, others considered it ligamentous, but all agreed that it was firm, and that the results could not be surpassed by any other method of treatment.

In opening the discussion, PROF. JOHN ASHHURST JR., said that a good deal of stress should be laid upon the character of the injury in speaking of the treatment for fractured patella, since a fracture of this bone in one case is not the same thing as a patellar fracture in another case. He laid especial stress upon the point of diagnosis: whether or not the injury is limited to the patella. If the lateral ligaments are torn, or other structures of the joint injured, the consequences are quite different from a simple fracture. The functional importance of the patella (which is only a sesamoid bone) has been greatly exaggerated. If there are no complications, walking is not made impossible, as is generally thought to be the case.



If the patella be broken by direct force, and there are no complications, the disability is very slight, and the patient retains the power to extend the leg as well as he did before receiving this injury. After excision of the patella, in gunshot wounds, the function of the quadriceps tendon and movements of the limb are preserved. The patient can walk, but does not do so because it hurts him. He concluded that a great many cases of fractured patella will recover and have very useful limbs, without special care. His own experience had been that, in simple fracture, of the patella, in the great majority of instances, a satisfactory result will be obtained by the ordinary and usual methods of treatment. The matter of separation of the fragments may mean very little of consequence, since there have been cases with several inches of separation and yet the patient had not been prevented from walking about and attending to the ordinary duties of life, even when they are as active as those required of a sailor in going up aloft. This is because the fibers of the quadriceps tendon are not broken. When this complication occurs, the disability is more marked, and surgical intervention becomes necessary. He preferred mechanical methods by splints, a fixed dressing and rest in bed; when more is needed he would give the preference to those methods which do not open the joint to those which do.

The contention of MR. JONATHAN HUTCHINSON, that the separation of the fragments has for its sole cause the effusion into the joint, he considered just. Since the superior fragment is forced upward by the effusion and not drawn up by muscular action, he said that all that is necessary to do, in order to secure apposition, is to remove the effusion by aspiration of the joint. In the great majority of cases nothing more is needed than to apply splints and elevate the limb. A firm fibrous union is just as satisfactory to the patient as that obtained by any cutting methods, and he was very skeptical about bony union in any of these cases. SAYRE'S case was referred to, which in the dry specimen appeared to be united by bone, but after maceration for a short time, it was found to be ligamentous. The arguments with regard to bony union he regarded as misleading and theoretical; the ligamentous union is just as good. The disability after fractured patella, PROFESSOR ASHURST attributed not to inability to throw the limb forward, but, frequently, to moderate ankylosis, owing to the fact that some form of apparatus is generally worn for six months or more, and that, as a result, some stiffness will result which, however, will subsequently pass off by exercising the part. He did not approve of the use of MALGAIGNE'S hooks, but spoke favorably of a method which consists in placing an acupuncture pin transversely through the soft tissues above the upper fragment of the patella, and a second one below the lower fragment, and uniting them

with a ligature thrown around both pins in a circle, or ellipse.

DR. KEEN presented a patient, seen some time after the injury, in which the fragments had been so widely separated that they could not be brought together. He had practiced the method of scoring transversely the lower surface of the quadriceps, suggested by TREVES, but still could not bring down the upper fragment sufficiently. He then adopted the novel expedient of lengthening the lower tendon by chipping off the tubercle of the tibia and allowing it to slide upward. The fragments were then brought together and fastened with thick silver wire, the wound properly dressed, and the patient recovered with a useful limb.

DR. G. G. DAVIS said that where swelling prevents the approximation of the upper and lower fragments, sometimes, by waiting a few days, the effusion will subside and the bone can then be held in place by adhesive plaster and bandages. The interposition of fibrous bands might delay healing, but would not produce markedly deleterious results, and their influence in producing such results had been much exaggerated, in his estimation. When the swelling does not go down promptly, he advocated tapping the joint and irrigating with normal salt solution. If necessary to hold fragments in apposition, he would use MALGAIGNE'S hooks, in preference to the passage of silk through the joint, a perilous procedure, as we know that it is impossible to disinfect the lower layers of the skin. If a stitch abscess may occur, then there is liability of the infection being carried by the silk into the joint. The good results obtained by DR. WHITE are attributable to the fact that, after the fragments are secured, early passive motion can be instituted. CHAMPIONNIERE aimed at the same result by the use of wire, and DR. DAVIS suggested a modification of MALGAIGNE'S hooks, having the same object in view.

PROFESSOR WHITE replied to his critics that he had not seen any results from what has been termed the old-fashioned treatment, which would at all compare with those he had obtained by the BARKER operation, and the same claim has been made by others who have performed it. Instead of the patients wearing apparatus for months or a year after the accident, his patients had returned to their work in two months without any form of splint or support whatever, and have perfect use of their limbs. He did not attach much importance to the question of bony union, as he was more interested in clinical results than in museum specimens. The shorter term of rest in bed and retention in the hospital, is a matter of great importance to a mechanic, and the ability to return to active industrial pursuits in a couple of months was to him the most striking result of this method of treatment.

The above summary of an able discussion of the

treatment of fractured patella contains some novel recommendations as to the management of these cases, but is especially interesting from the lucid explanation of the impossibility of surgeons coming to an agreement upon the method of managing fractured patella, considered as an abstraction; whereas when confronted with a given case, or cases illustrating simple and complicated fractures, there might be less difficulty in indicating the proper course to pursue. Not only are the pathologic conditions, or the results of traumatism to be considered, but the many modifying factors in the person or the environment of the subject must be allowed to have due weight, just as in other surgical problems, in which individual cases are to be decided upon their own merits. We agree with ASHURST that fractured patella in one man is not the same as fractured patella in another man, and hence there can be no absolute and invariable rule of procedure in the treatment.

#### WARFARE AMONG THE ADVERTISING "SPECIALISTS."

An advertiser of New York City, a "Doctor" H—, although he is a regular graduate in medicine, is a specialist "on the lung." After hunting the gulls of both country and city, he is now hunting one or more of his associates on the charges of forgery and larceny. The men who kept his accounts and correspondence, and who did the pharmacal work, set up in business for themselves and diverted to themselves quite a large share of the out-of-town receipts. In the course of this crooked work it became necessary to work off a fraudulent certificate of death. It was in the perpetration of this crime that the "doctor" got wind of the system of swindling of his associate "doctors."

That certificates of death should be received from the "doctor," and not from the other advertisers does not appear to have been explained, but it may be, for the moment, assumed that he is what the State Medical Society of New York has voted to harness itself with, namely, "a legal practitioner." Otherwise it will be difficult to explain how it came to pass that the "doctor" would venture to invite the law officers of the city to intervene on his account. However, they have so done, and the grand jury has found an indictment against the partner, named W—, for forgery in the second degree. His arrest followed and he was held in \$1,000 bail; an amount that he was unable to obtain. He was locked up in the Tombs. His lawyer has claimed for him that he has a medical diploma from a Venezuelan university.

The co-parcener in the fraud committed against the principal can not be found. This co-parcener was the one who had the knowledge of accounts, addresses of patients, etc., being the better able to aid "Dr." W— in establishing a "chronic depart-

ment" under the nose of his employer. Under this "department" they were able to fleece certain of the "doctor's" patients to the extent of \$25 for the first month and \$15 for the second month of pretended treatment. All of which shows the gullibility of mankind, especially of the sickly half thereof.

It does not speak very favorably for the medico-legal status of a community that permits such enterprises to bud, bloom and blossom forth so luxuriantly; and also permits the most flagrant end of the fraud to obtain quasi-support from the medical and legal authorities. Has the New York County Medical Society or Academy of Medicine any grounds for action against these people?

#### SMUGGLED PHENACETIN.

The firm of SCHIEFFELIN & Co., of New York City, has recently notified the Secretary of the Treasury of certain frauds upon the revenue. Drugs made in Germany, like phenacetin and sulfonal, have been brought into the country through Canada and sold at a figure 20 to 25 per centum lower than the regular prices of the authorized distributing agents in New York.

One druggist, hailing from Montreal, has been arrested and others in that city are on tenter-hooks in view of confessions said to have been made concerning the evasion of the revenue laws, which confessions are by two parlor-car porters, who have for years been on the Montreal "run" of two lines of railway. One porter was arrested in Boston.

The Treasury agents are said to be in possession of the names of numerous carriers and buyers of the low-priced drugs. The arrested Montreal druggist was put under bail of \$2,500. When his case was called May 28, he did not appear and his bail was put in default.

#### EUTHANASIAN HOME FOR NEW YORK CITY.

Those who have followed the specialization of charities in London have been aware of the establishment in that city of a home for the dying. It has something of an endowment and is limited to ten beds. It receives those who are hopelessly sick and believed to be near to death's door.

The *Evening Post* of New York has argued the advantages of such a home for that city, and it might be suggested if that paper is able to push the matter along to a successful end, that the name of the great poem of the late noble-minded editor of that paper—MR. WILLIAM CULLEN BRYANT—be chosen for the institution, as a part of its title; that is, it might be called the Thanatopsis Hospital, or Home. This would be better than the bald, rather repellant title, Home for the Dying.

There are doubtless many cases of given-up, non-medicable patients who would be vastly better off in

such a home, where trained nursing, if naught else, might be given to assuage the bitterness of a lingering death, than they could be in their own homes. Such an institution should be fully endowed, or not started at all.

#### THE ASSOCIATION.

One of our oldest and most valued members said the other day: "Why do you keep constantly drumming for new members? Is not our ASSOCIATION big enough?" Why, bless your soul, dear fellow, don't you know that nothing keeps spirit, dash and enterprise in our work, like the missionary work the members have done and are doing to lift our brave body into the place it should occupy as the foremost organization of medical men, at once the most powerful for good to humanity, and helpful to the profession itself. Of course it is a great ASSOCIATION, but it should be greater. Let us work, then, as we never worked before; to secure, first, the *largest* membership, and second, the *best* membership. Our ASSOCIATION to-day has only about one-third the membership of the British Medical Association. We *must* work, therefore, in generous rivalry, until we stand first, instead of second, and that is why we earnestly urge every member to put forth his own effort to increase the membership.

### CORRESPONDENCE.

#### The Kansas Hypnotism Case.

MILWAUKEE, WIS., May 31, 1895.

*To the Editor:*—Some time ago the secular press published a statement to the effect that the Supreme Court of Kansas had recognized a plea of hypnotism as a defense in a trial for homicide. Since then the statement has been reiterated, not only in a great many newspapers, but in some of the medical journals as well.

The statement is entirely untrue. The facts in the case are these: one Gray incited McDonald, an employe of the former, to kill a man named Patton, also an employe of Gray. McDonald was tried in the lower court and the defense sought to prove that Gray's influence over McDonald was exerted through hypnotic power; and the judge of the lower court allowed the introduction of expert testimony to establish this fact. McDonald was acquitted by the jury in the lower court; so his case did not reach the Supreme Court at all. Gray was tried in the same court and convicted. His case went to the Supreme Court on appeal and the judgment of the lower court was affirmed.

In the case of Gray, no testimony seems to have been introduced relative to the subject of hypnotism. Gray was convicted as an accessory. Judge Allen of the Supreme Court, wrote the opinion (May 2, *Pacific Reporter*, page 1050); and touched only four points, none of which had the remotest connection with hypnotism.

An examination of the testimony given in the lower court in the case of Gray shows that McDonald, with his wife, lived in the same house with Gray while Patton, the murdered man, lived on a distant part of the farm. Patton came over to Gray's house one morning and became involved in a quarrel with McDonald during which blows were ex-

changed. Patton then left, threatening McDonald with future punishment. After he was gone Gray told McDonald that Patton was a dangerous man, that he had killed seven men, and that he would "get some of us unless he were killed." He afterward took McDonald out into a field and instructed him in target shooting with a rifle. They then returned to the house and Gray cleaned the rifle, which belonged to him. He then took McDonald into an ambush, gave the rifle and some cartridges into his hands, and left him to wait for Patton who was expected to soon pass near to the place of McDonald's hiding. Gray returned to his house, but McDonald lay in wait several hours and when Patton was passing by shot and killed him.

The case is entirely devoid of any suspicion of hypnotic influence. It seems that McDonald was a man of very inferior intelligence and that fear for personal safety generated by the talk of Gray was his only motive in committing the deed. It is not possible to account for the verdict of the jury which acquitted McDonald, without knowing the characters of the parties involved and all the local prejudices which existed at the time of the trial.

JOHN MADDEN, M.D.

#### The Medical Profession and the Paris Exposition of 1900.

SOUTH BOSTON, MASS., May 29, 1895.

*To the Editor:*—There is a matter which it seems to me ought to interest medical men universally and to which I have seen no reference made as yet.

The Paris Exposition will be held in 1900. There, doubtless, medical science will be well represented. Would it not be desirable to have this representation systematized so as to enhance its value?

I believe no grander exhibit of things medical was ever made than that at the World's Fair in 1893, and yet the medical exhibit, as such, was a failure. I confidently assert that no doctor saw it all. No medical editor with comprehensive mind gave even a synopsis of what was there to interest the practitioner desirous of being abreast with the times.

I further assert that this failure to comprehend that exhibit was due to the defective manner of placing, or rather scattering the exhibit over the Fair grounds. To my personal knowledge there were medical exhibits in the Electrical Building, in the Anthropological Building and several separate exhibits in the Liberal Arts Building—in the spaces assigned to various nations, and for the most part difficult to find.

Why not have massed these separate exhibits together, so that the serried columns of facts, medical and surgical, should have irresistibly forced even the lay mind to comprehend the fact that medicine is a science and one of the greatest.

Anent the Paris Exposition of 1900, my proposition is this: *have all exhibits illustrative of medicine under one roof.* Doubtless this result can be attained if the attention and interest of the proper authorities can be secured—for France likes system, and simplicity is the essence of a good system.

Do you deem the matter of sufficient importance, Mr. Editor, for the representative medical journal of America to agitate?

Respectfully,

EDWARD A. TRACY, M.D.

#### Dr. Robert Koch and His Germ Theory of Cholera.

DUNKIRK, N. Y., June, 1895.

*To the Editor:*—Dr. Robert Koch has sought to explain the cause of certain diseases upon the hypothesis of the action of pathogenic germs, invisible to the human eye. Upon the

microscopic examination of the stools of cholera cases, he found different forms and kinds of germs, and among these was one of comma-shape, which he fancied was the cause of this disease. Through the process of "culture," and "experiment" upon the lower animals he asserts he has demonstrated that this germ is the actual cause of this disease. So confident was he that this newly discovered, comma-shaped object was the cause of cholera that for several years he continued to assert with the utmost assurance that the presence of these comma-shaped bacilli in the dejections of a person suspected of having this disease, constitutes positive evidence that the case is one of pure Asiatic cholera.

But this comma-shaped bacillus theory of cholera has proved a failure. These invisible comma-shaped germs are now found to be universal and harmless. They are found in the secretions of the mouth and throat of healthy persons, and in the common diarrheas of summer everywhere—they swarm in the intestines of the healthy and are observed in hardened fecal discharges as well. Dr. Koch to-day asserts that these bacilli are universally present. He even tells us that: "Water from whatever source frequently, not to say invariably, contains comma-shaped organisms."

Drs. Pettenkofer of Munich and Emmerich of Berlin, physicians of high distinction and experts in this disease, drank each a cubic centimeter of "culture broth," which contained these bacilli, without experiencing a single symptom characteristic of cholera, although the draught in each instance was followed by liquid stools swarming with these germs.

Dr. Koch has kept *au courant* with the foregoing facts, as well as others quite as significant, and, had he accepted the evidences which thus year after year have been forced upon him, his pernicious cholera germ theory with its most disastrous consequences in misleading mankind would have been unknown to-day.

HENRY RAYMOND ROGERS, M.D.

### Mississippi Valley Medical Association.

INDIANAPOLIS, May 27, 1895.

To the Editor:—Will you kindly mention in the next issue of our JOURNAL that the twenty-first annual meeting of the Mississippi Valley Medical Association will occur at Detroit, Mich., on Sept. 3, 4, 5 and 6, 1895, and that assurances have been received from the railroad companies that one fare for the round trip will be the rate? Wm. Pepper, M.D., LL.D., of Philadelphia, Pa., will read the Annual Address on Medicine on the evening of September 4. Dr. H. O. Walker, of Detroit, the Chairman of the Committee on Arrangements, says that the local profession of that city is prepared to entertain the society handsomely, and the indications thus far point to a very large and successful meeting.

Sincerely yours, W. N. WISHARD, M.D.

### Mortality of Physicians.

BINGHAMTON, N. Y., April 29, 1895.

To the Editor:—Can you refer me to any article or table published on the mortality of physicians?

Fraternally yours,

J. M. FARRINGTON, M.D.

ANSWER.—For complete list of works on the diseases and longevity of physicians see the Index Catalogue of the Library of the Surgeon-General's Office, U. S. A., vol. XI, p. 225. For the edification of our Danish scholars we mention the following: Gjennevnitslevalderen i den danske Lægestand i indevaerende Aarhundrede, M.C. F.C. Bladt, Ugesk. f. Læger. Kjobenh., 1879, 3. R., xxvii, 359, (which according to the "catalogue" means "concerning the duration of life of Danish physicians.")

### American Pediatric Society.

HOT SPRINGS, VA., May 29, 1895.

To the Editor:—Our Society has passed the following resolution:

Resolved, That in the opinion of the American Pediatric Society the evidence thus far produced regarding the effects of diphtheria antitoxin serum justifies its further and extensive trial.

Yours,

SAMUEL S. ADAMS, Secretary.

## BOOK NOTICES.

**Immunity, Protective Inoculations in Infectious Diseases, and Serum-Therapy.** By GEORGE M. STERNBERG, M.D., LL.D., Surgeon-General U.S. Army, ex-President American Public Health Association, Honorary Member of the Epidemiological Society of London, of the Royal Academy of Medicine at Rome, of the Academy of Medicine at Rio Janeiro, of the Société d'Hygiène, etc. One volume, 325 pages, octavo, bound in extra muslin, bevelled edges, uniform with the other volumes of the *Medical Practitioners' Library*. Price, \$2.50; in flexible morocco, \$3.25.

The uppermost topic of the day is that of serum-therapy and protective inoculations. We have here a book by America's foremost bacteriologist, in which the question is impartially reviewed from a bacteriologic standpoint. The book is divided in two parts, of which the first is given to natural and acquired immunity, and the second to protective inoculations and serum-therapy. The diseases anthrax, chicken cholera, cholera, diphtheria, foot-and-mouth disease, glanders, hog cholera, hog erysipelas, hydrophobia, influenza, influenza of horses, pleuropneumonia of cattle, pneumonia, rinderpest, smallpox, swine plague, streptococcus infection, symptomatic anthrax ("black leg"), tetanus, tuberculosis, typhoid fever and yellow fever are separately treated.

In regard to natural immunity, the author apparently makes good his claim to priority to the theory so well supported by Metschnikoff, of phagocytosis, but yields readily to the view that the leucocytes are probably not the principal agency in the destruction of bacteria in living tissues. Buchner's demonstration that the ammonium salts, (any alkali according to Van Fodor) will increase normal resistance to bacterial invasion, is not accepted by the author as conclusive on this point, but as showing that the germicidal constituent of the tissues, whatever it may be, is only soluble in an alkaline fluid.

In regard to Haffkin's protective inoculations the author says the results "indicate that these inoculations have a real value, but that immunity is not immediately established, and consequently that during an epidemic a certain number of fatal cases may be expected among the inoculated as well as among the non-inoculated." The author regards the evidence in regard to immunity from smallpox, as probably due to the presence of an antitoxin in the blood of the immune individual. He cites his own experiments made at Brooklyn, and refers to Kinyoun's cases of injection of blood serum from an immune calf. As would seem natural, the author having devoted much of his life to the study of yellow fever, he again takes up the Domingoes Freire inoculations for yellow fever, those of Finlay, and resuscitates the old experiments of Wm. L. de Humboldt made in 1854 and 1855. We note a clerical error in the translation of the letter of Dr. de Humboldt to General Concha; in the original the number of cases inoculated by him in Vera Cruz was given as 1,438, not 1,458 as stated, (see Manzini, p. 2.) The bibliography at the conclusion of each chapter is valuable and complete.

We welcome the book to our table, not only as a sound and safe counsel on the theories of the day, but as an instructive and useful summary of the literature of the subject.

**Saint Bartholomew's Hospital Report.** Edited by SAMUEL WEST, M.D., and W. J. WALSHAM, M.D. Vol. xxx. London: Smith, Elder & Co. 1894.

The editors of these reports usually succeed in making an interesting report, but they have been remarkably successful this time. In addition to the routine reports of matters pertaining exclusively to the hospital there are twenty-six separate articles viz: I, Aneurysm of the ascending part of the Arch of the Aorta, taking the natural position of the Heart, by Samuel Gee; II, Primary Cancer of Pancreas by W. P. Herringham, M.D.; III, Chloroform Anesthesia by Rich-



ard Gill; iv, Symphysiotomy by C. Hubert Roberts, M.D.; v, on the Association of Cardiac Malformations, with other Congenital Defects, by Archibald E. Garrod, M.D.; vii, Treatment of Senile Gangrene by R. Cozzens Bailey, M.S.; viii, The Great Omentum, by W. McAdam Eccles; x, Dietetic Value of Food Stuffs prepared by Plants, Rev. George Henslow, M.A., F.L.S.; xii, History of Diphtheritic Paralysis, by J. J. Macan, M.D.; xiii, Diagnosis of Diphtheria; xiv, Diphtheria Immunity of Puerperal Women, by James Adams, M.D.; xv, On the Gradations of Health and Disease, by Harry Campbell, M.D.; xvi, Life and Works of Percival Pott, (the Wix prize essay for 1894) by Thomas J. Horder, B.Sc.; xix, Treatment of Nævus by Electrolysis; xxiii, A Second Year's Surgery at Saint Bartholomew's Hospital, by Henry T. Butlin; xxiv, Chronic Purulent Catarrh of the Accessory Nasal Sinuses, by W. J. Walsham; xxvi, Blood Casts in Phthisis, by Samuel West, M.D., and reports of interesting cases, by E. P. Paton, Edgar Willett, H. M. Bowman, G. C. Garratt, D. H. Goodsell and Thomas Smith, and "Notes," by T. Lauder Brunton, M.D., F.R.S., and W. J. Horne, M.D.

The article of Mr. Butlin is particularly interesting, as "in the last volume of the reports" he gave "an account of a year's surgery, during which" he "made the attempt to dispense with some of the rigid details of the antiseptic method, and showed how suppuration followed. . . too frequently." This year the strictest precautions were observed and in consequence, the results were very much improved. We will quote a paragraph from Mr. Butlin which to our mind is well worthy of reproduction, as a caution to young dressers and assistants, not to overdo the matter of scrubbing:

"Let me say that the active preparation of the skin which has been described is only suitable for the skin of hospital patients. It is not only too vigorous, but wholly unnecessary for patients outside the hospital. Indeed, in some of the hospital patients, a smart eruption was not infrequently produced which was sometimes pustular. To say nothing of the discomfort which is produced by such a condition of the skin, I am not at all sure that it is more desirable to operate through the skin which is the seat of a pustular eruption, than it is to operate through skin which has been theoretically imperfectly prepared." While we are not prepared to go as far as Mr. Butlin, there is no doubt that rough scrubbing is very frequently too vigorous.

A great many of the articles have a permanent value, and the volume well deserves recognition as one containing very much of enduring value.

**Pathology and Treatment of Diseases of the Skin, for Practitioners and Students.** By DR. MORIZ KAPOSI, Professor of Dermatology and Syphilis, and chief of the clinic and division for skin diseases in the Vienna University. With 84 illustrations. Translation of the last German edition under the supervision of DR. JAMES C. JOHNSTON. Pp. 684. New York: Wm. Wood & Company. 1895.

No one can speak with more authority than Kaposi on any subject connected with dermatology, and in the opening chapter the author points out that the study of skin diseases means the careful study of pathologic processes, which are nearly the same in all parts of the body, and the study of these pathologic changes on the skin furnish a very convenient means of comparison with analogous processes in internal organs.

There is a scholarly chapter on the history of the development of dermatology from the ancient to the most recent times, and then follow the fifty-three lectures which form the book.

In speaking of lupus, Professor Kaposi states that in Austria, lupus constitutes 66 per cent. of all skin diseases. The removal of lupus, says our author, "can only be effected by mechanical or caustic interference. The most rational and

simple mode would be that of excision of the entire process, followed immediately by transplantation according to Thiersch's method or the ordinary methods of plastic surgery. Unfortunately, the localization and extent of the foci are poorly adapted to this plan of treatment. In addition, experience shows that relapses may occur even in the transplanted flaps. Nevertheless this method merits more frequent use. It should be kept in mind, however, that a flat thin cicatrix of the nose, eyelids and face, obtained by prolonged treatment, causes less deformity than a plastic operation which is not brilliantly successful."

**La Methode Brown-Sequard, Traite D'Histotherapie.** *La thérapeutique des Tissus, Compendium des Médications par les extraits d'organes animaux, par le Dr. M. BRA.* OUVRAGE précédé de lettres et préfaces de MM. les Professeurs CONSTANTIN PAUL, MENDEL EWALD, BAUNS, EMMINGHAUS et BYROM BRAMWELL, accompagné de 72 gravures. Paper. 8vo., pp. 624. Paris: J. Rothschild. 1895.

It is now six years since Brown-Séquard startled the world by a communication to the Société de Biologie in which he set forth the surprising results of subcutaneous injection of testicular fluid, and since that time animal tissue extracts have been gradually increasing in use. The author has succeeded in this volume in bringing together a mass of facts collected of the results of the new therapy, which Ewald has named "organotherapy," "histotherapy," by its founder, or "cyto-therapy" as proposed by Gley. There are thirteen chapters, the first on Organic Liquids in General; ii, Special Organic Liquids. In these chapters, the reagents used in the preparation, and the instruments are described, doses, frequency and general methods are given. The remaining chapters discuss particular extracts, their physiologic action, and therapeutic results. The whole is written from the standpoint of an enthusiast. The chapter on the use of the thyroid extract is very interesting, and its use seems to have been followed by more positive results than in most of the other preparations. The work is a complete summary of the literature of the subject.

**Weekly Abstract of Sanitary Reports.** Issued by the supervising Surgeon-General, under the National Quarantine Act of April 29, 1878, and the Act of Feb. 15, 1893. Vol. VIII., (Nos. 1 to 52.) Washington: Government Printing Office. 1894.

This bulky volume of 1,300 pages consists of the current numbers of the weekly abstracts for the year 1894 with a full index, bound in one volume for convenient reference. It will be found very useful, when comparing mortality tables or the various questions in epidemiology that may arise from time to time.

## PUBLIC HEALTH.

**Compulsory Notification of Infectious Diseases in Constantinople.**—An Imperial irade has rendered obligatory in Constantinople the notification of the existence of cholera, variola, varicella, measles, scarlatina, dysentery, diphtheria, typhoid and typhus fevers, whooping cough and phthisis. Doctors neglecting this notification will be fined.<sup>1</sup>

**California State Quarantine Station.**—Dr. J. H. Davisson, President of the California State Board of Health, announces that the board has made arrangements, which are being carried out as rapidly as official procedure will permit, for the establishment of a State quarantine station at Cabazon, which place is on elevated ground, not far west of Indio. A quarter-section of ground is being purchased for the station, and it is the expectation to place there the necessary equipment for the comfort of passengers who may be detained in order to prevent the invasion of disease. Dr. Davisson says the station is not intended for the purpose of establishing a quarantine against consumption, as has been reported. It

<sup>1</sup> La Semaine Médicale. April 20, 1895.

is intended rather to be used to guard against invasion by smallpox, yellow fever, cholera and similar diseases.

**Chewing-Gum is not Food.**—The great American craze of gum-chewing has gotten over to England and into the English courts. The *Public Health* for May, recounts a hearing before a Divisional Court, two justices sitting, the outcome of which was a decision that chewing-gum, or chewing-wax is not an article of food under the Food and Drugs Act of 1875. The price over there appears to be one half-penny a stick, and apothecaries who keep the article on sale have a label prepared which states that the article is, "For chewing only, not to be eaten." The effort to "stamp out" the use of chewing-gum in this instance was a complete failure.

**Washington Navy Yard Sanitation.**—In the recent report of the Navy Medical Board, appointed by Secretary Herbert to investigate the sanitary condition of the Navy Yard at Washington, it is pointed out that owing to the defective condition of certain sewers in that vicinity and the proximity of "the flats," from which during the prevalence of southerly or westerly winds, miasmatic effluvia are wafted over to the Yard, there is more or less malaria there and in its neighborhood. While the Commissioners of the District have no jurisdiction over "the flats," at least so far as the improvement of them is concerned, they have full control over the sewers and can do much to remedy the unsanitary conditions, and how this remedy may be applied is also suggested in the report. The Board says that even after all is done that the Commissioners can do, complete exemption from miasmatic influences will not be secured until "the flats" on the opposite shore of the river have been entirely reclaimed.

**Alcoholism in Belgium and Algeria.**—While the number of saloons and retail liquor shops in Belgium has decreased 38,000 in the last five years, the results obtained toward lessening alcoholism are not deemed satisfactory by the Government. A commission has been appointed to inquire into the ravages of alcoholism in that country and to study the remedies for the situation. According to Dr. Rouby, with a few exceptions the Arabs in Algeria drink nothing but water; the European colonists drink all the absinthe and alcohol. The number of insane sent from Algeria to the asylum at Aix bears out this assertion. From January 1 to August 1, 1894, two Arabs and fourteen colonists suffering from alcoholic insanity were received out of a population of 1,459,000—1,258,500 of whom are Arabs and 133,000 French. Thus with a population nine times less the French colonists furnish seven times more alcoholic insane. Rouby estimates that the proportion of non-insane alcoholics is 2,000 Arabs to 44,000 colonists for the whole colony. He thinks this furnishes food for serious thought, and that the conquerors are succumbing to alcohol faster than to firearms.<sup>1</sup>

**Deafness among School Children.**—The fact that myopia is frequent among school children is well known. It is not so well known that impaired hearing is also frequently met with. The children thus affected are often accused of being lazy and inattentive, when in reality their ears are at fault. Helot shows that these cases are quite common, are easily recognized, are generally incurable and when cured a large number of children are transformed, so to speak, both from a physical and a moral standpoint. According to Weil of Stuttgart, the proportion of school children with impaired hearing is 35 per cent.; according to Moure of Bordeaux, 17 per cent. Helot agrees with Gellé and other aurists that the proportion is almost 25 per cent. or one-fourth. All the children in a class should be carefully examined and these semi-deaf pupils will always be found among the "poor scholars." The cause of the infirmity is to be sought for—naso-pharyngeal catarrh following measles, scarlatina, whooping-cough, adenoid vegetations, hypertrophied tonsils etc.—and normal conditions are to be restored by appropriate treatment.<sup>2</sup>

**An International Sero-Therapeutic Institute.**—In an interview between Professor Rummo, editor of the Naples medical daily journal, *Riforma Medica*, and Professors Ferrannini and Behring, the famous German expressed the wish, in view of the present uncertainty as to the strength and purity of antitoxic serums prepared in different laboratories and used in different countries, that there should be an International Sero-Therapeutic Institute established, to which all serum manufactured throughout the world should be sent and tested by an international committee appointed for the purpose. A standard of strength and quality should be decided on, and the committee should withhold its sanction from any serum which failed to come up to the standard. This should apply not only to the diphtheria antitoxin, but to all kinds of serum intended for therapeutic use. In fact, there should be a control of serum of exactly the same kind as exists in all civilized countries for weights and measure; only it must be international. As Malcolm Morris says in the *Practitioner* for May, this would eliminate the element of *chaurinisme*, on which Professor Behring lays great stress as a disturbing influence in scientific matters. Moreover, it would secure the uniformity in medication which is a necessary condition for the formation of an accurate judgment as to the therapeutic value of the remedy. Professor Behring says that all the scientific authorities to whom he has spoken on this subject, and particularly M. Roux, are in agreement with him as to the desirability of such an institute as he has in mind. He is indifferent what country may be chosen for the purpose, provided the thing is done. Professor Ferrannini suggests Switzerland as at once central and not likely to excite national jealousies.

**Canine Diphtheria.**—It has been hitherto believed that of the lower animals only cows, guinea-pigs, cats and some of the *ares* were capable of communicating diphtheria to the human family. But now it is reported that the health authorities of Akron, Ohio, have traced thirty cases and three deaths of this disease to a dog belonging to a milkman along whose route the cases occurred. Investigation of the milkman's premises disclosed, near the place where his milk cans were left over night, a dog-kennel, the occupant of which showed every symptom of diphtheria. Physicians said there was no doubt the dog had the disease. It had been sick three weeks. While the doctors went to the city to obtain tubes to take a bacteriologic culture of the substance from the animal's throat the dog escaped and has not since been seen. The cans to which the dog had access and the buildings were thoroughly disinfected and since then no new cases have developed. The dog has not yet been discovered and there is much alarm felt in consequence. President Sargent of the Sanitary Board is supported by leading physicians in his belief that the dog was the cause of the spread of the disease and is still disseminating the germs. A close watch is being kept for the animal. It is to be hoped in the interest of the etiology of diphtheria, that this dog may be found; he should be an historic animal. It should be mentioned, by the way, that a child suffering with the disease was discovered on the first inspection of the dairyman's farm, but this fact is relegated to proper insignificance by the statements that the farm was "in a cleanly condition, the peddler had not been near the little one and the milk he sold was secured at a distant farm." *Ergo*, it must have been the dog.

**The Archbishop of Dublin and Vaccination.**—Shall the clergy use their influence over their flocks to favor vaccination and thus prolong the lives of the latter? The *Independent* says, yes, and avers that a church magnate, no matter how exalted his position, can be engaged in no better business than keeping his sheep away from the variolous wolf. That paper shows that the French clergy did a great deal to popularize the use of vaccine in the early years of this century, and Jenner is reported to have himself taken pains to teach English clergymen how to introduce the lymph. The *Independent* adds the following: "Archbishop Walsh of Dublin,

<sup>1</sup> Rev. Int. Med. et Chir. Prat., No. 8, 1895.

<sup>2</sup> Le Bulletin Medical, May 1, 1895.

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, JUNE 15, 1895.

No. 24.

## ORIGINAL ARTICLES.

### THE CONSERVATIVE USE OF THE STOMACH TUBE IN THE TREATMENT OF GASTRIC DISEASES.

Read by title in the Section on Practice of Medicine at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. M. G. CARTER, M.D. Sc.D., Ph.D.

PROFESSOR PREVENTIVE AND CLINICAL MEDICINE, COLLEGE OF PHYSICIANS  
AND SURGEONS OF CHICAGO; FELLOW OF THE AMERICAN ACADEMY  
OF MEDICINE, ETC.  
WAUKEGAN, ILL.

The use of the stomach tube in the treatment of gastric affections has become so common in certain localities that it is necessary to call attention now and then to the dangers, as well as to the advantages of its use, and to study its scientific application.

Since Kussmaul urged the advantages of the stomach tube in 1867, the profession has given more or less thought to it; Leube in 1874 recommended the tube for diagnostic purposes, and in 1875 Ewald used the soft rubber tube for washing out the stomach. During the last twenty years it has gained in favor, and diseases of the stomach have been so thoroughly investigated by means of this instrument and the chemic analysis of the stomach contents, that a new specialty has been placed in the medical field.

A word of caution needs to be uttered to prevent the popularity which this method has attained from carrying its use too far. No more cases occur now which need the tube than did before the discovery of its value rendered its use so common. It requires skill and patience to know when it should not be used and to wait for the slower processes of other methods of treatment.

It is well, then, to mention briefly some objections to, and dangers accompanying its use. Some degree of alarm is occasionally felt at finding portions of mucous membrane attached to the tube when it is withdrawn from the stomach. Especially is this the case with stiff instruments. It may occur also with the soft tubes. Where the patient's mucous membranes are thin and easily irritated, and where the epithelium is more readily removed than seems normal, I dislike to use the tube. In such cases abrasions are likely to occur, and although there is a tendency to rapid healing under such circumstances, the possibility remains that some cases may not heal and the traumatism may lead to ulcer of the stomach. The possibility of such an occurrence should suggest a careful investigation of the mucous membrane before introduction of the tube. In aphthous and other inflammatory states it is ordinarily not advisable to use the tube. Another danger is that perforation of the esophageal or gastric wall sometimes occurs. The possibility of this accident should be remembered in stenosis of the cardia or esopha-

gus, in ulcer of the stomach and in the later stages of gastric cancer. This accident has occurred in very skillful hands and is not to be lightly viewed. Such cases have been reported by Abercrombie, Frey, Richs and others. I should consider the stomach tube contra-indicated in stenosis due to pressure of aneurysm or abscess, and in cases accompanied by degeneration of the tissues above the stricture—a matter, however, which could not be easily discovered before death. In ulcer and the later stages of cancer of the stomach, the danger of perforation is sufficient to contra-indicate the use of the tube except in rare instances. An objection to the use of the tube in inflammation or congestion, in ulcer and in altered conditions of the mucous membrane is the fear, even the probability, of causing hemorrhage. These hemorrhages are not always manifested as a sudden hematemesis but may, by causing an abrasion of the mucous membrane or rupturing a small vessel, produce an oozing or slow hemorrhage, sometimes shown only by darkened or blood-stained stools. However, an alarmingly profuse hematemesis may occur and the possibility of this accident should be eliminated or reduced to the minimum by extreme caution in such cases.

The fact that syncope and death have resulted from the use of the stomach tube is a matter of considerable interest and great importance. The varying pressure upon the great abdominal plexuses of the sympathetic, produced by filling and emptying the stomach with the tube is believed by Fenwick to be the cause of this accident. The indiscriminate washing out of the stomach and filling the stomach with excessive quantities of water are to be discouraged.

Besides the evil results which may occur from pressure upon the sympathetic plexuses, it is undoubtedly true that the mere irritation of the mucous membrane in the stomach by the presence of the tube may produce fainting or syncopic attacks, as also occurs occasionally when food is introduced into the stomach. These cases seem to occur under circumstances where the irritation would ordinarily produce vomiting, but some idiosyncrasy causes the syncope instead of nausea, or perhaps both sensations may be experienced.

Spasm and tetany are sometimes met with and the latter may prove fatal. Manges gives 72 per cent. as the mortality in cases of tetany. Although few cases have been reported as compared with the great number of times the tube has been used, still precaution is urged, as we do not know in advance what patient may die from this complication. The spasm of the throat is very common and in many cases requires the use of cocaine. Spasm in children may prevent the use of the tube except under chloroform or ether. Another objection to the use of the tube, which has been considered by some even more serious than those already mentioned, is the removal of the

natural secretions by lavage. The habitual washing out of the stomach when considered from this point of view only, undoubtedly is to be discouraged. The withdrawing from the body's nourishment of the chyme which the stomach labors so hard to manufacture is not to be considered lightly; but if the digestive and absorptive powers of the viscus are impaired it can not be known that undigested food does not remain in the stomach until it acts as a foreign body. If relief is afforded the patient by the use of lavage it may be accepted usually as evidence that good has been accomplished. Still it must follow that no general treatment by lavage should be adopted until careful investigation has shown that the benefits to be derived outweigh the risks assumed.

Again, when lavage has accomplished its work it should be stopped. Further use may prove to be a positive evil. I know a case where a young lady was advised to use the stomach tube for nervous or functional dyspepsia. She submitted to the treatment by a young physician who was very enthusiastic in his work. The patient improved for a time. At this point a conservative physician would have stopped the treatment. The lavage was persistently continued for months, however, the case growing worse; and after a year of such treatment the too submissive patient was not so well as she was when the lavage was begun. Such instances of indiscretion in the use of any remedial agent, while suggesting caution, do not militate against the value of the measure when properly used.

I should advise the use of the tube for the purpose of lavage or washing out the stomach for the following six objects: 1, to remove undigested food and foreign matters; 2, to cleanse the mucous membrane for the action of medicines; 3, to check hemorrhage; 4, to give antiseptic douchings; 5, for sedative purposes; 6, for general tonic effects upon the stomach, mucous membrane and paretics.

1. The removal of undigested foods may become necessary in indigestion, functional dyspepsia, dilatation, cancer and pyloric stenosis. In such cases nothing can be done until the stomach has been relieved of the offending matter. Frequently in some of these cases vomiting can not easily be induced, and in others it is not to be encouraged. It is a common experience that no treatment gives such complete temporary relief in functional dyspepsia, dilatation, cancer and stenosis as lavage. This removes the undigested remnants of food, fermentative and putrefactive products, and exercises a beneficent tonic influence upon the gastric mucous membrane.

2. In atrophy, chronic gastritis and also in functional dyspepsia, as in other neuroses, washing the tenacious mucus from the membrane gives a surface by which medicines are more readily absorbed. There is no doubt that tardy recoveries or entire failures in the treatment of some neuroses, including atonic or nervous dyspepsia, are due in part to the failure of the gastric mucous membrane to absorb the medicines prescribed. This occurs often where the absorptive function is not materially impaired. Such cases can be explained by supposing that the tenacious mucus on the mucous membrane interferes with the process of absorption. The removal of this mucus will facilitate the action of the medicines which are given.

3. The application of cold is a common method of

controlling hemorrhage. Ice-cold water can be applied to the mucous membrane of the stomach in hematemesis in two ways. First, the patient may be required to drink ice water and swallow bits of ice. The quantity which can be thus used is limited. Second, it frequently happens that hemorrhages occur in ulcer and other pathologic conditions under circumstances which do not forbid the use of the stomach tube and where a prolonged application of cold to the gastric surface is desirable. In such conditions one is justified in applying a continuous douching by withdrawing the water after it has been in the stomach four or five minutes and re-introducing a supply of ice-cold water to be again withdrawn in the same manner. This process may be continued as long as necessary, if no untoward symptoms arise from the prolonged use of cold. In ulcer, cancer, and rupture of vessels of considerable size, danger may attend the expression method of emptying the stomach; hence it is wise to use an aspirator or exhausting bulb or syringe to remove the water.

4. One of the most simple and advantageous uses of the tube is for the purpose of removing the products of fermentation and putrefaction. In all diseases where fermentation occurs, as in functional dyspepsia, certain other neuroses, dilatation, chronic gastritis and cancer of the stomach, the gases and other abnormal products of faulty digestion act as irritants, and nothing relieves the patient so quickly and completely as lavage. In many of these cases, especially nervous dyspepsia and gastrectasis, and often in chronic gastritis, lavage not only serves to give temporary relief, but is also an excellent therapeutic agent in accomplishing a permanent cure.

5. Perhaps no class of diseases of the stomach is so generally benefited by lavage as the neuroses. Functional dyspepsia has already been mentioned. Gastralgia, nervous eructation, hyper-secretion, the various conditions accompanying neurasthenia and nervous vomiting are frequently thus relieved, the depraved condition (if one exists) which allows these states to arise removed, and a gentle tonic influence imparted to the gastric mucous membrane which is spread until it helps to remove the cause of the neurosis. The impression made upon the general nervous system, the quick response of the sympathetic system, the increase in the circulation and consequently the improved general metabolism are, without doubt some of the most important effects of washing out the stomach in these cases. The readiest means of relieving obstinate hiccough, heartburn and other symptoms of gastric irritation may often be found in the use of lavage. No one who has had large experience in such cases can doubt the beneficent influences of lavage. Nevertheless, there are some neurotics who can not submit to the lavage treatment on account of syncopic or other distressing symptoms.

6. It can not be doubted that cold or tepid bathing and sometimes hot bathing produces general tonic effects. Similar effects are often observed in the lavage treatment of the stomach—bathing or washing that viscus. In atonic conditions of the muscular coat of the stomach, in anemic conditions of the mucous membrane and in deficient gastric secretion, there are few remedial agents which will produce better results than systematic lavage. Auto-lavage, or the use of the tube by the patient is not to be encouraged, except in the few cases where definite in-



structions with proper cautions and restrictions will be observed.

A review of the foregoing study of our subject reminds us that while the field for lavage is large and its position as a therapeutic measure established, it requires skill and care to use it always for good and not for evil. There are many conditions, idiosyncrasies and circumstances which will forbid its use. Some of these can be overcome, some can not. Conservatism should mark the physician's course here, as in most departments of medical practice.

## THE EFFECT OF INHALATION OF OXYGEN UPON THE HEMOGLOBIN.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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Ever since the discovery of oxygen by Priestley in 1774, it has been used as a therapeutic agent. In fact, Priestley himself made a number of experiments upon animals with the gas, thus preparing the way for experiments upon the human subject. A few years after his discovery, Lavoisier and Spalanzani demonstrated the relationship of oxygen to atmospheric air, and showed in a rough way the changes it produced in the blood. These experiments were more physiological than therapeutical, but not long after this date, Caillens in 1783 employed oxygen therapeutically. Jurine of Geneva, and Chaptal of Montpellier, followed with reports of cases of phthisis benefited by its use. The report of Fucroy to the French Academy was very extreme, making as it did absurd claims for oxygen in the treatment of numerous diseases. Beddoes in 1789 made a number of important observations upon the physiologic action of oxygen, and also employed it in practice. In conjunction with Sir Humphrey Davy and James Watt he established an institution for the treatment of disease by oxygen, an account of which may be seen in an extremely interesting paper on its therapeutic use by Dr. A. H. Smith in the *New York Medical Journal*, April, 1870. Gardner in the *American Journal of Medical Sciences*, 1844, makes the remarkable statement that, "by the use of peroxid of nitrogen, or by rapid breathing, an increased quantity of oxygen enters, and as it can not be expelled as an element it acts upon more atoms of fibrin." Richardson made a number of experiments upon animals, and concludes that "the blood does not take up more oxygen unless more CO<sub>2</sub> is given off." (*Lancet*, 1878.)

The above citations taken from the literature of the century following the discovery of oxygen, will give some idea of the way the profession regarded the subject. The literature is quite considerable but of little real value, since the rather crude experiments proved little, and the clinical experience related proved entirely too much. The experiments of Lavoisier and Spalanzani referred to above, showed the effect of oxygen upon the blood, although the fact that blood exposed to the air changed color was known long before this time, as early as 1665. Davy then extracted oxygen from blood; Regnault and Reiset and also Liebig announced that animals used the same amount of oxygen when breathing an atmos-

phere composed of that gas alone as when they breathed ordinary air. (McKendric.) Liebig claimed that the gases were not merely dissolved in the blood, but existed in a state of loose chemic combination. Funke, Hoppe-Seyler, Schmidt, Stokes and others between the years 1853 and 1864 carefully worked out the nature and function of hemoglobin.

The history of the experiment of placing animals in an atmosphere of pure oxygen is an interesting one to physiologists, serving as a valuable object lesson. For many decades after the discovery of Priestley it was held that an animal could not live in this pure element. Then it was discovered that by providing for the absorption of the expired CO<sub>2</sub> the life of the animal could be indefinitely prolonged. In regard to the number of respirations, my experiments showed that for the first few minutes there was a great rise, then a fall to about half the normal number. In the human subject the inhalation of pure oxygen seems to have little effect upon the pulse or arterial tension, but diminishes the number of respirations.

Admitting the fact that inhalations of pure oxygen under normal temperature and pressure, cause merely a diminution in the number of respirations a very practical question arises, namely, whether in the inspiration of pure oxygen the blood becomes more highly oxygenated than it does when ordinary air is breathed. The early observers fixed hardly any limit to the absorption of oxygen, believing it to be merely dissolved in the fluid as a whole. Then it was shown that the hemoglobin of the red corpuscle played a very important part, appropriating the oxygen from the plasma. As a matter of fact the serum is capable of absorbing little if any more of this element than of distilled water. The relationship which hemoglobin bears to the red corpuscle is still somewhat *sub judice*; we simply know that the combination of oxygen with hemoglobin is a very loose one, subject to certain laws of pressure and temperature, and that disassociation may be very easily brought about without disturbing the molecule of hemoglobin. (Foster.) The old observers thought that by the inhalation of pure oxygen a condition of what they termed "super saturation" of the blood was obtained. More exact observation showed this view to be untenable. Under pressure it is possible to make the serum take up more oxygen just as distilled water will do under like conditions. The quantity taken up by the hemoglobin of the red corpuscles is fixed, or nearly so. Experiments upon a solution of hemoglobin show that if a sufficient quantity of oxygen be present, each gram of the solution will take up 1.59 c. c. If there is an insufficient quantity present the hemoglobin will not be completely satisfied, or, to quote Foster: "We may perhaps say that a part only of the hemoglobin gets its allowance of oxygen, while the remainder continues reduced." Or it may very well be that while breathing ordinary air, a certain proportion of the red corpuscles pass through the pulmonary capillaries with their hemoglobin unsatisfied, or only partially satisfied with oxygen. The following experiments bear upon this point. The animals were placed under a glass jar which was first filled with pure oxygen which had been washed several times and a stream of the gas was allowed to pass into the jar from a cylinder. A sufficient quantity of caustic potash was kept in the jar to absorb all the CO<sub>2</sub>. The hemoglobin was measured by the hemo-

globinometer of Fleischl before and after the experiments.

Experiment 1. White rabbit; hemoglobin 58; respirations 100. Was kept in the oxygen for five minutes, and at the end of this time the number of respirations had gone up to 200 a minute and there was no change in the per cent. of hemoglobin.

Experiment 2. Black rabbit; hemoglobin 52; respirations 100. Was kept in oxygen for fifteen minutes. The number of respirations fell to 80 and the per cent. of hemoglobin rose to 80.

Experiment 3. White rabbit; was kept in oxygen for thirty minutes and respirations dropped from 100 to 60, and hemoglobin rose from 58 to 62.

Experiment 4. Black rabbit; one hour in the oxygen; respirations dropped from 100 to 35, and hemoglobin rose from 52 to 67.

Experiment 5. White rabbit; thirty minutes in oxygen; respirations dropped from 120 to 56 and hemoglobin rose from 55 to 62.

Experiment 6. White rabbit; one hour in oxygen; respirations dropped only 10, and there was no change in the hemoglobin. It was ascertained afterward that the oxygen in the cylinder was exhausted toward the close of the experiment.

Experiment 7. White rat; respiration 200; hemoglobin 94. Kept in oxygen thirty minutes. Respiration dropped to 100; hemoglobin rose to 97.

Of the seven experiments, there were only two that did not show diminution in the number of respirations and rise in the percentage of hemoglobin. Of the two failures Case 1 was not kept in the oxygen long enough, as later experiments proved, and the other, Case 6, through the exhaustion of oxygen in the cylinder was breathing practically atmospheric air toward the close of the experiment.

Experiment 8. Small dog. Oxygen was injected into the rectum for forty minutes. Respirations fell from 24 to 10; hemoglobin rose from 82 to 84.

In addition to the above experiments on animals, the following observations were made on four healthy men:

Experiment 9. Mr. C., weight 140 pounds; inhaled oxygen for seven minutes; hemoglobin estimated before inhalation 82; after 92.

Experiment 10. Mr. B., weight 160; time of inhalation five minutes; hemoglobin, before 78; after 87.

Experiment 11. Mr. C., weight 150; time of inhalation six minutes; hemoglobin estimated before inhalation 76; after 83.

Experiment 12. Dr. P., weight 190; inhaled oxygen five minutes; hemoglobin estimated before inhalation 80; after 95.

There were no special symptoms attending the inhalation of oxygen except a certain lessening of the desire to breathe. There was not present the exhilaration and quickened pulse which has been described. This agrees with the observations made by Kerr, (*Lancet*, 1893). While one naturally hesitates to draw conclusions from so small a number of experiments, still it would seem reasonable that the inhalation of pure oxygen raises decidedly the percentage of hemoglobin in the blood. In all probability this is brought about, not by increasing the oxygen in the plasma, but by the fact that an excess of oxygen being present, all the hemoglobin is satisfied; or, to put it another way, fewer of the red corpuscles pass through the pulmonary capillaries, without obtaining their complement of oxygen.

While making these experiments it occurred to me that something might be learned from the study of the blood during and after the use of anesthetics. The first case examined showed a decrease of hemoglobin from 80 to 68; the estimations were made before the subject was put under chloroform and again after he had been under the influence of the anesthetic for fifteen minutes. Shortly after beginning this series of experiments I saw the very interesting paper by J. C. DaCosta, published in the *Philadelphia Medical News*, March 2, 1895. This observer demonstrated the marked reduction of hemoglobin during etherization, and also showed that this was not due to any diminution in the number of the red corpuscles. These experiments of DaCosta's taken together with my own, would go very far, it seems to me, toward proving the truth of the supposition stated in the first part of this paper, that in ordinary respiration a certain proportion of the red corpuscles were not completely satisfied with oxygen, or that in their passage through the pulmonary capillaries many of the corpuscles got through without having their reduced hemoglobin acted upon by oxygen.

The subject of the therapeutic use of oxygen, if any one will glance over the literature, has been treated in a thoroughly empirical manner. Almost every known disease has been cured by its use, if we can believe the glowing accounts of enthusiastic advocates. Moreover it has been so largely used by quacks, and so actively advertised by nostrum vendors, that the profession have naturally been deterred from its use. The investigation and the experiments related above were undertaken to see whether or not there was any scientific basis for the many claims made for the therapeutic use of oxygen. Although these experiments have been few, and not very exact, still enough has been done to show that the percentage of hemoglobin in the blood can be largely increased by the inhalation of pure oxygen. This method should have a full and scientific trial in pneumonia, acute bronchitis, pulmonary emphysema, pulmonary tuberculosis, and diseases obstructing the air passages. Again it might give good results in the treatment of certain forms of anemia. Its most brilliant future probably lies in its use by rectal injections. Kellogg and others have made some limited experiments with this method of introduction, but it needs further trial. Among those who have recorded clinical observations in the use of oxygen in various diseases are Gardner (*American Journal of Medical Sciences*, 1844); Birch (*Lancet*, 1857); Richardson (*Lancet*, 1878); Professor Cabell (*Virginia Medical Monthly*, 1874); Oppenheim (*Deutsch. Med. Woch.*, 1876); Hayem (*Gaz. des Hop.*); Gray (*Virginia Medical Monthly*, 1874); Wallian (*N.Y. Med. Rec.*, 1883-84-85); (*Med. News*, 1890); Neech (*British Medical Journal*, 1892); Kerr (*Lancet*, 1893), and many others. For the full description of the methods of using oxygen therapeutically, reference is made to the interesting paper of Aulde in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, Dec 6, 1890. These preliminary notes on the use of oxygen are offered in the hope that the profession may be induced to make further and more careful use of an agent which theoretically, at least, should prove valuable.

Blank applications for membership in the Association at the JOURNAL office.

## LEAD ENCEPHALOPATHY, WITH A REPORT OF A CASE.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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R. H., age 35 years, an artist by profession, first consulted me March 3, 1890. The patient, a well-nourished and intelligent man of good habits, had never been sick from childhood, and reported a remarkably good family history. For some time previous he had noticed a gradual deterioration of health, as manifested by persistent insomnia, coated tongue, loss of appetite, mental and physical lassitude and an increasing tendency to constipation. A careful physical examination gave no clue to the cause of the above symptoms, save visual evidences of a rather pronounced anemia. Examination of the blood gave 2,500,000 red corpuscles to the c. m., while the hemoglobin remained about normal, 85 per cent. Some slight accentuation of the second sound of the heart was discernible. The urine was concentrated, reddish in color, specific gravity 1018, with absence of both albumin and sugar.

Three days later (March 6) I was hastily summoned to the bedside of my patient, who had suddenly been seized with a most excruciating attack of colic with attendant marked constipation. The pain was most severe in the neighborhood of the umbilicus, intermittent in character and decidedly relieved by forcible pressure during the attack, while marked hyperesthesia was manifested during the intervals, so that even superficial pressure was badly supported. The abdomen was decidedly retracted and the liver dullness apparently slightly diminished. The tongue was white, flabby and tremulous and there was now apparent, for the first time, a faint bluish line at the margin of the teeth. Temperature 97.3-5. Urine specific gravity 1014, absence of sugar and albumin, but subsequent examination exhibited slight traces of lead.

Evidently the case was one of lead poisoning, and appropriate treatment was therefore instituted, but the interesting question remained as to the manner of entrance of the poison into the system. Although distantly allied to that of house painter, the occupation hardly gave answer to this query, and it was only after careful investigation that the following interesting fact was elicited. The patient had recently married, and the newly made wife had, with commendable neatness, objected to an old-established habit of the husband, which consisted in wiping his brushes on his clean linen. Accordingly our patient now refrained from that, but after more or less completely cleansing his brushes, would now pass them between his lips. This condition of affairs had only been in progress for about six weeks before the commencement of the above detailed decided symptoms, beside which, as was pertinently remarked, his mode of life, residence, etc., had otherwise remained the same.

Under treatment, the attack gradually diminished in intensity so that on March 9 the colicky pains had almost disappeared. The blue line on the gums had, however, become more intensified and a well-marked patch similar in character was now observed on the mucous membrane of both cheeks. These patches

became white in color when the mouth was washed out with oxygenated water, as pointed out by Gubler, nor were there other evidences of a speedy convalescence. On the contrary, headache, dimness of vision, general muscular as well as arthritic pains now became prominent, as well as slight palsy of the right arm. An examination of the eyes was made at this time, but revealed nothing typical. The above symptoms continued, notwithstanding the treatment, until March 14, when while on the street our patient after experiencing a decided feeling of malaise, suddenly fell to the ground, seized with an attack of convulsions. He was at once removed to a neighboring saloon and two hours later to the Pennsylvania Hospital. At the time of his admission a violent delirium manifested itself, and continued without interruption throughout the entire night.

On the following morning his condition being unchanged and no history being obtainable, the hospital authorities decided to transfer him to the insane department of the Philadelphia Hospital when his wife discovered his whereabouts and took him home.

At this time, March 15, the delirium was extremely violent and continuous, and it was found necessary to strap the patient to the bed to prevent his bodily injury. Temperature 101 $\frac{3}{4}$ . A small quantity of urine drawn from the bladder gave evidence of the continued absence of both albumin and sugar. Contrary to the established rule in these cases there was no period of somnolence, and notwithstanding the administration of large doses of soporifics, both by the stomach and by hypodermic injection, it was found to be utterly impossible to produce sleep.

On the morning of March 16, the condition remained unchanged, with the natural exception of evidences of failing strength. At about 11 A.M. a severe convulsion occurred which was repeated at 1 P.M., at the hour of my arrival. This was general in character and after having lasted some fifteen minutes I had recourse to the anesthetic effects of ether. After a rather large quantity had been administered I had the profound satisfaction of noting the cessation of the convulsive attacks and the beginning of a long and profound sleep. This continued for a period of seven hours, at the end of which time there was a sudden awakening with complete restoration of consciousness and the entering into a subsequent speedy convalescence.

It is interesting to note that an examination of the urine immediately following the convulsive attack showed for the first time the presence of albumin in a fairly abundant quantity, without, however, any casts. A slight trace of sugar was also discernible on this occasion.

The question as to the exact cause of these cerebral symptoms does not seem to be much further advanced than in the time of Tanquerel. Recent post-mortems of cases of this kind made by Renant shows the brain substance to be yellowish, harder and more friable than normal, and chemic analysis shows the distinct presence of lead in the cerebral tissue. But these same conditions have also been noticed in other cases of lead poisoning which had not presented cerebral symptoms.

Therefore, besides the direct action of the lead on the brain cells we should, I think, admit the action of the poison on the cerebral vessels themselves, which may produce subsequent hemorrhage or softening to the parts supplied.

The question of uremic poisoning, as explanatory of this condition, should more properly be regarded as exceptional, instead of the general rule. Not only is albumin more often absent than present, but when found in only a moderate amount and not associated with other evidences of renal disease may very well be due to the rapid disintegration of the blood corpuscles, which we know does now occur and which usually marks the exacerbation of the general condition. Besides which we have the temporary albuminuria immediately following the convulsive attack.

As pointed out by Hayem, the blood changes are those showing a marked loss of red corpuscles and a normal percentage of hemoglobin, the white corpuscles being unaltered. Chemic analysis of this fluid will show the presence of lead.

Quite recently Debove, Achard, Charcot and others have given us strong evidences tending to prove that many of the so-called cases of saturnine apoplexy are distinctly hysterical in nature and readily respond to the special treatment. They point out that hemianesthesia may appear early in the case, or, on the other hand, after apoplectic or convulsive seizures. The above condition may exist alone or accompany a motor hemiplegia with abolishment of sensation to contact, pain and temperature, with feeble or suppressed vision, hearing, taste and smell. Some peripheral reflexes may persist, but the pharyngeal reflex is generally abolished.

In a rather large experience in case of lead poisoning I have recently had reason to confirm the views of the above writers, namely, that in a fair proportion of cases many of the symptoms formerly attributed to the direct action of the lead, such as anesthesia, a hyperesthesia of local parts, much of the headache, etc., may be more successfully treated by the bromids than by the iodids. According to the views of the above authors, the existence of hemianesthesia is proof of the hysterical nature of the affection.

This may also explain the relative frequency of cases of lead encephalopathy, found in recent medical literature, with a proportionate lessening of the mortality records. Tanquerel, in his large experience, met with but seventy cases which presented mortality of about 80 per cent., and at the present day, men of wide experience and careful observation mention its rarity as well as continued high death rate.

A short time since I treated two cases of so-called lead asthma, on the above theory, with such prompt and satisfactory results that I think the fact merits special attention. In both of these cases I noted that the expiratory dyspnea was not so proportionately marked as in cases of true asthma. As the symptoms are otherwise identical, with the exception that they disappear when the special poison is removed from the system, the above fact if further corroborated may prove to be of diagnostic importance.

*Trophic Changes.*—Gubler points out that the dorsal tumor of the wrist which has long been considered pathognomonic of lead poisoning, is a swelling of the sheaths of the extensors as a result of the paralysis of the posterior muscles of the forearm. This is an indolent tumor, generally about the size of a pigeon's egg, situated on the dorsal aspect of the wrist, hard and resisting to the touch and movable with the extensor tendons.

Regarding the treatment of the encephalopathy but

little can be said other than that it should be symptomatic. Undoubtedly the main indication is to produce sleep, as experience teaches us that the longer the patient remains in this condition the less apt is the case to terminate favorably. Permanent insanity has resulted.

The anesthetic effect of the ether followed by a long sleep, as in the case reported in this paper, would, I think, prompt me to make earlier use of this agent if other remedies fail.

Just one word more as regards the treatment of the lead colic and constipation. Following the teaching of recent French authorities, I have made use of large doses of olive oil, in half a dozen or more cases, with apparently more satisfactory results than by the use of magnesia and other drugs. In three of the above cases, the use of the oil relieved the pain before the bowels were opened, and I think this treatment merits further attention. Cocain or other similar remedies may be necessary, however, to cause the stomach to retain this medicament.

## A STATISTICAL STUDY OF THE COMPLICATIONS OF MALARIA.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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In this paper I have endeavored to present carefully collected statistics, which establish certain facts pertaining to a number of complications of malaria. That not a few of the conclusions arrived at are at variance with the pre-conceived notions of many of his readers, the writer fully realizes, but he hopes that he has not fallen into the error of basing those conclusions upon too slender evidence. Everything of an argumentative nature has been excluded, in order to bring the paper within the time limit of the Section on Practice. Accordingly, the article is, for the most part, a mere statement of facts and figures which must speak for themselves, and from which a few not unimportant deductions it is hoped may be drawn. To the literature of the subject brief reference only has been made.

The total number of cases which were analyzed and form the basis of the present paper were 2,122. Of these, 1,132 cases were furnished by the records of the Pennsylvania Hospital, extending over a period of twenty-one years (1873 to 1894 inclusive); 611 cases were furnished by the records of the Philadelphia Hospital, during eight years (1886 to August, 1894, inclusive), and 379 cases by the Episcopal Hospital, the latter occurring during the decade recently ended (1885 to 1894 inclusive). In this connection I desire to express my deep obligation to Dr. Morris Booth Miller, without whose kind assistance the data obtained at the Pennsylvania Hospital could not have been procured.

The notes of the cases gleaned from the records of the Pennsylvania Hospital, those gleaned from the records of the Episcopal Hospital and also those from the Philadelphia Hospital from 1889 to August, 1894, inclusive, were found to be complete enough to serve as a safe foundation for inferences, not without considerable practical value. They embrace 1,780 cases of malaria. These 1,780 cases were carefully analyzed with reference to their complications which were



noted in 189 instances or 10.7 per cent. The cases were found to be classified, as follows:

Intermittent fever (including quotidians, tertians, quartans, etc)	1,434
Remittent fever	75
Malaria cachexia	27
Chronic malaria and irregular types	22
Unclassified	222

Total . . . . . 1,780

Again, all instances in which an element of doubt was presented by the diagnosis were eliminated. In the majority of the cases the blood appearances were given.

But though the proportion of cases of malaria in which complications arise, is as great as in some of the other acute infective diseases, yet they are somewhat peculiar in character and, on the whole, not grave in nature, as may be observed by an inspection of the subjoined list, in which they are placed in the order of frequency of occurrence:

Heart disease:—Valvular heart disease	14
Valvular heart disease, comp. with albuminuria	4
Mitral regurgitation and congest. lungs	1
Mitral regurgitation—died	1
Dilatation of heart	1

Total . . . . . 21

Enteritis:—Simple	16
Gastro-enteritis	3
Chronic	1
With albumin and granular casts	1

Total . . . . . 21

Neuralgia:—Supra-orbital	11
Intercostal	2
Anterior crural nerve	1
With ptosis and left side corneal ulcer	1
Double sciatica	1
Gastralgia	1
Facial	1

Total . . . . . 18

Albuminuria:—(Marked)	14
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Pleurisy:—Simple (plastic)	10
With effusion	1
With nephritis	1
With heart failure	1

Total . . . . . 13

Rheumatism:—Simple (articular)	10
Syphilitic (two with systolic murmur)	3

Total . . . . . 13

Phthisis:—Chronic	7
Chronic incipient	4
With albuminuria	1

Total . . . . . 12

Typhoid fever:—(Typho-malaria)	8
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Edema:—With anemia	2
Of feet and legs	2
Of legs	1
Of legs with abscess	1
Of feet with enlargement lymphatic glands	1

Total . . . . . 7

Pneumonia, lobar:—Simple	3
Double croupous—1 with fatty heart, died	2

Total . . . . . 5

Pneumonia, catarrhal:—Simple	1
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Juandice:—Catarrhal	4
Catarrhal intense with melena	1

Total . . . . . 5

Nephritis:—Simple	2
Chronic parenchymatous	1
Acute and pleurisy with effusion	1
Acute Bright's	1

Total . . . . . 5

Anemia	4
Dysentery	4
Syphilis (1 tertiary)	3
Goitre (1 exophthalmic and enlarged inguinal glands)	3
Erysipelas	3
Gonorrhea	3
Ascites (1 with edema of feet)	2
Hepatitis (1 chronic)	2
Paraplegia	2
Constipation	2
Hemorrhoids and lithemia	1
Biluria	1
Dyspepsia (atonic)	1
Hematemesis	1
Mal. neuritis	1
Hepatic catarrh	1
Hystero-epilepsy	1
Epileptic convulsions	1
Saturnismus	1
Enlargement of thyroid glands	1
Enlarged lymphatic glands	1
Paralysis of bladder	1
Vertigo	1
Cerebral congestion with effusion into ventricles	1
Cervical adenitis	1
Follicular sore throat	1
Zoster femoralis	1
Abscess of groin	1
Phlegmasia albadolene	1
Epistaxis	1
Pericarditis	1
Hyperpyrexia	1
Toxemia	1
Cystitis	1
Typhlitis	1
Brachycardia (pulse 44 to 56)	1
Stricture	1
Alcoholism	1
Ague-cake spleen	1

Some of the conditions, which have been recorded as complications, should more properly be regarded as being symptomatic indications of the malarial process. These will, therefore, not receive further consideration at present writing. Again, some of the chronic affections which have been noted as complications such as chronic valvular diseases of the heart, pulmonary tuberculosis and nephritis were, in all probability, in many instances preëxisting affections, which most probably predisposed on account of their debilitating influence to malarial infection. *Per contra*, I entirely agree with the view expressed by the late Austin Flint, that there is reason to believe that malaria promotes the development of phthisis pulmonalis in those predisposed to it.

Among the most frequent complications stands neuralgia, of which there were eighteen instances (supra)<sup>1</sup> out of the sum total of cases, and eleven of these it may be seen involved the supra-orbital branch of the fifth nerve. In these investigations both pleurisy and rheumatism were found to be relatively frequent, complicating conditions, though each occurred in less than 1 per cent. of the cases. The literature of malaria contains but few allusions to the circumstance that pleurisy may arise in its course. Whittaker<sup>2</sup> states that malaria may simulate pleurisy and other diseases. I can not stop to consider the question whether or not the implication of the pleura, in cases of malaria, is dependent upon the primary

<sup>1</sup> Text-book of the Practice of Medicine, 957.

<sup>2</sup> Theory and Practice of Medicine, 957.

infection. I think it quite probable, however, that it is more frequently due to secondary infection, hence, it is to be looked upon as a genuine complication. I find no mention in medical literature of the fact that rheumatism is, comparatively speaking, a not uncommon concomitant of malarial toxemia, as is indicated by the present researches.

Upon the question, "Has pneumonia any special connection with malaria?" the opinion of the profession is divided. Physicians residing in the highly malarious districts of warm latitudes have been, since old times, and are still, describing a malarial form of pneumonia. To illustrate: J. P. Frances,<sup>3</sup> (Carenro, La.), in an article on "Malarial Pneumonia" states: "Malarial pneumonia has been very rife during this present spring, 1889. The severe type manifests itself first by several paroxysms of intermittent or remittent malarial fever. Pneumonia will then set in with slight rigors followed by headache, flushed face, soreness in the chest." . . . "Fever averages about 103½ to 104 degrees F. Examination of the chest reveals an alteration in the affected side; a bruit rougher than on the opposite side. A whole lobe is usually involved, beginning indifferently and in about equal proportion, either at the base or the apex.

"Frequently the crepitant râle is not dry at the end of the act of inspiration, and is often substituted by bronchitic respiration." . . .

"Percussion gives negative results or a slight alteration. Sputa vary from frothy mucus to pathognomonic ones of classical pneumonia.

"The paroxysm generally continues for thirty-six or more hours; the fever then abates or intermits and with it the chest troubles. Should the case be intermittent, a few scattered râles will be found by auscultation; in the remittent type the bronchitic respiration is ameliorated, and we have the *redux* râle." . . .

"After a couple of hours of respite, the paroxysm sets in anew, with chest symptoms much more severe, and remits once or twice again, after some thirty hours each, making the case last from the onset to the end of the attack, five or six days."

Frances further points out the fact that when cases end by death, little or no remission occurs after the second paroxysm, the condition merging into a typhoid state terminating in death. He also describes double malarial pneumonias, after which he continues: "I have seen a lady, multipara, with a double malarial cataleptic pneumonia. The chest and nervous symptoms increased and decreased with the febrile movement; she died on the seventh day. This case was of the remittent type, temperature 100 to 105 1-9 degrees F. Chances in double pneumonia are half and half; and with children about three to one."

Martin<sup>4</sup> reports a case of malaria complicated with pneumonia, which occurred in the Montreal General Hospital. In this case, which came to autopsy, the right lung was found to be in a state of gray hepatization, the organs all bile-stained, the spleen not enlarged. The patient was a male Indian (traveling with a circus), age 51, whose illness began with a severe rigor, lasting one hour, twelve days prior to admission (namely Oct. 23, 1892) attended with fever and great sweating. Subsequently, had daily recurring chills, followed by hot and sweating stages, till date

of admission. Temperature on entering hospital (November 4) 105½, pulse 122, respiration 36. . . . No chills developed after entering hospital, but there was great prostration. The characteristic malarial symptoms now seemed to be conspicuous mainly by their absence. There was no herpes; no enlargement of the spleen or liver could be made out. The respiratory system presented the most prominent local symptoms. The sputum consisted of muco-pus.

*Physical Signs.*—For some time these were, for the most part, anything but typical. Thus the respirations were 24, costo-abdominal expansion of the chest good; tactile fremitus normal, percussion revealed no dullness. Auscultation: the breath sounds were harsh in both infra-clavicular regions, where, also a few moist râles were heard. Elsewhere no adventitious sounds; vocal resonance normal. Blood examination showed presence of plasmodium malariae in various forms, especially the amoeboid and free pigmented varieties.

On November 11, the temperature was 101½, respiration 20, pulse 88. Lungs examined but found negative. Two days later dullness appeared at base of right lung and crepitant râles with diminished breath sounds on auscultation. Great weakness and severe dyspnea with blood-tinged expectoration soon followed. The area of dullness increased; jaundice appeared, which grew quite intense. Examination for bacilli negative. The right lung now showed signs of consolidation from base up to the spine of the scapula. Death occurred November 18. (See result of autopsy, supra.)

One of the instances of pneumonia embraced in the above table of complications proved fatal. It occurred in the service of Dr. James H. Hutchinson at the Pennsylvania Hospital. The patient, a male, age 57, was admitted to the medical wards April 25, 1880. Had never been sick except during previous fall when he had ague lasting several days. Three days prior to admission he had diarrhea, fever and sweating, the following day a similar paroxysm. On the day of admission he had high fever about 6 A.M., followed by profuse sweating after he was admitted. At 4:26, fever this A.M., and sweating but comfortable; 4:27, sub-crepitant râles heard; 4:28, slightly more cough with frothy expectoration; 4:29, dull under the clavicle and posteriorly over lower part of right lung. The respiration bronchial. Vocal fremitus and resonance increased; 4:30, died at 8:30 o'clock A.M.

Post-mortem: rigor mortis firm. Old adhesion at right apex and diaphragm. Recent lymph at right base. Left lung fills pleural sac. Recent adhesions. Few bands of recent lymph in left side of pericardium. Heart contains 2 ounces cloudy serum. Both sides of heart relaxed. Right auricle filled with black clot. Firm chicken-fat clot in right ventricle. Left auricle contains chicken-fat clot extending into vessels. Mitral valve atheromatous; aortic valves thickened and fenestrated. Left ventricle wall thickened but softened. Weight 18 ounces. Left pleura contains some blood serum. Right lung, anteriorly, is crepitant and in places emphysematous. Border of lower lobe crepitates imperfectly. Section shows lower lobe to be in a stage of red hepatization; middle in later stage and upper presents a mixed appearance. Several old cheesy masses in apex, but one in middle lobe. Posterior part of left lung firmer than anterior. The latter is gray, firm and less elastic. Two lungs weigh six pounds. Spleen slightly larger. Fibrous tissue increased, dark-colored. Kidneys, left kid-

<sup>3</sup> The Times and Register, vol. XX, 1889, p. 345.

<sup>4</sup> Service of Dr. Stewart, Mont. Gen. Hospital, (Montreal Medical Journal, vol. XXI, p. 900).

ney large and irregular. Large cyst near pelvis, size of plum. Weight eight ounces. Deeply congested. Capsule slightly adherent; not thickened; leaves smooth surface. Right kidney small. Less congested, and on posterior surface there is a small doughy cyst and a small cyst on surface of larger one. Liver, gall-bladder filled with dark mucus and bile, borders rounded, dark-colored and firm. Surface somewhat homogenous. Weight, five pounds, four ounces.

In a fatal case of pernicious malaria under the care of Musser at the Philadelphia Hospital, the post-mortem records showed that there had been marked edema of the lungs, which had been supposed to have been the cause of death. No mention was made of the presence of the characteristic lesions of pneumonia.

D. E. English<sup>5</sup> in a paper on "Pulmonary Inflammation as a Complication of Malaria," contends: "Sometimes at the end of the first or the beginning of the second week of a case of remittent fever that has not responded well to the usual treatment, we find our patient with a little higher temperature, a little sharper pulse, a little quickening of the respiration, a very slight occasional cough, and just a suggestion of difficulty in breathing. A careful examination of the chest reveals one or more spots of beginning inflammation in the lungs. This patient does not have a true croupous pneumonia, but he does have an inflammation of lung tissue, occurring as a complication of remittent fever. In this connection, it should be pointed out, that all the instances of pneumonia that occurred in the present series of cases of malaria, arose in the course of intermittens.

The physical signs are similar to those of true croupous pneumonia, except that the dullness on percussion comes on more abruptly and is not so absolute as in true pneumonia, and probably because the air-cells are not so completely filled and the exudate is liquid. The subcrepitant r  le can be heard and sometimes the sounds of a coarser bronchitis. As a rule, the sounds of fine bronchitis are heard only in the immediate neighborhood of the spot.

"The general symptoms of remittent fever, the temperature running higher than it otherwise would, and the remission not being so distinct as usual. The pulmonary inflammation subsides when the systematic disease has been brought under control."

He further states that "this complication may be mistaken for true croupous pneumonia, lobular pneumonia, capillary bronchitis, simple congestion of the lung and pulmonary edema."

Says Osler:<sup>6</sup> "A malarial pneumonia is described and is thought to be very prevalent in some parts of this country. Although I have seen during the past seven years several hundred cases of malaria, and am familiar with the bronchial troubles so commonly associated with it, I have yet to see an instance of pneumonia, which seemed in any way connected with paludism." Again,<sup>7</sup> he relates his personal experience with the combined occurrence of these two affections, as follows: "On two occasions in the Philadelphia Hospital I had an opportunity of seeing the development of pneumonia in convalescents from malaria, one of the quotidian, the other of the quartan type. They developed in a ward with several other cases of pneumonia, but the disease ran a

perfectly normal course. In about four hundred cases of malaria, which have been under observation at the Johns Hopkins Hospital and Dispensary, bronchitis has been frequent as an early symptom, but we have seen no indication of any special form of inflammation of the lungs."

According to the present collective investigation, out of the aggregate number of cases of malaria analyzed—1,780—only 5 cases of lobar pneumonia and 1 of catarrhal pneumonia occurred. Thus, lobar pneumonia can not be regarded as being frequently in association with malaria, and yet that it is so, rarely, can not be denied, in view of the clinical and post-mortem evidence at our command. So far as can be ascertained from the notes of the cases, the symptoms presented were the same as those met with when pneumonia complicates other acute infective diseases, though the physical signs were, perhaps, less pronounced for two or three days after the onset. Further, the results obtained by these observations are entirely confirmatory of the view expressed by Osler (supra), when he affirms that pneumonia has no special relation to malaria. Now, while this is true as regards the occurrence of pneumonia secondary to malaria in Philadelphia and other temperate latitudes, it may be equally true that the severer forms of the disease, which occur in warm climates, truly invite invasion of the lung by the pneumococcus of Fraenkel.

A glance at the table of complications will show that, in six of these instances, typhoid fever was noted. That there is a class of cases in which both malaria and typhoid fever are met with in the same individual, simultaneously, can not be doubted. In view of the results, however, obtained by these researches, that relationship can not be close. Neither is the compound affection due to a third extraneous "compound agent," as was formerly believed, but to the effects of the two pathogenic organisms in one body at the same time. The hybrid occurs most frequently in the malarious regions of our Southern States. I hold that a careful blood examination in suspected typho-malarial fever would show many instances to be pure typhoid fever. The presence of chills and sweats and an intermittent temperature curve are sometimes observed in typhoid. Furthermore, when the temperature curve is of the intermittent type, from the beginning, the course of the affection is usually favorable. This fact tends to make clear the meaning of Woodward's statistics, which show "that the mortality of uncomplicated typhoid was far greater among the white and colored troops alike, during our late Civil War, than was the mortality of typho-malarial fever."

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#### DISCUSSION.

DR. ROCHESTER—This subject of the connection of malaria with other forms of disease is one of exceeding interest to us all. There is one thing I should like to ask the doctor. He speaks of the complication of malaria with pleurisy. I should like to know whether he has notes in the cases in which that occurred and whether the majority occurred on the left side or not. Also, in pneumonia, he mentioned that one case was on the right side. I think there is some possible explanation offered for its occurrence on the left side in connection with the spleen. I am glad he spoke of the fact that true lobar pneumonia was so exceedingly rare in the malarial fevers, but that we did have very commonly a complication of the respiratory tract, principally confined to the bronchial tubes, with occasional true bron-

<sup>5</sup> Abstract of a paper read before the Orange Mountain Medical Society, August 14, 1891, Medical Record, March 11, 1893, p. 297.

<sup>6</sup> Practice of Medicine, p. 551.

<sup>7</sup> Loc cit. p. 146.

chial pneumonia or lobular pneumonia associated with it. It seems to me that careful discriminations should be made between what we call true lobar pneumonia and bronchopneumonia in all cases, a thing which is frequently overlooked when people speak of pneumonia. The complication of typhoid fever with malarial fever is of interest, and also the fact the Doctor has brought out, and which should be particularly emphasized, that we do have cases of typhoid fever in which the temperature remits, in which there is no malarial complication whatever. We should not describe a case of typhoid fever as malarial unless we actually find in the blood the plasmodium of malaria.

DR. HOLLISTER—In the early years of my medical practice I came directly in contact with more cases of malarial complications than all others combined, and among a class of people who had not been theretofore exposed to malarial influence and therefore in whom we could trace easily the depressing influences and constitutional effects of the presence of malaria. Universally it was found—although we knew nothing of the plasmodium of malaria—that one of the manifestations most marked in connection with these diseases was the destruction of the red blood corpuscles. The first summer I had no trouble with malaria, and my patients responded readily to the usual remedies. When in November and December I came to see these persons subjected to the low temperatures and to the other influences incident to the winter, I began to find a series of manifestations, which took the form very largely of an epidemic of congestion. This even took the form of cerebro-spinal meningitis, with fatal results. The second year, however, the manifestations were not upon the nervous centers, but more markedly they were pulmonary complications. Why in those two years the complications were so different in the same locality I can not say. The second year in almost every instance there were catarrhal manifestations, and then very rapidly a series of others in which there were infiltrations into the lungs. Large numbers of cases were fatal. Some of these cases were accompanied by pleuritis complication, but perhaps not more than 10 per cent. There were cases in which there was dullness, first posterior, and then extending gradually from the base and involving more and more of the respiratory tract areas, with fatal results in the manner I have indicated, and it had seemed to me that the inflammatory phenomena of that form of inflammation of the lungs were due to the great destruction of blood corpuscles and the enfeeblement of the body. If there are present any cocci or tubercle bacilli, they here met with the conditions most favorable for their development. In proportion as the blood was improved, resistance was more manifest, and favorable results could be obtained in the treatment. I have the impression that where the plasmodium is not present, you will not find any relation between malaria and tuberculosis. I am convinced that where the plasmodium of malaria and the tubercle bacillus are both present, either one will prepare the way for more serious manifestations on the part of the other.

DR. ANDREAS—As to Dr. Rochester's question with reference to the relative frequency of the occurrence of pleurisy on the two sides, I can not reply in positive terms, as the cases were not studied with regard to this point, although I think this might have been done with great advantage. I may say that my recollection is very clear as to the variety—clinical and pathological—or that most of the instances were cases of plastic pleurisy, there having been only a few in which sero-fibrinous exudations occurred to any extent. Dr. Hollister made the point that season influences the character of the infection. I do not doubt that this is true, and more especially do I believe that the winter season predisposes a patient suffering from malaria to pulmonary complications in particular. If my recollection serves me, this was true of the cases which occurred in Philadelphia, so far as this complication was concerned. We must remember the fact, however, that both forms of pneumonia are on the whole much more frequent during the winter than the warm season of the year. He also made the statement based upon personal experience that the epidemic varied as regards the character of the complications. Now, in Philadelphia this disease does not occur in epidemic form, at least not to any extent among the cases that are admitted into the hospital. The statement made by Dr. Hollister, however, simply confirms a well-known fact with reference to all other acute infectious diseases, namely, that not only the type of the infection, but also the character of the complications, varies to a very great extent in different epidemics. I think I have shown clearly enough that typhoid fever and pneumonia do not bear any

special relation to malaria. The fact was also forcibly brought out that pleurisy and rheumatism are, comparatively speaking, frequent complications of malarial infection. This is of interest from the fact that we do not find any reference to the connection either in our text-books or in the literature.

## CONSTIPATION AND FAULTY ELIMINATION AS A FACTOR IN DISEASE.

Read in the Section on Practice of Medicine at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

BY FREDERIC S. THOMAS, M.D.

COUNCIL BLUFFS, IOWA.

The retention of fecal accumulations in the alimentary tract, and their discharge but once a day is an acquired habit. Primitive man, like other unrestrained animals, defecated more often.

The result of retaining within the body matter so poisonous, can not be other than prejudicial to health.

Man, the most perfect of animals, intellectually far in advance of all others, is nevertheless ignorant as to what food he should select. The result of this is imperfect digestion, constipation and faulty elimination. Each largely depends upon the other. Viewed from the standpoint of digestion, (intestinal,) let us briefly consider this important process.

We are told that "harmony of the secretions means normal cell selection, and normal cell selection means health." Any deviation from these relations means "cell disturbance, or disease."

The digestive changes in the small intestines may be summed up as follows: proteids are converted into peptones by pepsin and trypsin, because albumins are not readily absorbed by the circulatory and lymphatic systems.

We have also been taught that peptones can not exist in the blood as peptones, without poisonous effect, but must be converted back into their native albumins (proteids). The pepsin of the stomach begins the process of digestion. Trypsin of the pancreas completes it, carrying it a step further, producing leucin and tyrosin. Then comes absorption, etc. Thus, cane sugar is converted into grape sugar, by invertin from the crypts of Leiberkühn. Steapsin of the pancreas is the active agent in the emulsification of fats. The liver cells are called upon for bile to assist in their absorption. If we study intestinal digestion, we readily see the important function of the liver in the process, as well as the importance of a portal circulation which is unimpeded.

We are taught that "any interference with the pancreatic cells would interfere with the proper solution of proteids into peptones, and the formation of leucin and tyrosin. A modified product of digestion would be taken to the liver, and the liver cells could not convert them properly into urea." Interference with the action of the liver cells would produce auto-infection, and its symptom would be non-elimination.

What would be the effect upon the normal cell activity, in the process of intestinal digestion, of blocking up the lower end of the tube (the bowels)? Would we not have modified cell activity, and would not materials that were poisonous be crowded into the circulation; and if in sufficient quantities, would not this produce death?

When ptomaines, leucomaines, ferments and chemical derivatives of digestion are considered, we see how



important cell selection becomes in the normal functional activities.

Since our profession have been so assiduously studying the microorganisms which are about us, upon the supposition that our diseases come from without, we have forgotten that the microorganisms which dwell within, whose names are legion, are being neglected.

How important it is, therefore, to prevent accumulations of effete materials within the intestinal tract. Branton attributes the "depression, lassitude and dullness after a full meal, in the full-fed, inactive man, to peptones in the blood." Ought we not likewise to attribute many forms of disease to constipation and the faulty elimination of poisonous material from the alimentary canal?

Our food consists of proteids, carbohydrates, hydrocarbons, salts, and water. In their preparation in the alimentary tract before absorption, certain chemical changes take place. This requires normal functionation, or especial selective acts. If all alimentary substances were taken up by the blood, death would undoubtedly ensue. Hence the importance of normal cell selection during secretion, absorption or elimination. Poisonous substances are formed, which, if retained in the tissues, would become a source of infection. The cells would poison themselves by the products of their own metabolism.

Should the pancreas fail, in its cell selection, to produce trypsin from the blood by reason of any interference, a modified product of digestion would be taken to the liver. Urea would appear in the circulation, and symptoms would arise, which, if not eliminated, would be followed by dangerous results.

Bouchard informs us that sufficient poisonous matters are formed in the intestines every day to produce death should they be absorbed into the circulation.

Many of the so-called "diseases of the nervous system," arise solely from auto-infection, and require nothing but corrected digestion and proper elimination. Thus many febrile diseases during the months of autumn become grave only because of retained fecal infection.

We can truthfully say, therefore, that constipation and faulty elimination are important factors in disease.

## CIRRHOSIS OF THE LIVER.

### CLINICAL AND PATHOLOGICAL DIFFERENTIAL DIAGNOSIS, WITH CASE.

Read before the Chicago Pathological Society, Feb. 11, 1895.

BY ARTHUR R. EDWARDS, A.M., M.D.

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CHICAGO, ILL.

Patient was a Norwegian, married, 48 years old and a laborer. Under observation thirty-four days. Previous diseases: measles, colds, pneumonia four years ago. Family history negative. Personal history: in Chicago twenty-three years; married twenty-two years; three healthy children; smokes and chews; drinks moderately; venereal history denied. Present disease: ill for three weeks beginning with pain in epigastrium and hypochondria, which is at times absent, now dull, now shooting into both shoulders; dizziness on walking; weakness with pain in lumbar regions; no pain on inspiration; has not vomited; no hematemesis; eats less frequently

because of pain produced in epigastrium; during past month has emaciated rapidly; bowels regular; appetite good; never jaundiced; occasional eructations of gas; coughs a little in the morning.

Physical examination: considerable emaciation; muscles flabby; mind clear; eyes negative; tongue clean; mouth negative; lungs negative. Heart: systolic blowing, apical murmur, diagnosed accidental. No marked atheroma. Pulse somewhat quick but rhythmic; frequency varies from 80 to 104. The morning temperature averaged 99 degrees, the evening 101 degrees, preserving this type with fair constancy. Four evening elevations of 101.8, 102, 102.2, and 102.2 were observed. Urine negative; not bile stained. Feces normally pigmented. Stools irregular in frequency, constipation alternating with slight diarrhea. Nervous system negative.

The liver conformed to the normal contour above, moving freely on respiration; it extended three inches below the usual inferior limit, the enlargement being symmetrical. The edge, not readily palpable because of tenderness, seemed even. The hepatic tenderness and epigastric pain were constant. There was no conspicuous tympany. The splenic dullness was always uncertain, as the organ was never palpated and constipation was frequent. Lastly, the skin of the patient was dry and muddy, and his appearance cachectic. No icterus was observed. Neither hydrochloric nor lactic acid was present in the gastric juice.

The blood count gave 4,104,000 red blood corpuscles, and the red corpuscles sustained to the whites a ratio of 1 to 174. Later counts showed gradual reduction in the number of red corpuscles to 3,800,000, while the leucocytes were to the erythrocytes as 1 to 125.

The patient for several days prior to death was delirious and vomited. The treatment was directed chiefly to his cough and nausea. Antisyphilitic treatment was given. The diagnosis would have been Laennec's cirrhosis in the first stage, had there been collateral circulation, a caput medusæ, ascites, splenic tumor or any gastro-intestinal hemorrhage. Hypertrophic cirrhosis was considered but rejected because no spleen could be found and icterus was absent, although that form of biliary cirrhosis, known among French authors as hypertrophic cirrhosis without icterus, was thought of and discussed in the clinical conferences. The rapid emaciation suggested neoplasm and the leucocytosis looked toward some suppurating focus, although no confirming facts were established.

The autopsy showed little outside of the liver. The aorta and the peripheral vessels were atheromatous. Heart negative; lungs, marginal emphysema, few adhesions and ancient healed tubercular foci. The liver weighed 2,730 gm.; there were a few perihepatic adhesions; the organ measured 29 x 19 x 20 x 8.5 x 5.5 cm. The capsule was here and there thickened, but the edges and surface were perfectly smooth. On section the lobules appeared quite large, some measuring 1 cm. across. The color was mottled yellow and red. The organ was firm and had a waxy appearance simulating amyloid. The spleen weighed 420 gm. and measured 15 x 12 x 6 cm. The kidneys weighed 530 gm., and measured 14 x 8 x 4 cm. The capsule peeled very readily, and the markings were fairly distinct. The cut surface was dark and very vascular, the kidney of passive congestion. On microscopic exam-

ination is found an increase in the inter- and intra-lobular connective tissue of the liver. Round cells are found in every part of the lobule and in some places the lobule is wholly replaced by them. The liver cells are now larger than normal, now atrophic, never fatty nor pigmented. The bile ducts are increased. Occasionally a very large lobule is found.

The most interesting pathologic feature in this case is the status of the cirrhosis, whether it is the first stage of a Laennec's cirrhosis, an hypertrophic alcoholic cirrhosis, a biliary cirrhosis or a mixed cirrhosis. It is certainly not a typical Laennec's cirrhosis.

A consideration of the possibility that the vulgar hepatic cirrhosis may be preceded by hypertrophy, is pre-requisite. Todd<sup>1</sup> claims that there is never preliminary enlargement in Laennec's cirrhosis and he was unable to find in literature a reliable instance of a hypertrophic passing into an atrophic cirrhosis. Stricker (Traube's clinic) observed livers shrink to half their former length in one month. Therefore subacute and acute hepatitis must be excluded. Rosenstein<sup>2</sup> and Labadie Lagrave<sup>3</sup> agree with Todd. Bright,<sup>4</sup> Budd,<sup>5</sup> Saunders and Frerichs<sup>6</sup> have said that contraction is occasionally antedated by a stage of enlargement. Murchison's<sup>7</sup> experience taught that in a considerable proportion of cases of cirrhosis, the liver is still very much enlarged, often from fat, after symptoms of portal obstruction have set in and that patients often die in this stage with jaundice, hemorrhage and symptoms of blood poisoning. Leudet,<sup>8</sup> from a pathologic standpoint comes to the conclusion that increase in liver volume is not always an index of a recent lesion, of an acute process or a curable one. Murchison says it is questionable whether such livers would shrink if the patient lived longer, yet he states that increase and decrease in liver volume are probably different stages of the same process. Ollivier<sup>9</sup> believed that cirrhotic atrophy and cirrhotic hypertrophy were different states. Gilbert and Hanot believe in the preliminary enlargement of cirrhosis atrophica. Semmola and Klebs have studied the disease in its incipency and found that the organ is firm, smooth and dark, with dilated portal radicles and periportal extravasation of round cells (Tissier). Keussner<sup>10</sup> Rokitsky, Stadelmann,<sup>11</sup> Litten,<sup>12</sup> Schapiro,<sup>13</sup> Mangelsdorf,<sup>14</sup> Niemeyer,<sup>15</sup> Stricker, Strümpell,<sup>16</sup> Hamilton,<sup>17</sup> Orth and Zeigler describe enlargement antecedent to atrophy. Bamberger<sup>18</sup> considers the decrease in size of an enlarged liver almost pathognomonic for atrophic cirrhosis. Rosenstein applies two tests, palpation of the liver's edge, continued clinical observation and necropsy—ascites, obstipation or tympany render percussion most uncertain. With these criteria Rosenstein has never seen atrophy following hypertrophy.

*Definition of term "hypertrophic."* — Hamilton<sup>17</sup> takes exception to the term "hypertrophy," arguing that an enlarged liver may be very atrophic. Liebermeister considers that the terms, "biliary" and "hypertrophic" are not identical, nor are venous and atrophic cirrhoses one. The portal vein form usually shrinks and the biliary form usually enlarges, but exceptions occur as, 1, portal vein forms remaining large till death; or 2, biliary types atrophying to a certain degree.

Most writers, e. g., Strümpell, regard "biliary" and "hypertrophic" as synonymous, and "venous" and

"atrophic" as the same. The hypertrophic alcoholic cirrhosis of Hanot and Gilbert<sup>18</sup> is characterized by edges less sharp than normal; red or brown color; surface furrowed by uneven areas, varying in size, the unevenness being less than in the atrophic form; by granulations on the surface; by enlarged spleen, ascites, collateral circulation, etc. They assert there are many transitional forms between it and the atrophic alcoholic cirrhosis, so that great importance does not attach to size alone. Recovery occurs in this more than in any other form.

Laennec seems to have known but one type of cirrhosis. Hanot, supported by Hayem, Cornil and Charcot, insisted even more than did Todd upon the divorce of hypertrophic and atrophic cirrhoses. This separation of the two forms is the constant theme of the French school, but they do not seem concerned as to whether an enlarged liver may become small.

Cornil<sup>19</sup> was the first to discover in the hypertrophic form, a very rich network of bile vessels and upon this Hanot based his clinical division of cirrhoses into, 1, the venous; and 2, the biliary. Litten and Mangelsdorf sought to show that biliary was but the first stage of the vulgar cirrhosis plus icterus. In Germany, the different cirrhoses are largely held to be mere variations of a single fundamental cirrhosis. Stadelmann<sup>11</sup> voices this opinion when he can not find a difference between the two forms for the following reasons: 1, there is a hypertrophic cirrhosis without icterus; 2, hypertrophic cirrhosis can later atrophy; 3, icterus can be very marked in Laennec's cirrhosis.

Rosenstein suggests three classes of cirrhosis: 1, the genuine contracted liver; the cirrhosis of Laennec, an analogue of the genuine contracted kidney.

2. The hypertrophic icteric cirrhosis, an analogue of the parenchymatous nephritis.

3. The hypertrophic mixed form, in which hypertrophy and atrophy combine, an analogue of the secondarily contracted kidney.

Ackermann distinguishes an atrophic cirrhosis (Laennec's) in which the cells die first and are replaced by connective tissue. According to him, Laennec's cirrhosis and one variety of large cirrhotic liver are the same, for in certain livers some parts are atrophic and others again are hypertrophic. Ackermann admits the identity of the French hypertrophic variety which has, he states, nothing in common with the atrophic cirrhosis except the connective tissue proliferation. It is apparently a primary connective tissue hypertrophy with consequent atrophy of liver cells, a hypertrophy occurring around the interacinous blood vessels, never leading to characteristic granulations, producing moderate or no stasis, i. e., scanty ascites and insignificant splenic tumor, and occurring also in horses, fowls and cattle, while the atrophic is seen in man only. The difference between this form and Charcot's description is obvious.

Charcot drew such sharp lines between the different forms that, as Rosenstein has said, one would conclude that a glance through the microscope would readily differentiate them. Charcot described:

1. *Cirrhose d'origine biliaire.*

2. *Cirrhose d'origine veineuse.*

3. *Cirrhose monocellulaire*, characterized by the presence of connective between individual cells within the lobule, seen especially in hereditary syphilis.

The French school postulates the following differentia between the two types of cirrhosis: in the

venous variety, the connective tissue and inflammation extend around several lobules, sending in connective tissue processes late, if at all, into the lobule, hence a peripylephlebitis; in the biliary type, the connective tissue begins in the lobule, around the smaller bile radicles, with increase in the biliary vessels, hence a primary angiocholitis or periangiocholitis. In the venous form, the connective tissue exerts compression upon the lobule *en masse*, hence called cirrhose multilobulaire s. annulaire; in biliary cirrhosis, the compression is in the lobule, hence denominated cirrhose insulaire s. monolobulaire. In the vulgar cirrhosis the process is extralobular; in biliary, it is extra- and intralobular. In the venous or portal type, the liver is small, ascites is present, there is no icterus and the liver cells are degenerated; in the biliary form, the liver is large, ascites and other expressions of stasis are absent, icterus is the cardinal symptom and the liver cells are intact, a pathognomonic criterion.

To my mind the differential diagnosis demands elucidation of the following points: 1, distribution of the connective tissue; 2, status of the bile ducts; 3, character of the new-formed connective tissue; 4, condition of the liver cells; 5, blood vessels; 6, size of the liver; 7, bile stasis; 8, venous stasis; 9, classification.

1. *Distribution of Connective Tissue.*—This point is the most confusing of any connected with the differential pathology. Rosenstein rejects Charcot's and Hanot's terms, "intra- and extralobular," "multi- and monolobular," and asserts that there is no cirrhosis in which there are not now some small lobules surrounded by connective tissue and again many acini surrounded by connective tissue. Both distributions may occur in a single liver. In the annular and insular forms Rosenstein finds an actual histologic differential point, and the concentric ensnaring of smaller or larger groups of lobules in typical cases of Laennec's cirrhosis are to him and Ackermann truly distinctive. In typical hypertrophic cirrhosis, the connective tissue sends out processes into and around the lobules, now surrounding an entire lobule, now only certain cell groups. Rosenstein, Kelsch and Wannebroecq certainly overdraw the situation in saying that nearly all cirrhoses are mixed types (Type mixte. of Dieulafoy<sup>20</sup> and Guiter.<sup>21</sup> See also references<sup>22, 23, 24</sup>). Orth<sup>25</sup> refuses to divide cirrhosis into different types upon the distribution of connective tissue in regard to the lobule. When said tissue seems to surround lobules, the appearance is usually accidental. The same liver may show multilobular islets, large and small monolobular islets. Regarding the relation between parenchyma and interstitium, the same specimen may show here a sharp distinction and elsewhere the connective tissue running into the lobules. Orth regards all cirrhosis as essentially the same process. Hamilton also thinks Charcot's and Gombault's views extreme.

Brieger<sup>26</sup> and Sabourin<sup>27</sup> affirm that the connective tissue begins in the hepatic vein zone. French authors find the connective tissue around the bile vessels, the veins being involved later and to a less extent. Hamilton says the secondary connective tissue bands into the lobule are more numerous in biliary than in atrophic cirrhosis.

2. *The Bile Ducts.*—In general, the French authors describe a hyperplasia of the biliary passages in biliary cirrhosis. Brieger finds in every circumscribed

connective tissue formation in the liver an increase in the bile vessels, in tuberculosis, carcinoma, adenoma, gregarinæ, distomata, and even in corset liver. Rosenstein states that he has found them (perhaps by accident) more frequently in atrophic than in biliary cirrhosis and can not, therefore, consider them pathognomonic of biliary cirrhosis; also that they sustain no causal relation to icterus. The ducts are described as filled with degenerated and desquamated epithelium and less frequently with pigment masses. Rosenstein affirms the existence of this condition in the hypertrophic cirrhosis without icterus. Ackermann<sup>28</sup> thinks the new formed bile vessels communicate with the smallest biliary vessels on the one hand, and with the main duct on the other, and gives as proof the results of artificial phosphorous cirrhosis. Orth considers the canal system as due, chiefly at least, to atrophic liver cells arranged in rows, although he admits they may in part be neoplastic. They can be infected from the biliary system and are absent in no type of cirrhosis. (Also the view of Kelsch, Kiener, Sabourin.)

Friedländer<sup>29</sup> was the first to discover this reversion of atrophic liver cells to their embryonal duct-like condition. The ducts disappear where the connective tissue is densest. According to Price<sup>30</sup> the ducts are of two kinds: 1, true bile ducts; 2, duct-like structures continuous with and imbedded in large tracts of fibro-nucleated tissue, being transformed into fibrous tissue. Small nodules on the surface are occasionally due to biliary polyadenomata.<sup>31</sup> Ziegler describes a bile vessel proliferation in all cirrhoses.

*Character of the new-formed Connective Tissue.*—Ackermann calls attention to the fact that the new-formed connective tissue in biliary cirrhosis remains uncontracted, hence the names elephantiasis hepatis (Eichhorst) and L'hypermégalie (Schachmann). In atrophic cirrhosis it is fibrous; in hypertrophic, embryonal in character (Rosenstein). Stadelmann remarks that the biliary cirrhotic liver never contracts. Orth admits that a biliary form exists, characterized by its clinical course and lack of atrophy, with the qualifying phrase that the future only can assign to biliary cirrhosis its exact status. Strümpell thinks the lack of contraction has been overestimated and that the organ would contract, were life protracted. Hamilton describes the connective tissue bands as finer in hypertrophic than in atrophic cirrhosis.

4. *Condition of the Liver Cells.*—That the liver cells preserve their form is characteristic of biliary cirrhosis. They are at most flattened only at the periphery of the lobule and may disappear. Fatty infiltration and necrosis is said to be very rare. The nuclei are preserved. The cells are sometimes pigmented or atrophied but often both cell and nucleus hypertrophy and divide. In Laennec's form the cells are often degenerated, very frequently fatty, now in the center, now in the periphery of the lobule. Hamilton says fatty degeneration is rare even in Laennec's cirrhosis, while fatty infiltration and hypertrophy occur.

5. *Condition of the Blood Vessels.*—The interlobular blood vessels in the portal cirrhosis are diseased, while free in the biliary type (Rosenstein). Ackermann's view has already been quoted (v. s.). The integrity of the hepatic or sublobular system is, according to Jaccoud,<sup>32</sup> quite exceptional.

6. *Bile Stasis (Icterus).*—Icterus dominates the clinical picture in the biliary variety. Most author-

ities admit that jaundice occurs more frequently in biliary cirrhosis, although it may be absent.<sup>33</sup> Howard found icterus in 70 per cent. of hypertrophic and 71 per cent. in atrophic cirrhosis. Mangelsdorf found icterus in thirty-eight out of forty-nine cases of hypertrophic cirrhosis. Fogge (quoted by Charcot) found it in 25 per cent. of atrophic cirrhosis (130 cases) and Rosenstein in 15 per cent. Icterus is absent in the cirrhose hypertrophique graisseuse (Sabourin). In Laennec's cirrhosis, it is incomplete, caused by compression of bile ducts by contracting connective tissue. Its frequency is variously given; seldom (Murchison, Oppolzer and Charcot); frequent (Bamberger, Leyden, Fürbringer); necessary to the diagnosis (Leyden<sup>34</sup>); slight in degree (Frerichs, Keussner); coming on before severe symptoms (Bright). In hypertrophic biliary cirrhosis some consider the icterus due to polycholia. (Rosenstein, Labadie Lagrave).

In atrophic cirrhosis, jaundice is a genuine complication, due to catarrh, glands, or a diffuse cirrhotic process (Andral, Clin. Med., 11), yet few pass through the disease without a muddy yellow areola under the eyes. In hypertrophic cirrhosis the stools remain yellow, an important point (Fürbringer, S. 121 ref. 2), yet sometimes they are acholic (Liebermeister 2). Stadelmann believes many of Charcot's cases of biliary cirrhosis were only instances of retention icterus (from calculi, cicatrices, etc.). Rosenstein has observed catarrhal icterus lasting between one and two years and has seen three cases of amyloid with icterus. In biliary cirrhosis the icterus varies directly with the fever curve and the size of the liver (Jaccoud).

7. *Venous Stasis*—is absent or inconsiderable in biliary cirrhosis, being terminal or complicating. It is present in the mixed forms (biliary plus venous). In advanced cases of atrophic cirrhosis, ascites is rarely absent, yet the patient may die before ascites develops, *e. g.*, from hemorrhage, for hemorrhage is dangerous when there is no ascites (Leyden). An extensive though slowly developing collateral circulation may permanently relieve ascites. Ascites is no infallible sequence of atrophic cirrhosis (Lecorché, Hanot). It may disappear after hemorrhage (Fauvel), diarrhea (Linas) or carcinoma of esophagus (Lecorché, Telamon). It usually antedates edema of the legs, although anasarca may appear first from: 1, renal or cardiac complications; 2, compression of inferior vena cava; 3, perihepatitis involving cava; 4, cachexia; 5, thrombosis of iliac veins. Splenic tumor is seen in both forms. Atrophic cirrhosis is accompanied by mechanical gastrointestinal stasis with hypostatic hemorrhage. In biliary cirrhosis, hemorrhage in other situations, *e. g.*, epistaxis, is more frequent. Fürbringer has, however, observed in biliary cirrhosis, hemorrhagic gastritis and enteritis. The metabolic disturbances are the same in both forms, except that alimentary glycosuria is more frequent in the atrophic. In Laennec's type, constipation is the rule; in biliary, diarrhea. In both, dilatation of the right ventricle, leucocytosis, remittent or intermittent temperature occur. Tubercular peritonitis and granular kidneys are common in the atrophic form, while rare in the biliary. In biliary cirrhosis, albuminuria is infrequent while a high pulse rate and a terminal cholemic condition are usual.

## CLASSIFICATION.

I suggest the following classification, less as an arbitrary or infallible scheme than as an attempted tentative reconciliation of conflicting clinical and pathological data awaiting stricter future analysis:

Cirrhosis hepatis.	I. Capsular.	{ a. Chronic perihepatitis. b. Portal vein syphilis.
	II. Vascular	{ a. Hepatic vein. b. Portal vein.
	III. Biliary.	{ a. Obstruction—"Retentions-icterus" and cirrhosis. b. Biliary or hypertrophic, in French sense. IIa- not's cirrhosis. (Vascular and biliary cirrhosis.)
	IV. Mixed.	

## BIBLIOGRAPHY.

- 1 Todd: Clinical Lectures on Urinary Disease and Dropsy, 1859, p. 113; Med. Times and Gaz., 1857, p. 591.
- 2 Rosenstein: verhandlungen L. Congress für Innere Medicine, 1892, Bd. XI, p. 65.
- 3 Labadie Lagrave: Maladies du foie, p. 557.
- 4 Bright: Guy's Hosp. Rep., 1st Ser., Vol. 1, p. 612.
- 5 Budd: Diseases of the Liver.
- 6 Frerichs: Klinik der Leberkrankheiten.
- 7 Murchison: Diseases of the Liver, 1885, p. 145.
- 8 Lendet: Clin. Méd., Paris 1871, p. 541.
- 9 Ollivier: L'Union Méd., Sept., 1871, pp. 361, 400, 449.
- 10 Keussner: Volkmann's Klin. Vorträge, 141, s. 1192.
- 11 Stadelmann: Verhandl. d. Congress f. Inn. Med., 1892, s. 90.
- 12 Litten: Charité Annalen, 1880, s. 173.
- 13 Schapiro: St. Petersburg, Med., March, 1891.
- 14 Mangelsdorf: Dent. Arch. f. Klin. Med., Bd. 31, s. 578.
- 15 Niemeyer: Handb. d. Spec. Path. u. Therap., p. 787.
- 16 Strümpell: Handb. d. Spec. Path. u. Therap.
- 17 Hamilton: Text-book Pathology, Vol. II, pt. 1, p. 216.
- 18 Hanot et Gilbert: De la cirrh. atroph. hepat., Soc. Méd. des Hôpit., Mai 23, 1890.
- 19 Cornil: Archiv. de Physiologie, 1875, p. 265.
- 20 Dieulafoy: Gaz. hebdomadaire, Sept.-Oct., 1881, Nos. 39, 40, 41 and 43.
- 21 Guiter: De cirrhose mixtes, Paris, 1881.
- 22 Sacharjin: Klinische Vorträge, Bd. III, Fall 7 and 8 (Russian).
- 23 Goluboff: Zeitsch. f. Klin. Med., Bd. XXIV, H. 3-4, s. 350.
- 24 Jakowleff: Deut. Med., March, 1894, s. 851.
- 25 Orth: Handb. der Spec. Pathologie.
- 26 Brieger: Arch. f. Path. Anat. LXXV, 1879, p. 94.
- 27 Sabourin: Rev. de Méd., 1882 and 1883.
- 28 Wegner: Virch. Archiv., 55, p. 11, 1872.
- 29 Friedländer: Ueber Epithelwucherung und Krebs, 1877.
- 30 Price: Guy's Hosp. Report., XLII, 1884, p. 313.
- 31 Sabourin: La Glande biliaire, 1888.
- 32 Jaccoud: Lecons de Clin. Méd., Paris, 1885, p. 103.
- 33 Hayem: Arch. de Physiol. Normale et Patholog., 1874.
- 34 Leyden: Beiträge zur Pathol. d. Icterus, Berlin, 1866.

## HYPERTROPHIC CIRRHOSIS OF THE LIVER WITH JAUNDICE.

Read before the Chicago Pathological Society, Feb. 11, 1895.

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The patient who died of this affection at the County Hospital last January, was a white woman of Irish extraction, 40 years old, married, having several living healthy children, and an exceptionally good family history. She had malaria and rheumatism several years ago but neither of these confined her to her bed, and she considered that she had had unusually good health up to one year before she came into the hospital, when she first noticed a dull heavy pain in her right side, about the border of her ribs, and became jaundiced. But all the symptoms of this attack passed away without any treatment, and she felt fairly well except for occasional vomiting spells, until toward the end of November, when she was again attacked with the same dull pain in the region of the liver and became yellow.

December 21, she came to the hospital and stated that she had been sick for five weeks; she complained of pain and tenderness in her right side, but was most concerned about the yellowness of her skin and a tumor of which she had lately become conscious in



her abdomen. Her temperature on admission was 100.8, her pulse 106 and respiration 32. She did not appear to be very sick. She was extremely stout and apparently suffered no pain. She recited her history intelligently, appeared to have been a virtuous woman not addicted to drink, and free from any venereal history. Her skin and conjunctiva were yellow, at first not very marked, but became extremely so toward the end—otherwise her skin and eyes were negative, but she complained as she grew worse that her sight was getting poor, and some time before death had diplopia. Her breathing was accelerated and shallow; her pulse weak, and rather rapid, but neither lungs nor heart gave any other sign of disease. Her abdomen was very prominent but symmetrical. The tumor of which she complained was easily palpable. Its smooth, rather sharp edge, could be felt in the median line running down into the right iliac region. Slight pressure upon it caused pain. Owing to intestinal tympany, and a very thick layer of fat overlying it, the spleen could not be palpated or percussed. No fluid could be shown to be in the peritoneal cavity, and there were no enlarged abdominal veins although there was some edema of lower limbs. She gave no history of any pelvic trouble except profuse menses during last two periods before admission and there was no tenderness over the pelvic viscera. As the jaundice deepened, she complained of a "dead feeling" in her arms and legs which became very weak, and later, she had "drop wrist" of both arms and complete paralysis of lower limbs. Her intellect became dulled. She was occasionally delirious, but control of the bladder and rectum was retained to the end. There was at no time any gastric disturbance; she retained her food and medicine well, but her bowels were extremely constipated and would not respond to any but strong cathartics. Her urine at no time contained any albumin or sugar. It was generally of a low specific gravity, acid reaction, dark color, and gave a marked biliary reaction. Her pulse was not at any time slow, generally between 90 and 110. Her temperature varied between 98 and 102 until immediately before death it went to 103.4. For about forty-eight hours before death she was stupid and semi-comatose and died four hours after the onset of deep coma.

A post-mortem examination of the body was made twenty-four hours after death occurred. There were no scars, eruptions or ecchymosa on the body but the skin was intensely yellow. There had been no emaciation. The abdominal wall contained 32 cm. of fat at the umbilicus. There was no fluid in either pericardial or pleural cavities. The heart was covered almost everywhere with fat. It was empty, weighed 550 gms., and was so flaccid that when held by the great vessels, with its base upward, it fell like a mushroom over one's fist. There was neither incompetency nor stenosis of any value. The cavities of the heart and the thickness of its walls, were of normal dimensions. The aorta at its beginning had a few soft, small, whitish-yellow atheromatous patches—but nowhere else was there found any arterial degeneration. Both lungs were negative, except that considerable blood and mucus could be expressed out of the lower lobes on both sides, but sections of these would crepitate and float. The pleural cavity on the right, contained many firm adhesions while there were a few stringy bands also on the left. The peritoneal cavity contained a few ounces of fatty serous fluid.

Pushing them aside the intestines disclosed the right lobe of the liver running from the crest of the ilium with its left edge in the median line and reaching the lower border of the third rib above. While the left lobe reached about 2½ cm., below and to the left of the tip of the sternum, and was adherent to the spleen, the hypertrophy was seen to be mainly in the right lobe. The common bile duct was patent. The gall bladder was of ordinary size but rather thick, and contained some thick, syrupy brownish-yellow liquid which could be expressed into the duodenum with very slight pressure. The liver weighed 4,150 gms., its right lobe measured 33 cm., from above downward, 23 cm. laterally, and was 18 cm. thick. Its surface was smooth, mottled, brownish-red and light yellow. On anterior part of right lobe was a thickening of the capsule indicated by a small whitish area with white lines radiating short distances from it. A cut section appeared yellow, being deeply bile stained; its surface felt rough; the lobules could be distinguished only by a slight elevation of their border. The spleen was adherent to the stomach, diaphragm and left lobe of the liver. The capsule was torn in an effort to detach it and its pulp substance, was so diffuent, while the trabeculae were extremely friable, that its contents escaped into the peritoneal cavity. The spleen reached about two inches below the costal arch, and up to the upper border of fifth rib. Both kidneys were enlarged. The capsule of each peeled readily, leaving a smooth surface. The cortical markings were indistinct in each, while the pyramids were dark in contrast to the somewhat pale cortex. They were bile stained like all the other visceral organs and weighed together 560 gms.

The pelvic organs were matted together by old adhesions into one solid mass; the left Fallopian tube, which had extremely thick walls, contained a few drops of inspissated whitish pus. The meninges were negative, as was also the surface of the brain which was not dissected. Nothing abnormal was found in the alimentary tract. Sections of the liver hardened and stained with hematoxylin and eosin and examined microscopically show that the lobular outlines are indistinct, and that while there is some increase of interlobular connective tissue it is not nearly as marked as in any ordinary form of atrophic cirrhosis. There is marked increase of this tissue within the lobules. In some it runs at right angles to the periphery from the center, disposing the cells radiating in rows from the center; in others it is arranged in circles, so that the cells are arranged in layers concentric to the periphery, at the outer parts of the lobule. This latter distribution seems more common than the former. In a few lobules the connective tissue is irregularly distributed so that they are made up of isolated groups of cells. With a 1½ inch oil immersion objective this connective tissue is seen to be made up of a highly refractive, hyalin-appearing substance containing a few spindle-shaped nuclei and, as a rule, stains well with eosin. This connective tissue is best seen in areas where marked fatty degeneration has taken place. Here it is almost transparent and does not take eosin well. The cells of Kuppfer, marking the position of the blood capillaries, are infrequent.

The most marked increase of connective tissue is seen where sections of bile ducts are obtained. Here there are broad bands that stain well with eosin, and

contain many spindle cells with long pointed ends. The bile-duct epithelium stains very deeply everywhere. There seems to be an excess of bile ducts only in a few places. The increase in connective tissue is more marked around the ducts than around the hepatic or portal veins, and it is more hyalin in character around the ducts.

The liver cells show marked signs of two kinds of degeneration, a fatty and a hyalin degeneration. The first should perhaps be called a fatty infiltration, because in the cells which are occupied by the holes left after the fat had been dissolved out, the nucleus remains well stained in the periphery, while the circular vacuole is partially surrounded by a narrow rim of cell protoplasm. This fatty infiltration affects all the lobules, more or less, and is so marked in some places that but a few cells are left.

Where the hyalin degeneration occurs, the cells stain very poorly even with eosin, the nucleus appears faint or not at all. There is no nuclear pigmentation. Some of the cells contain a golden yellow pigment, which appears a yellowish brown where the granules are large. Some lobules are occupied entirely by this degeneration, while in other lobules it is mixed with the fatty infiltration. It is everywhere most marked in the periphery of the lobules. In places this degeneration appears to have been caused by deposition of pigment; in other places it seems to be due to the fine connective tissue network which isolates groups of cells from the rest of the lobule.

The liver cells which stain well often possess two nuclei. In some, these lie close together upon the same plane, but no connecting bands indicating karyokinesis can be made out. While some of the cells appear larger than normal, no measurements have been made. Some areas are seen which show hemorrhage, but they are small and infrequent and resemble spots of red atrophy. In still other places, there are spots of leucocytosis. This occurs usually in areas of marked degeneration where liver cells have entirely disappeared, leaving only a network.

The microscopic examination was made in the laboratory of Rush Medical College, under the direction of Mr. E. R. Le Count, to whom I am indebted for valuable aid.

#### DISCUSSION.

DR. E. R. LE COUNT—I was very much interested in Dr. Edwards' paper in which he gives the views of the various authorities upon different forms of cirrhosis, and we know there is a great conflict of opinion in regard to this matter. The opinion of Rosenstein, which he mentions as having been advanced in the Congress of Internal Medicine, held at Leipsic, in 1892, of dividing cirrhosis into the atrophic form, the hypertrophic form with icterus, and the hypertrophic form without icterus, in which the latter is associated with the formation of connective tissue atrophy, is the most rational division that can be made. The liver is possessed of a great degree of power to regenerate itself, and experimental investigations upon animals have shown that this power is possessed by it to such an extent that an entire lobe may be regenerated. It is this property of regeneration that has given rise to so much discussion as regards the forms of cirrhosis. In this division of Rosenstein; the hypertrophic with icterus, and the atrophic and hypertrophic without icterus, in the use of the term biliary, with cirrhosis, it must not be forgotten that biliary cirrhosis may be atrophic in many cases, as was mentioned in the statistics given by Dr. Edwards. In most of these cases of biliary atrophic cirrhosis there is chronic obstruction of the gall duct, and the atrophy of the liver is secondary to the obstruction of the gall

duct. In biliary hypertrophic cirrhosis, obstruction does not usually occur, but it does take place in the biliary atrophic form by gall stones very frequently. I have had the opportunity of looking over the specimen presented by Dr. Williams, and the peculiar feature is that it is complicated with degeneration, which does not usually occur in hypertrophic cirrhosis. But in this instance the fatty degeneration is to be regarded—at least, so far as the microscopic appearance goes—as an evidence of a conservative process. At no point could vacuoles be made out which resemble those seen in cases where the liver cells undergo metamorphosis. In regard to the other form of degeneration, the word amyloid is as applicable as any term that could be used. The test for amyloid material was not made in this case to my knowledge.

DR. JOSEPH M. PATTON—These two very interesting and complete reports, together with the discussion so far, serve to illustrate the confusion that exists in regard to the pathology of the different forms of cirrhosis of the liver. As Dr. Edwards has stated, there is a marked difference of opinion entertained by the French and German school. When we have gone over the various reports regarding this subject, we are so inextricably confused that it is difficult to make out anything in regard to the present status of the question. It seems to me, that clinically and in a gross pathologic way, we can certainly make out that we have an atrophic form of cirrhosis of the liver, which clinically is not as a rule accompanied with jaundice, but which may be so; and that we have an hypertrophic form or an enlarged liver which is cirrhotic, which is more apt to be accompanied with jaundice and in which cirrhotic processes are most likely to be found beginning in and around the biliary duct. Clinically, it is very difficult to make out, when you first see a case which of those two forms it may be. If a man does not believe in the hypertrophic stage of the ordinary atrophic liver, he would not be puzzled, but the consensus of opinion is in favor of such a stage, and personally I am satisfied that I have seen two or three cases in this stage in which the liver was enlarged and which afterward developed a typical hob-nail liver. This does not always occur, and it is not an easy matter to make out this stage because those cases comparatively seldom come under our observation during the enlargement of the organ.

DR. R. H. BABCOCK—One point of clinical interest is this: we ordinarily suppose that an atrophic cirrhosis of the liver means a liver smaller than one of normal size. We certainly do observe, clinically, cases of liver which, after having been of abnormal size from passive congestion for years, undergo contraction and hardening without coming down to a size less than a normal liver, and unless I am mistaken—and if I am in error I wish some of the pathologists present would correct me—such a liver is an instance of atrophic cirrhosis, although not Laennec's atrophic cirrhosis. I have in mind two cases of mitral disease in both of whom the livers are larger than normal, extending some inches below the inferior edge of the ribs. In these cases the livers are very firm, hard, and with a sharp grisly inferior edge. One of the patients has been under my observation since September, 1886, and the liver when I first saw the case was apparently simply one of passive congestion. The inferior edge presented a rather rounded border, and there was tenderness. That liver has since contracted, and all of the symptoms of which the patient complained during the state of congestion have passed away. Her liver reaches nearly the level of the umbilicus. Is not this a case of atrophic cirrhosis of the liver in which the organ is larger than normal?

DR. EDWARDS—The reason that I brought out the conflicting opinions of the different authorities on the subject was to show how one, in searching for definite criteria to differentiate between the two cirrhoses would be unsatisfied, because there is scarcely a single criterion given for one type that may not be found in the other. The second point, and one that I would like to have heard discussed in connection with the case reported, was the almost exact parallelism between the clinical questions which came up in respect to our case and the pathologic findings; that is to say, the difficulties which we encounter clinically are insignificant to those which we find on gross pathologic inspection, or even under the microscope.

DR. WILLIAMS—It seems to me as if the differential diagnosis between many cases depends more upon clinical than microscopic evidences. We may get cases of hypertrophic cirrhosis with a considerable difference between them microscopically, and I would rather agree with the observations made by some French writers, that the disease can be called hypertrophic cirrhosis with jaundice, if we have

an enlarged smooth liver and enlarged spleen with jaundice and without ascites, where carcinoma, echinococcus cysts, and other causes of enlargement of the liver can be excluded, irrespective of the distribution of the connective tissue or the presence of degeneration of the liver cells.

## SERO-THERAPY AND ACCESSORY TREATMENTS OF TUBERCULOSIS.

Read before a "Tri-State" Medical Society, April 21, 1895, St. Louis, Mo.

BY PAUL PAQUIN, M.D.

PHYSICIAN-IN-CHIEF OF THE ST. LOUIS SANITARIUM FOR THROAT AND LUNG DISEASES, ST. LOUIS, MO.

In January last I had the honor to report to the St. Louis Medical Society, the result of my researches up to that time, on the action of a certain kind of serum in the treatment of tuberculosis. The clinical history of twenty-five cases treated six weeks or three months was given. Seven cases (four with cavities, among whom two had been bed-ridden and given up as absolutely hopeless), were brought to the Medical Society at night, in a weather rendered severe by the fall of a melting snow, and not one coughed during the two hours of their exhibition in a smoky room. It was then demonstrated that all of the twenty-five patients had been decidedly benefited; the least that had been done for a few of them was the arrest of the decline. Only four or five were benefited to this slight degree, while all the others, all in the last part of the second or in the third stage of pulmonary consumption, were improved to a marked degree in almost every respect. Chief among the good results was the universal gain in weight, which ranged from one and a half pounds in two weeks in people who had been losing twice as much per week, to twenty-three pounds in two months; this, in spite of the decidedly meager fare that is naturally granted in the City Hospital and Poor-house. Since then, I may add that the improvement in the city cases has continued, notwithstanding the most severe tests and serious interferences, such as the repeated sulphur fumigations for several weeks during the smallpox epidemic (a test too hard even for healthy lungs); and such as the efforts that were made almost daily to produce a mental feeling against the treatment.

Furthermore, I am glad to report good results obtained since then in three private cases: Mrs. R., Mrs. V. and Mr. P., all in the second stage of the disease, whose symptoms have disappeared to such a degree that one is tempted to call them cured. That report was a statement of facts indisputable, but the facts were not accounted for, nor did the profession at home, generally speaking, view them with absolute confidence. On the contrary, although any physician could have verified the report by visits to, and study of the patients, some usually wise doctors concluded that the facts brought out must be considered impossible any way, whatever the evidence, and must therefore be discredited. But the patients still live and are still improving, and again the verification of the report then made, and to-day reaffirmed, is invited. Any physician or other individual, whom the Superintendent of the City Hospital may welcome, may go and judge for himself.

To-day I have the honor to present to this scientific body a theory explaining to a limited degree the basis of the therapeutic action of the serum and, furthermore, the grounds for, and the kind of accessory treatment that should be practiced in tuberculosis.

In the first place, we must realize that sero-therapy is not medication in the usual acceptance of the word. It is not the production of pure chemic effects as by drugs; it is the production of certain phenomena by the increase of quality or virtue of pre-existing physiologic functions, and perhaps, the creation at times, of physiologic faculties unknown before in the diseased organism. In other words, sero-therapy, the use of nuclein and other organic extracts of the kind, whether animal or vegetable, produce good therapeutic results in certain conditions, probably because they augment or create natural defensive physiologic forces necessary to fight disease.

And what does this antipathologic power depend on? It depends on the individual and collective energies and faculties of the cells, which form the ultimate appreciable structure of such complex organisms as man, and other multicellular beings.

In infections, at least, we should no longer "dope" man as a *whole*, to cure him, but we should strive to interpret the nature of the cells forming his tissues; their activities, their reactions to drugs and physical treatment, and we should minister to these microscopic individuals or aggregations, with a view to increase their natural functions in the prevention of diseases, or create activities of this character.

Sero-therapy in tuberculosis has produced the effects stated in my first report. How did it do it? By what mode of action can the serum of the blood of a horse rendered, by certain methods, more strongly immune against tuberculosis than it is naturally, arrest the tuberculous process in an infected human being? It is, in my judgment, on the one hand by an infusion in man's system of a certain quantity of the protective or defensive substances secreted naturally by the cells of the horse and during the process of immunization, the property of which is to protect this animal against the disease; on the other hand, it is probably by the action of the nuclein of the serum, which stimulates the cells of a human body to greater physiologic action against the germs of tuberculosis. It is, in a word, a form of germicidal nutrition of double value obtained by a physiologic process.

Many objections have been raised against sero-therapy by those who prefer polypharmacy (which is so convenient and presupposes no great knowledge of physiology or pathology, or anything else to practice medicine). This was to be expected.

It is a great trial for the retardative doctor in the scientific procession of medical men, this physiologic therapeutics. It is a very inconvenient thing to find one's self in the presence of the awful necessity of studying man seriously through a microscope, and to know one's self incompetent to do it. But this is the situation. Prate as we may against scientific medicine, microscopy, bacteriology, we must acknowledge that only through such, and the application of scientific facts in practice, can medicine become a science exact enough to make the doctor know and trust medicaments in a given disease. Clinical observations are invaluable as indications, and they often suffice to point to useful therapeutics, but observations alone explain nothing, and give us little data to rely upon with confidence and safety. But I am digressing. I will say that so far the objections mildly raised by the timid, wildly painted by the fearful, foolishly decried by the ignoramus,

have not materialized. Neither glanders, nor any other awful disease of the horse, in the three years of experimentation with serum, abroad or in this country, has been transmitted to man. True, a death or two have been attributed to the serum in the treatment of diphtheria, but what if it is true? What valuable, active medical agent has not caused one death in five thousand treated, or per ten thousand doses?

For my part, I can say that over three thousand injections of serum produced under my direction, have been made in human beings, and not a serious accident has resulted. In six different injections there resulted a quick disturbance of the capillary circulation, evidenced by a flush of the face, dizziness and weakness. These lasted but a few seconds, but in two instances were followed by rigors. In a few cases in which the injections were begun with large doses, 1 or 2 drachms, and pushed energetically, there followed a mild urticaria, which promptly disappeared soon after the injections were dropped or reduced, and did not reappear during the progressive dosage which followed in nearly every case.

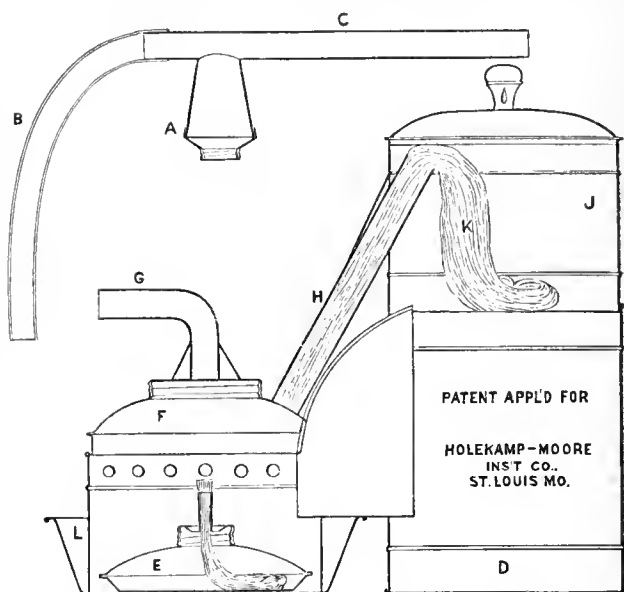
These annoyances (produced chiefly during experimentation) are insignificant when we consider the hopelessness, the fatality of tuberculosis under any and all forms of treatment heretofore employed. The risk of one fatal result per cent. would be justifiable, if not indeed a larger proportion.

But because sero-therapy does produce a physiologic effect that tends to arrest tuberculosis, it does not follow that a physician should depend on that alone, in all forms and in any stage of consumption, and expect a cure. For one thing, it is preposterous to expect a decomposed lung to be restored by any form of therapy. It is not easier to reconstruct a pair of degenerated lungs than it would be to replace a gangrenous limb by any method. Consequently, the disease must always be diagnosed with scrupulous care, not only to establish the existence of the malady, but its particular nature, its extent, its relations to any and all of the various important organs of the body. In women the relation of tuberculosis to ovarian and uterine affections, should always be carefully considered. There are besides, the mixed infections to consider—we meet them daily. The lungs, the intestine, the liver, become the seat of myriads of germs of different kinds sometimes, and tuberculosis is then a complicated disease deadlier and more rebellious than in the most virulent form uncomplicated. What, then, should be the treatment of tuberculosis? Generally speaking, so far as the constitution goes, it should be cellular, and locally it should be antiseptic. Taking as a type, pulmonary consumption, it is necessary on the one hand to try and force the cells of the diseased to produce the greatest amount of defensive energy in whatever form nature may exhibit it. This may be accomplished presumably by sero-therapy, and may be assisted by nuclein, etc. On the other hand, we must invariably insist on the constant use of reliable non-poisonous antiseptics. This may be considered secondary to the main treatment, but in fact it is of the greatest importance. It is directed to the specific and complicating germs themselves, and aims to arrest their development.

The continual re-infection in tuberculosis, both by swallowing sputa and by the cumulative growth of the specific germs and various others, and the pro-

gressive alterations of tissue in the diseased parts can be somewhat checked by a proper direct medication, and thereby cellular constitutional remedies are given better opportunities to act.

Among the oldest forms of lung medication, is the inhalation of medicated vapors or atomized drugs. The method is good, but unfortunately it falls far short of the object sought, chiefly, because the inhalations are not constant enough for one thing, and, on the other hand, the antiseptics selected are seldom well chosen. Inhalation, to produce useful, lasting, germicidal effects, must be almost continuous. During a long period of experiments, I have tried the various inhalers on the market, but none filled the want in my judgment. What we need is an apparatus that will atomize or vaporize eight or twelve or more hours continuously, at a slight expense. After numerous experiments and tests, the vaporizer here exhibited was produced. It is not yet perfect, but needs only slight improvements to make it what is desired. It will throw a spray all night and all day at the cost of a few cents of alcohol, and will keep the air of a room filled with antiseptic material.



Beside this, a mouth-piece attached to the nozzle can be made to direct the vapor straight to the nose and mouth from the bedside.

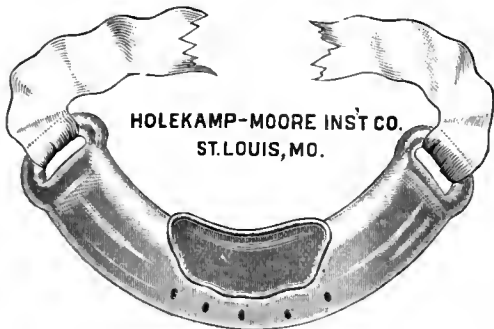
Another thing useful for disinfection in tuberculosis, is this "lip-trough-inhaler" for essential oils. It is fitted under the nose, and the ribbons are tied behind the head. Before putting it on, a little bundle of absorbent cotton, or a little sponge is placed in the trough and a few minims of the essential oils selected are dropped on the cotton twice or three times in the twenty-four hours. This may be worn almost constantly. I devised this little instrument to carry out the idea of Carasso, who prescribed with great benefit, essence of peppermint on a little cotton wad placed under the nose.

In conclusion, let me speak of two other very serious necessities in the treatment of consumption: I refer, first to nutrition, which may be forced and should always be guarded and wisely directed—of this I need not speak here. I will only say that in cases of mal-nutrition in tuberculosis, some easily

<sup>1</sup> Manufactured and owned by the firm of Holekamp-Moore, instrument makers, St. Louis, Mo.



digested and very nutritious aliments must sometimes be used. Mellin's Food has served me a very good purpose in many cases; I prescribe it often, and the various liquid peptonoids have materially assisted me.



I refer secondly to repeated disinfections of the mouth. The mouth and throat should be frequently gargled with a strong non-irritant antiseptic preparation. This is demanded both for the protection of the patient against infection of the throat, which is not uncommon as a secondary process, and for the protection of relatives, friends and the public, because through kisses and the saliva expectorated, the germs are carried to others. The writer has tried numerous ingredients for this purpose, but was disappointed more or less, or dissatisfied in one way or another, with everything tried. Citric acid, and most of the essential oils are good, but unfortunately they are not easily combined over the prescription counter. In the last few months I have tested and used Pasteurine very largely, and found it just what seemed desirable. Its antiseptic effects are strong, and yet there results no irritation. The preparation is exceedingly pleasant to the taste and is very fragrant. I use nothing else now.

I here append a few formulas which I use for direct antiseptic medication in tuberculosis of the respiratory organs:

R Creasote (beech-wood) or trikresol.....4 oz.  
 Pasteurine .....8 oz.

⚗ Sig: A large tablespoonful per pint of water. Vaporize in the "Continuous Siphon Vaporizer."

R Carbolic Acid ..... ½ dram.  
 Pasteurine .....8 oz.

⚗ Sig: Use as a mouth wash and gargle three or four times a day.

R Ess. oil of peppermint (chem. pure).....1½ oz.  
 Ess. oil of eucalyptus (Tyndale's) ..... ½ oz.  
 Ess. oil of cinnamon (chem. pure)..... ½ oz.

⚗ Sig: Two to five drops on cotton or sponge in "Lip-Trough-Inhaler," three or four times a day.

### PROTECTOR FOR THE HAND IN INTUBATING THE LARYNX.

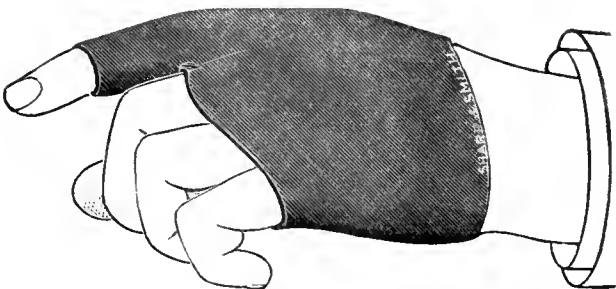
BY JOHN EDWIN RHODES, A.M., M.D.  
 PROFESSOR OF PHYSICAL DIAGNOSIS AND CLINICAL MEDICINE NORTH-WESTERN UNIVERSITY WOMAN'S MEDICAL SCHOOL; LECTURER ON LARYNGOLOGY AND DISEASES OF THE CHEST, RUSH MEDICAL COLLEGE, ETC., CHICAGO.

One of the great dangers attending the operation of intubation, is that of injury to the hand of the operator, while introducing or extracting the tube.

I have employed a number of devices for the protection of the hand and finger. Sometimes a heavy rubber cot, cut off at the closed end, and drawn well

over the finger will answer the purpose with a very young child. With older children, protection for the finger alone is not sufficient, and lately, I have wrapped a piece of adhesive plaster about 4 or 5 centimeters in width about the knuckle of the index finger, as suggested to me by Dr. John Bartlett. This does very well, but takes time, and is not always obtainable.

The protection of the knuckle and hand are necessary because the larynx is sometimes so far from the lips that, in order to carry the tip of the finger into it, the knuckle is pressed against the upper teeth so forcibly that a contusion or laceration of the skin may be caused, unless great care is exercised. In the hurry incident to this operation, which requires dexterity and often great celerity, some precautions are apt to be neglected, and the dangers resulting from a wound which might be received in this way are forgotten.



I have devised the protector, believing that it meets all the requirements for which it is designed, in the operation. It can be carried in the intubation case, is easily and quickly adjusted, it can be easily cleansed and disinfected, is flexible and does not hamper the movements of the hand or finger. It affords perfect protection to the forefinger and the plantar and palmar surfaces of the hand, so that injury by the teeth of the patient either from biting or from the chance slipping of the gag, (an accident which often occurs), or from forcible pressure against the upper teeth in reaching the larynx is impossible.

Messrs. Sharp & Smith, 73 Randolph Street, Chicago, have made these protectors for me in two sizes, so that the hand of any operator may be fitted. They are made of the best rubber, 1½ millimeters in thickness.

Venetian Building, Chicago.

### SOCIETY PROCEEDINGS.

#### Association of American Physicians.

Tenth Annual Meeting held at the Army Medical Museum and Library in Washington, D. C., May 30 and 31, 1895.

[Special correspondence of the JOURNAL.]

FIRST DAY, THURSDAY, MAY 30.

The meeting was called to order by Dr. WILLIAM OSLER, who delivered the President's Address, in which he asked how far the Association had fulfilled the object which it had in view at its beginning, and if the aspirations and hopes had been realized in the advancement of scientific medicine. This was an organization with no code of ethics, no medical politics; no one cared who were the officers and who not. It was not asked from what part of the country a member came, but has he done good work, and still more, if he has anything worth saying and can he say it? Nine volumes of transactions show what has been done. Some of the most noteworthy papers of the past ten years have been brought to light before this Association and all the questions of the

day have been discussed. The classical work of Fitz and Draper has been brought before the Association and in the discussions such subjects as the diagnosis of diseases of the stomach, of the pancreas, dysentery, infarction and other affections of the bowels, heart disease, sclerosis of the arteries, the mutual relation of renal, arterial and cardiac changes, anemia and chlorosis, thrombosis in chlorosis, myxedema treated with thyroid extract, removal of the ovaries and tubes, subphrenic abscess, acromegaly and lead poisoning had all been discussed. Dr. Osler said: "Our Association has had already a potent influence on the study of pathology and clinical medicine in this country. We need, however, a larger growth of men who are devoting themselves exclusively to these branches. The rapid progress of the medical schools has increased the number of teaching positions in the scientific branches and there is at present an actual scarcity of well-trained pathologists and bacteriologists to fill them. There is no need to insist upon the necessity of accurate and careful training in the development of workers in these branches. I do not think the profession of this country understands as yet the art of training special clinical physicians. They have taken too much for granted that such men develop readily in the routine of family practice. True, along this path some of the most noted men of our ranks have traveled, but the time has come when able young men should be encouraged to devote themselves to internal medicine as a specialty, content to labor and wait during the first ten or fifteen years of professional life with pathology as the solid basis of development. Such men will pass to the wards, through the laboratories, thoroughly equipped to study the many problems of clinical medicine; they will gain the confidence of their professional brethren by their accuracy and skill, and through them they will reach the public and a large practice. Such an opportunity and career is within the reach of every physician in any city with a hospital of fifty beds."

Dr. Osler then referred to the members who had died, and mentioned especially Drs. Alfred L. Loomis, of New York, and William C. Dabney, of the University of Virginia.

Dr. B. K. RACHFORD, of Cincinnati, then read a paper on

#### LEUCOMAINE POISONING,

in which he said that leucomaine poisoning showed itself: 1, as a true migraine of leucomaine headache; 2, as a migrainous epilepsy or leucomaine epilepsy; and 3, as a migrainous neurosis or leucomaine gastric neurosis. We know very little about these substances. The principle ones are xanthin and paraxanthin and they were described by Salomon, of Berlin, who has done the best work on this, and he laid down the following points:

1. Paraxanthin and xanthin are poisonous leucomaines of the intestinal acid group, capable of producing the most pronounced nervous symptoms. They are readily soluble in water, urine and blood.

2. Paraxanthin is present in normal urine in such small quantities that its poisonous properties are lost in the solution.

3. Paraxanthin and xanthin are not found in the kidney; they are excreted from the blood by the kidneys.

In normal urine it takes about 9 liters to prove the presence of paraxanthin, and when we find it in 4 liters it is abnormal. Migrain is the most common manifestation of xanthin poisoning. In one case he found it in 3 liters of urine and in another case in 2 liters. It is recognized by the needle crystals and by its physiologic effects on animals. It could not be found between the attacks, which shows that it is excreted in disease during the attacks but not between them. In migrainous epilepsy the characteristic symptoms are: 1, the sudden onset of the attack, as a rule without warning; 2, the muscles are rigid but not convulsed; 3, labored, gasping and irregular breathing; 4, unconsciousness from the beginning to the end of the attack; and 5, the heart's action is rapid but regular and strong. In the study of migrainous epilepsy the following summary of facts may be made:

1. Uric acid and its compounds are not poisonous.

2. Paraxanthin and xanthin are poisonous leucomaines of the uric acid group which when injected into the mouse produce the following symptoms: (a), nervousness, extreme reflex excitability, almost tetanus and at times convulsive movements; (b), clonic tetanic stiffening of all the muscles followed by muscular relaxation; (c), dyspnea, orthopnea, asphyxia, gasping and difficult respiration is perhaps the most characteristic symptom; (d), stimulation of the heart, its movement marked and strong.

3. The patient during the intervals between the attacks

did not excrete sufficient paraxanthin to be detected in 4 liters of urine.

4. The patient during an attack excreted a quantity of paraxanthin and xanthin enormously in excess of the normal amount. The paraxanthin thus excreted obtained from 3 liters of urine produced in the mouse and rat the characteristic symptoms of paraxanthin poisoning and abdominal enlargement.

5. The attacks during and after which the patient excreted such large quantities of paraxanthin were very similar to the paraxanthin poisoning in the mouse.

6. The paraxanthin excreted in such large quantities just following this attack must have been in solution in the blood during the epilepsy. In his experiments on animals he found that the permanganate of potash acted as an antidote to the leucomaine poisoning and for this reason he gave it to his patient with epilepsy, with some good to her, and she still takes it and has not been able to do without it for longer than six weeks at a time. He also reported one case of migrainous gastric neurosis in which there was vomiting relieved only by morphia, increased quantity of uric acid, xanthin and paraxanthin in the urine. He made the following points:

1. He found a history of migraine.

2. Previous personal history of sick headache.

3. The patient now suffers from attacks of severe gastric neurosis which recur at intervals of two or three weeks.

4. In 4 liters of urine excreted by the patient, in the interval between the attacks no paraxanthin was found and the "final fluid" was not poisonous to mice.

5. In 2 liters of urine passed by the patient during an attack, both paraxanthin and xanthin were present in comparatively large quantities and the "final fluid" was especially poisonous to mice.

6. From about one pint of stomach contents vomited by this patient during an attack, xanthin was separated but no paraxanthin was found. We can thus recognize three clinical types of leucomaine poisoning: (a), leucomaine headache; (b), leucomaine epilepsy, and (c), leucomaine gastric neurosis.

Dr. F. P. KINNICUTT, of New York, asked if he had examined the urine of tetanus patients. It is probable that a certain number of these cases of tetanus are due to this. In cases of disordered stomach, especially gastro-intestinal disturbances, an examination might throw some light. He has seen two cases of tetanus, one fatal in forty-eight hours, in which the autopsy showed an enormously dilated stomach. The patient had had several previous attacks.

Dr. W. H. THOMSON, of New York, was much gratified at this paper. He has long held this view. Cases of functional neurosis are not nervous disease at all, but are due to toxins rather than to gastric disease. He had had success with the benzoates of sodium and ammonium. Some of these cases occur in groups and develop these nervous symptoms only now and then. Heredity plays an important part here.

Dr. F. C. SHATTUCK, of Boston, asked how long it took to make these chemic examinations of the urine. He asked because he once had such a case and it took four weeks.

Dr. J. E. GRAHAM, of Toronto, asked if he had made examinations of the urine shortly before an attack.

Dr. RACHFORD said that in his cases he took usually about three weeks to make an examination, and he has made these examinations at almost all times, and one week before an attack he had failed to find them. He had thought of tetanus but had not had a suitable case since he began this work. The subject has an important bearing on uremia and allied conditions.

Dr. A. C. ABBOTT, of Philadelphia, then read a paper on the "Effects of the Gaseous Products of Decomposition upon the Health and Resistance to Infection of Certain Animals that are forced to respire them." He put animals under a bell jar and compelled them to breathe air from decomposing substances and even inoculated some of them with the typhoid bacillus culture and found that the general results were negative; the animals did as well as others not experimented on, and he thought that such air has not the power of inducing pathologic conditions, or if it has, it has not been shown.

Dr. C. BAUMGARTEN, of St. Louis, then read a paper "Renal Affections following Influenza." The question is of great interest. The origin of many cases of nephritis is very obscure, but the study has narrowed down this subject and simplified it. Influenza is one cause not generally recognized. Many authorities are silent on this subject and little mention is made of it in medical literature. It occurs more

frequently than is supposed. Damage to the kidney is a frequent, certainly serious result of the grip. Besides transient albuminuria, there have been found acute degeneration of the kidney, acute inflammation, both forms of chronic diffuse nephritis and cases of persistent albuminuria not plainly belonging to one of these groups. The damage to the kidney does not usually show itself until the influenza is forgotten. This has been shown in life insurance examination statistics. In the five years preceding the grip, he had found but about 1 per cent. of albuminuria among the cases he examined but in the next five years after he found 3½ per cent.

DR. A. JACOBI of New York, had found this sequel frequently. The diagnosis was made possible by the use of the centrifuge and many cases would have escaped notice but for this instrument. It is the same kind of albuminuria as after diphtheria and typhoid fever and it must also be caused by a toxin of the germs causing those diseases. It is not like the post-scarlatinal nephritis. The large majority of cases get well in two or three weeks or a month but a few become chronic.

DR. JAMES TYSON of Philadelphia, had seen several such cases, and he found that persons who had a physiologic albuminuria were always worse after grip.

DR. F. C. SHATTUCK of Boston, had seen a number of these cases. In one autopsy he had found a large red swollen kidney. He did not believe the condition was the same after each disease. He does not recall a case following typhoid fever as that after other diseases.

DR. M. H. FUSSELL of Philadelphia, has discovered so many of these cases that he never regretted his rule to make a routine examination of the urine in all cases without exception.

DR. JACOBI said he had referred to the kidney complication during and not after typhoid fever.

DR. A. H. SMITH of New York, said that this complication was much more frequent than was usually supposed, and those we recognized probably represented a small part of what actually occurred. Subnormal temperature is one symptom due to profound poisoning of the nervous system; it is much more severe than the primary poisoning from the grip.

DR. BAUMGARTEN said in conclusion that we must distinguish between those complications of the kidney that came on during, and those that came on after the grip; those with or without dropsy, those with uremic symptoms and other troubles which can probably be traced to this devastating disease.

DR. GEORGE M. STERNBERG, Surgeon-General, U. S. A., then presented a paper prepared by himself and Dr. Walter Reed, Surgeon, U. S. A., on "Immunity against Vaccination Conferred upon the Monkey by the Use of the Serum of the Vaccinated Calf and Monkey." They succeeded in establishing immunity in the American monkey for thirty days, but the result did not reach a practical conclusion because the amount of serum to neutralize the poison of the disease was too large for a dose, being about 1 to 100 to 1 to 50 per body weight.

DR. JAMES T. WHITTAKER of Cincinnati, then read a paper on the "Etiology of Idiopathic Hypertrophy of the Heart." He did not refer to enlargement due to valvular disease. The term idiopathic, is a misnomer. In some cases the cause remains concealed and it is called cryptogenetic. It is not a rare disease and may occur after severe strain as after war. There is a change in the position of the apex. The diagnosis may be made without the aid of percussion. The attempt to make out the triangle of the heart dullness by percussion is difficult. Hypertrophies are due to: 1, increased resistance in the vascular system, as in arterio-sclerosis; 2, to diseases of the heart muscle from infection, degeneration, etc.; 3, affections of the nervous system. The valvular disease usually has a previous cause. There may be a hypertrophy from natural causes. There may be a development of the heart walls with backward development of the thorax as pointed out by Germain Sée. There may be the hypertrophy of age, of work, of plethora, of pregnancy and of alcohol. In pregnancy there is increased work thrown on the heart due to an increased size of the uterus and mammae. In Munich, heart atrophy from alcohol is put down as third in the causes of death in that city. Syphilis, of itself, rarely affects the heart but the resulting arterio-sclerosis does. Bright's disease, as is well known, causes heart enlargement. Lead poisoning is another cause. Saturnism is more frequent than is usually supposed. Most cases succumb to heart failure and the real cause is not found out. Then other causes are diseases and deformities of the chest, em-

physema, kyphosis, myocarditis, gout, diabetes, irritation of the vagus, use of tobacco and excess of venery, mental troubles, success or failure in business. Look for the cause and treat it. Women are rarely affected in this way.

DR. J. P. CROZER GRIFFITH of Philadelphia, read a paper entitled "The Transmission of the Mitral Diastolic Murmur," the object of which was to call attention to the fact that these murmurs are often heard outside of the area usually given. He had seen several cases in which this murmur was heard up toward the axilla and even in the back.

DR. JAMES TYSON of Philadelphia, had seen one of the cases mentioned and had observed this fact in other patients.

DR. JAMES T. WHITTAKER of Cincinnati, said it was not so much to determine the position and extent of the murmur but to find the point of greatest intensity. The intensity of the murmur is indicative of the gravity of the disease.

DR. CHARLES CARY of Buffalo, spoke of the causes of these sounds and from the anatomic relations he thought that a regurgitation must often accompany these presystolic murmurs.

DR. JOHN H. MUSSER of Philadelphia, had been familiar with the work of Dr. Griffith and he related a case of his own. In referring to Dr. Whittaker's paper he had had mitral hypertrophy of the heart in which a mitral regurgitation relieved the headache, high tension and other unpleasant symptoms.

DR. MCPHERON of Montreal, thought that in these cases the loudness of the murmur depended on the tension of blood in the pulmonary circulation.

DR. A. H. SMITH of New York, said that a murmur that was diastolic may also in part be systolic when the mitral curtains were stiffened and did not coapt. There is a regurgitation which ceases when the pressure behind the valves reaches a certain point. It may be that even in health there is a little regurgitation.

DR. CHARLES G. STOCKTON asked if it was a diastolic or presystolic sound.

DR. GRIFFITH said in conclusion that the position of intensity is the position of mitral stenosis with no murmur over the aortic area and none over the sternum. As to the varieties and cause of the loudness he did not know, or whether an explanation had been given. Many things can not be explained as to the loudness of the murmurs. These murmurs were all pure murmurs. There is no difficulty in finding the diastole and systole.

DR. A. H. SMITH of New York, then read a paper on "The Use of the Differential Stethoscope in the Study of Cardiac Murmurs." With good hearing the differential stethoscope was very important in distinguishing between synchronous and alternate heart sounds in different parts of the chest.

DR. WHITTAKER said this was very well when the hearing was equally good in both ears which was so often not the case, but he thought the question of the position of the murmurs was not as important as the condition of the heart muscle.

DR. CHARLES CARY of Buffalo, read a paper on "The Cause of the Exaggeration of Sounds over the Right Upper Chest, both in Health and Disease," in which he demonstrated some specimens to show that there was an anatomic reason for this difference and showed the points of resemblance and difference between the two sides of the chest. Drs. Cary, Griffith and Tyson discussed this paper.

DR. CHARLES G. STOCKTON of Buffalo, reported "Two Cases of Fat Necrosis."

#### SECOND DAY, FRIDAY, MAY 31.

DR. WILLIAM H. WELCH opened the discussion on antitoxin. The decision of the good of antitoxin is in the hands of the clinicians and not of the bacteriologists. One observer says the question does not rest experimentally on a scientific basis. It is to be conceded that the Klebs-Löffler bacillus is the cause of diphtheria. These arguments would also hold against other diseases. The results of experiments are the most striking, but we have more in the application of the tetanus antitoxin. The introduction of its application to human beings is so that one can not argue from animals to human beings. The tetanus antitoxin is not efficacious because the poison or toxin of tetanus is cumulative and the antitoxin has no effect because it is too late. We do not know how the antitoxin acts, but that is no argument against its therapeutic action. This is also true of other diseases and this should not prevent us from using it. There are two prominent theories, the chemic and the vital theory. The antitoxin quite neutralizes the toxin according to the chemic theory, but the vital theory argues that the antitoxin acts through the changes of the serum on the cells to make them

immune. The vital theory seems to satisfy some demands. This method of treatment does not prevent post-diphtheritic paralysis. This complication is as common if not as severe after as before the treatment. These paralyzes depend upon the strength of the toxin. This is against the chemic and for the vital theory. There seems to be a quantitative relation between the toxin and the antitoxin, but there are no means of knowing how much toxin is in the blood and how much antitoxin to give and we may give too little. It is not known whether it exerts a direct specific action on the membrane or not. The benefits of the treatment are very doubtful when the antitoxin is introduced after the third day. Behring showed this in experiments on animals. We are not to expect brilliant results until we decide on what cases are diphtheria and what are not. As the organism is found in healthy throats this would include cases that were not recognized before and many cases which were not distinguished before, clinically, are now called diphtheria. On the other hand, there are certain cases of pseudo-membranous inflammation which are like diphtheria but which are not due to the Klebs-Löffler bacillus. If all these cases are taken into account the statistics of this disease will be markedly affected. As regards the proportion of cases like diphtheria but which are not, statistics differ, but my impression is that the very large amount of statistics from boards of health and hospitals give a wrong idea on this subject. It is not easy to find the bacillus and these examinations are usually made in a routine way, hurriedly, by inexperienced men and when we consider the difficulty of finding the organism we may say that in 30 to 40 per cent., it is not diphtheria and it is probable that not more than 5 or 10 per cent. of the cases are discovered. Then there are many complications of other organisms present which increase the difficulty. The mechanical obstructions in the larynx are to be taken into consideration. As to the direct effects of the antitoxin they are not different from those that may occur in the natural cure of the disease. Indeed the treatment is a natural cure; it is only a hastening of the natural cure. The statistical results are at the present time very elaborate, and from all sides and in all countries the figures would prove that this treatment is of great benefit.

From these statistics, various inferences may be drawn. They may include a large number of light cases and some mild cases may be called diphtheria when they are not. The agitation in the public press causes persons to seek treatment earlier than usual. Some say that of late the epidemics of diphtheria have been milder than formerly and cases would have recovered under any form of treatment. In some cases the antitoxin has no effect at all, possibly because the cells of the body fail to respond to the action of the serum. Then the general impressions of such men as Baginsky, Widerhofer and others obtained at the bedside are of value, and they are inclined toward believing in antitoxin. Kassowitz of Vienna, believes that this treatment has done much harm and says he has found at many autopsies evidences of the damage done to the body by this serum. Antitoxin is said to have no effect on the post-diphtheritic paralyzes and to cause more albuminuria, but it has certainly caused a more careful examination of the urine to be made in these cases. It is made out that albuminuria is found in from 83 to 76 per cent. of all cases treated. All arguments on the injurious effects of the serum should be based on whether it is given subcutaneously or intravenously. Skin eruptions and affections, chills, pustules, etc., are occasional injurious effects of the serum, but they are not permanent and they do not outweigh the benefits. There is certainly a reduction of the mortality from one-third to one-half, if the case is treated before the third day. The injurious effects of the remedy in some cases are certainly great, but the benefits far outweigh the harm done and the bad effects are usually only temporary. It will be a long time before final judgment can be given on this remedy.

Dr. MASON of Boston, reported a large number of cases treated at the Boston City Hospital, and the mortality and morbidity had certainly decreased. There may be some sources of fallacy; for instance there are more school inspectors and each child is carefully examined, and if the bacillus is found in its throat it is kept at home and the case is put down as one of diphtheria. The general appearance of a diphtheria ward now is different and the nurses and attendants are not afraid of such cases as formerly. Immunization is short, however. Some cases develop in spite of the injection. The effect of this treatment is more marked after the membrane is lost. In hospital there are few light cases, as they are rarely seen before the third day.

Dr. A. JACOBI of New York, is favorably inclined to this

mode of treatment, but the numbers as yet treated are far too small from which to draw conclusions. We do not want hundreds but thousands of cases. There have been seasons when the ordinary treatment with the bichlorid has been just as successful as the antitoxin is at present. He knew of forty cases collected some years ago and thirty-nine got well with the old treatment. Some persons refused the antitoxin treatment and preferred the old methods. When he used antitoxin he used other things too. It may not have been a scientific way but he wished to save his patient. Albuminuria is a very common symptom in any case, but he thinks he has had fewer cases since he has used antitoxin than before. He thinks the nephritis are less well marked. He related the effects of the treatment in his experience on the membrane, and spoke of the operations of intubation and tracheotomy and their frequency since antitoxin was introduced. He wished to place himself on record as a heretic. He thought the clinicians were too much in the hands of the bacteriologists. Diphtheria was not always caused by the Klebs-Löffler bacillus alone; the other organisms were also found in the membrane and he thought the clinicians accepted too blindly the statements of the bacteriologists.

Dr. JOHN S. BILLINGS thought that statistics to be of any value should be carried over a long period of time, and that in this question the value of hygienic principles should not be forgotten.

Dr. MASON said the only fair way to compare was by seasons.

Dr. A. C. ABBOTT of Philadelphia, wished to answer Dr. Jacobi. He thought the clinicians looked to the bacteriologists with good purpose, and the etiology of disease was in a very chaotic and tangled state until the bacteriologists lent a helping hand.

Dr. GEORGE M. STERNBERG said that the failure of tuberculin had brought such treatment into opprobrium and many were skeptical because the experiments with tuberculin on animals had not been successful.

Dr. F. H. WILLIAMS of Boston, showed a syringe that could be sterilized by boiling. It was made of glass with asbestos packing and to prevent the needle from breaking off, in the case of restless children, he put in a small piece of rubber tubing between the syringe and the needle.

Dr. WILLIAM OSLER reported a number of cases treated with antitoxin and four of them showed no Klebs-Löffler bacillus.

Dr. D. W. PRENTISS of Washington, then exhibited a patient, whom he had shown six years before with purpura hemorrhagica rheumatica. The boy had almost lost his sight but still worked. He had had good results with him by the use of phosphorus internally.

Dr. WILLIAM OSLER said, that Henoch had described this disease very thoroughly. 1, there are recurrences; 2, there are marked gastro-intestinal crises which may occur without any other manifestations; 3, the symptoms may be articular; 4, there may be hemorrhages under the skin, erythema multiforme, simple edema, hemorrhages from all the mucous surfaces and with all this an acute nephritis in many cases. There is little literature on the subject in English and the best work is Henoch's Festschrift. Drs. Stockton and Prentiss also discussed this paper.

Dr. J. G. ADAMI of Montreal, then reported a "Case of Madura Foot" (Mycetoma Pedis) which was probably the first case reported in this country. The microscopic appearance of the lesions reminds one of actinomycosis.

Dr. W. P. NORTHRUP of New York, read a paper on "Gonorrheal Arthritis," in which he reported several cases showing the joint affected, the swelling, exquisite sensitiveness, little fever, short course of four weeks, and recovery with perfect joint and the effusion was only serous.

Dr. WILLIAM H. WELCH of Baltimore, said that there was often absence of pus in the joints, and Dr. Halsted had found hemorrhagic effusion in many joints which he had examined. Dr. Flexner had accidentally found that an extract of fetuses of pigs made an excellent culture medium for the gonococcus. He also showed a specimen of gonorrheal endocarditis and from the patient Dr. Flexner had extracted some blood, mixed it with agar and obtained a culture of the gonococcus.

Dr. F. C. SHATTUCK of Boston, was surprised to find on looking up the literature how often two or more joints were affected. This paper was further discussed by Drs. Cary of Buffalo, Mason of Boston, Griffith of Philadelphia, Adami of Montreal, Roosevelt of New York, Osler of Baltimore and Northrup of New York.

Dr. A. JACOBI of New York, reported a "Case of Hyperthermia up to 65 Degrees C. (148 Degrees F.)." The man had fallen on deck and received an injury. The temperature



broke several special thermometers. He ran away from hospital finally.

DR. WILLIAM H. WELCH referred to a case reported by Dr. Galbraith of Omaha, where the temperature went up to 171 degrees F.

DR. J. GUITERAS of Philadelphia, made some observations on the "Spleen and Marrow in Leukemia."

DR. F. H. WILLIAMS of Boston, exhibited a "Comfortable Way of using Cold in Fevers."

DR. GEORGE DOCK of Ann Arbor, read a paper on "Goitre in Michigan."

DR. J. E. GRAHAM read a paper entitled "Displacements of the Liver."

DR. M. H. FUSSELL of Philadelphia, read a paper on "Carcinoma of the Liver with Cirrhosis."

DR. S. C. BUSEY of Washington, D. C., in collaboration with Dr. George M. Kober read a paper entitled "Milk as a Morbific and Infective Agent," with Tables of 134 Epidemics of Typhoid Fever, 73 of Scarlet Fever and 27 of Diphtheria due to Milk Infection.

DR. W. P. NORTHAUP of New York, exhibited the Fell-O'Dwyer Apparatus for Forcible Artificial Respiration.

DR. S. J. MELTZER of New York, read a paper on the "Direct Faradization of the Stomach and the Intestines in Animals, as Cats, Dogs and Rabbits."

### Illinois State Medical Society.

*Abstract of the Proceedings of the Forty-fifth Annual Meeting held at Springfield, May 21, 22, 23, 1895.*

[Special correspondence of the JOURNAL.]

(Concluded from page 896.)

DR. H. McKENNAN, of Paris, read a paper entitled

#### REPORT OF A CASE OF FOREIGN BODY OF THE TONGUE.

The author said it was for the purpose of showing the extreme tolerance to retain foreign bodies, of an organ much in use, that he presented a report of the following case which occurred in the practice of a neighboring physician, and through whose courtesy he was permitted to present the facts as stated below:

Otto G., aged 14, Jan. 18, 1895, while shooting an old rusty shotgun, burst the barrel and produced the following injuries, which were described by his physician, who saw him several hours after the accident as follows: "Face considerably burned by the powder, cut through the left side of the lower lip, about three-quarters of an inch in length; three of the upper teeth and a large piece of the inner surface of the alveolar process were gone; a smooth clean-looking wound of the tongue about the size of a silver 10-cent piece was found a little to the left of the apex, with no evidences of a foreign substance present. The whole organ was swollen, and the boy was unable to talk. The parents opposed the use of an anesthetic. The doctor cleansed and dressed the wound as perfectly as the nervous condition of the patient would permit. On the following day the salivary glands were stimulated to great activity, and a profuse flow of saliva continued through the day. Patient could not articulate sufficiently to be understood, and was totally unable to swallow. He was fed by means of a stomach tube, and on the third day was able to swallow liquids sparingly. The patient improved gradually and in the course of a few days all the wounds were healed, and at the end of a month he returned to his home in the country, where he was able to attend to his usual farm duties. He claims to have suffered no pain or inconvenience except that his tongue seemed heavier than it had ever been before. He was able to talk as well as usual. One day, while at work on the farm, he noticed the click of a metal substance against his teeth. He immediately presented himself to his physician, who was greatly surprised to find protruding from the former wound of the tongue, the screw-end of the breech-pin of the old shotgun. This foreign body remained imbedded in the tongue fifty-four days, and measured one and a half inches in length, three-quarters of an inch in breadth, one-half inch in thickness and weighed three-quarters of an ounce. Owing to the protected position of the tongue in the body, injuries to this organ from external violence are comparatively rare. When injuries do occur they are usually in the nature of shotgun or penetrating wounds.

In Dennis' "System of Surgery," vol. I, Professor Conner, speaking of wounds of the tongue, on page 488, says: "In passing through the mouth a bullet often wounds the tongue, either grooving it or tunneling it. In rare instances the ball lodges, and cases are on record in which it has remained in place for years."

Dr. McKennan regarded this case as unique, and believes it is without a parallel on record.

DR. ARTHUR D. BEVAN, of Chicago, read a paper on "Mas-toid Disease and Resulting Venous Thrombosis and Brain Abscess."

DR. A. C. CORA, of Carlinville, followed with a paper entitled

#### TRACHOMA OF THE CONJUNCTIVA, FOLLICULOSIS OF THE CONJUNCTIVA, GRANULATED LIDS, NOT A DISEASE OF ITSELF AND OF ITS OWN KIND.

The author quoted various authorities on diseases of the eye, pointing out what is in the main regarded as the cause, origin and nature of this disease, and said that for some years he had spent much time in looking for an assemblage of symptoms that would enable him to readily recognize this disease, and at this date he is forced to the conclusion that entitles this paper. Within the past few months there has come to his hands what seems to him an indisputable demonstration that folliculosis and trachoma of the conjunctiva is a condition arising out of, and because of, continued irritation or inflammation of the conjunctiva of various kinds, and *not itself* depending on a microbe or specific infection. Dr. Corr then referred to a paper read before the Wisconsin State Medical Society, June 6, 1894, by Dr. H. V. Würdemann, of Milwaukee, and published in the *Ophthalmic Record*, October, 1894, entitled "Pathology of Granular Conjunctivitis."

Dr. Corr said that the author of this paper had elucidated the subject more perfectly than it would be possible for him to do, and that therefore he would content himself with quoting the salient points, which he did.

DR. J. HOMER COULTER, of Chicago, contributed a paper entitled

#### WHEN AND HOW TO OPERATE IN ANTRAL EMPYEMA.

The author said that this was one of the most mooted questions in rhinology to-day. It was not in the hope of having it thoroughly settled that he ventured to call the attention of the society, made up largely of general practitioners, to the subject, but rather that by a brief survey of the opinions of specialists and the reasonable deductions therefrom, he might be able to assist the practitioners in the earlier and more certain diagnosis of the condition. Many of these cases go a long time unrecognized, and thus become proportionally serious conditions. Reference was then made to the etiology of the disease, as well as to the symptomatology.

The objects to be obtained by any surgical procedure were: to form an exit for the pus; to destroy the pyogenic membrane; to establish as nearly as possible a normal functional activity of the cavity, and the surrounding mucous membrane. Dr. Coulter maintains that an operation should be done in the majority of these cases, considering: 1, the ease with which the operation can be done; 2, the good results to be expected from the operation when properly and thoroughly done; 3, that bad effects or misfortunes are unusually rare considering the severity and extent of the operation; 4, that, as elsewhere, the earlier the operation the better, when at least a reasonably certain diagnosis of empyema has been made; 5, an exploratory puncture in case of doubt is both harmless and confirmatory, hence advisable; 6, no one operation will suit best for every case.

As to the question of *how* to operate, the operation must necessarily be done: 1, in the canine fossa; 2, through the alveolus; 3, in the middle meatus; 4, in the inferior meatus; or 5, the Talbot-Fletcher operation. Various procedures were then described. The author favors the method of operating through the inferior meatus.

The operation which he terms the Talbot-Fletcher method is a thoroughly practical one, a minute description of which may be found in the JOURNAL for Nov. 24, 1894. It consists in boring a hole through the anterior wall of the antrum at the base of the malar process, midway between the root of the second bicuspid and the first molar tooth, directing the drill upward and backward, the antral wall being easily pierced.

DR. OSCAR J. PRICE, of Chicago, read a paper on

#### INFECTED WOUNDS.

The most common habitat for pyogenic organisms with which we have to contend, in the management of infected wounds, is found upon the skin in close relation to the wound; especially if the parts are naturally moist; and also from the fingers of the surgeon or his assistants; infected instruments which have not been properly sterilized; dust which may be charged with dry and floating germs; ordinary

poultices and common water dressings; unclean towels and tables; contact with ordinary clothing; dirt, grease and uncleanliness generally; exposed gauze and drainage employed which through inattention has lost all germicidal properties, and is thus frequently the nidus of auto-infections. These are the more common means not only of producing infected wounds, but often of re-infection after the original invasion has been controlled. But in the time allotted, the author said it was not possible to pursue the etiology of infection further than to outline some of its general principles. The author then proceeded to a consideration of the pathologic phenomena presented in the development and progress of infected wounds, detailing the symptoms of this class of wounds.

The treatment will depend in a great measure upon the location and condition of the part. In penetrating wounds of the abdomen involving the peritoneum, it is good surgery in most cases to enlarge the opening sufficiently to inspect the injured parts; to surgically correct damaged conditions so far as possible; to gently sponge away all recognizable elements of infection, but to avoid all irrigations with any strong antiseptic solutions, as being likely to spread and disseminate the elements of infection existing. The object is to cleanse locally and to secure the most satisfactory and thorough drainage commensurate with the amount of damage done. The management of penetrating wounds of the thoracic cavity must depend to a great extent upon the evidences of infection presented. If there be a protrusion of the lung in an infected condition, or if portions of clothing or other foreign matter have been carried in, we are undoubtedly justified in enlarging the opening that such foreign matter may be removed, and the surrounding parts carefully cleansed and as thoroughly disinfected as possible, and providing, here as elsewhere, thorough drainage for the suppuration which is so likely to occur by the introduction of drainage tubes covered by a piece of protective, forming a valve to the opening, to prevent the ingress of fresh air. If the cavity is considerable, there should be a counter opening made at the most dependent or lowest portion, in which is also placed a similar drainage tube. The author does not wish it to be understood that this mode of procedure should apply to all cases of penetrating wounds of the thoracic cavity. Bullet and incised wounds were then dwelt upon, as well as the treatment of compound fractures attended with much laceration and evidences of infection.

Dr. E. WYLLYS ANDREWS, of Chicago, followed with a paper entitled

#### THE LAP-JOINT, OR IMBRICATION METHOD FOR THE RADICAL CURE OF HERNIA.

At the outset, the author stated that this interlocking or overlapping principle is not limited to one application, but may be applied to other wounds of the abdominal wall in certain cases which he would not discuss at this time. As applied to curing hernia, it is not intended so much to supplant as to reinforce existing methods, one or two of which are a great advance over those of a few years past, and which Dr. Andrews briefly considered.

For descriptive purposes, he classed all radical cure operations upon inguinal hernia as of two distinct types, namely, the *first or early type*, and the *second or modern type*. These types were then dwelt upon at considerable length.

The author summarized his remarks with the following conclusions:

A successful method must be a true plastic operation upon the musculo-aponeurotic walls, especially the posterior wall and internal ring. Adhesive peritonitis in the sac walls and cicatricial tissue in the canal are of no permanent value in radical cure.

The advantages of imbrication are:

1. Large strong flap to repair posterior wall.
2. Triplicate layers of aponeuroses increasing strength.
3. Broad surfaces instead of free edges, securing better union.
4. Shortening of anterior wall gives support to the deeper sutures.
5. Cord is amply protected.

Dr. EDMUND ANDREWS, of Chicago, read a paper on SOME OF THE EVILS CAUSED BY WHITEHEAD'S OPERATION FOR PILES, AND BY ITS MODIFICATION, THE SO-CALLED "AMERICAN OPERATION."

Whitehead's operation for piles has been in use about ten years. It was devised by Mr. Whitehead, of Manchester, Eng., and consists in dissecting out the whole lower inch of the mucous membrane of the rectum, and with it all the piles and hemorrhoidal vessels, and most of the submu-

cous connective tissue, leaving the internal sphincter muscle pretty nearly stripped naked. The first incision is a circular one, following the junction of the mucous membrane with the skin, called Hilton's white line, and dissecting up between the veins and the sphincter. Dr. Andrews then exhibited a cut representing the operation at this stage.

He said that certain persons calling themselves "official" surgeons, had slightly modified the order of procedure by pulling down the mucous membrane and making the upper circular incision first, and the lower last. They had given the procedure with this trivial alteration the pompous title of the "American operation." A surgeon in Berlin made the same change, but he did not call it the German operation. The principle is the same, namely, the complete removal of the mucous membrane, veins, and most of the connective tissue from the pile-bearing inch of the bowel, the motive being to prevent the possibility of any more piles on that area.

Those who favor Whitehead's method say that it should be used wherever the whole circumference is occupied by the dilated veins. Some eminent authors seem totally ignorant that a cure can be accomplished with ease and certainty by either the ligature or by the clamp and cautery in all those cases. It is never necessary to directly include all the dilated veins in the operation. If about half the height of each pile is destroyed, the intervening varicosities shrink away and disappear.

Dr. Andrews had corresponded with some of the most eminent surgeons both in Europe and in this country regarding Whitehead's operation, and after his rather extensive investigations in this regard, he is on the whole discouraged about Whitehead's method ever becoming a safe and desirable operation. If, however, any one thinks otherwise, and desires to continue its use, he suggests the following precautions: bear in mind that it is never necessary to completely dissect out all the enlarged veins. If considerable portions are removed, the remainder always shrink away; therefore, make the lower incision somewhat above Hilton's white line, even if there are external piles temporarily left below it, and in like manner make the upper incision low down, cutting off the cuff somewhat below the top of the internal piles, thus saving as much of the tactile mechanism of the lower rectum as possible, for the special sense located in this tract is of great importance to the patient's future comfort. Finally, the surgeon should remember the peculiar difficulty of the antisepsis and be diligent accordingly in attempting it.

Dr. CHRISTIAN FENGER, of Chicago, made some extemporaneous remarks on plastic operations on the hand to remedy deformities caused by injuries and burns, and exhibited a patient upon whose hand he had performed a successful plastic operation.

Dr. J. A. BAUGHMAN, of Neoga, followed with a paper entitled

#### A CASE OF UMBILICAL HERNIO-LAPAROTOMY, AND AN ENTERECTOMY.

In the first case, a patient 40 years of age, weight 235 pounds had for four years suffered from a painful umbilical hernia of about the size of an orange. The operation was done in the usual manner. Four and a half months after the operation, she returned with a knot the size of a hazel nut, detectable but not visible near the seat of the operation. The author cut down upon it and found it to be an epiploic-phalocele.

The second case was an enterectomy in which eighteen inches of the small intestine were excised.

#### A PLEA FOR MODERN CÆSAREAN SECTION.

This paper was read by Dr. C. P. HARRIGAN, of Chicago. The author prefaced his remarks by saying that craniotomy upon the living fetus is in direct violation of all accepted principles of modern surgery; that it is an irrational unscientific procedure from any standpoint. The author made a strong plea for Cæsaean section, fortifying his position by numerous quotations from leading surgeons. For instance, Professor Lusk said he had had five cases of Cæsaean section; three recovered, and two died. The latter were both kyphotic dwarfs. The operations were not especially difficult. Death occurred at the end of a week from feeble vitality due to undeveloped lungs and heart. In one case, the former weighed but eleven ounces, the latter about five ounces. The mortality in kyphotic patients has been unduly great. Dr. Joseph Price says, "that craniotomy should only be performed upon dead children and monstrosities. Upon healthy children it should never be resorted to." Price urges Porro's operation for prophylactic reasons.

## SECTION III.

## Section on Etiology, State Medicine and Medical Jurisprudence.

Chairman, DR. SANGER BROWN, Chicago.

Secretary, DR. WILLIAM BARNES, Decatur.

The address of this Section was delivered by DR. JOSEPH J. KINYOUN, U. S. Marine-Hospital Service, Washington, D. C. DR. KINYOUN selected for his subject

## THE MANAGEMENT AND CONTROL OF INFECTIOUS DISEASES IN MUNICIPALITIES.

His object was not to enter into a discussion of all the details incident to the control and management of disease in municipalities, but to confine his remarks to a consideration of a class of diseases known as infectious or contagions.

Cholera was dwelt upon at considerable length. Some of the acutely epidemic diseases had in the past been indirectly conducive of great good to our present civilization. Cholera had pointed out the danger from polluted water, and had been largely responsible for a pure or better water supply for our cities. By way of contrast, typhoid fever and tuberculosis were cited as examples. If we compare the mortality of one of these with that of cholera, the difference is strikingly in favor of cholera.

A few cases of yellow fever in one of our Northern cities would not, in the present state of our knowledge, be a menace. It can be easily managed. Disinfection of the infected apartments and their contents will be all that is required.

Typhus fever, while resembling in many respects yellow fever, differs materially in the manner of its spread. It is a house disease, and is due to unsanitary conditions for its propagation. It is far easier to handle than yellow fever.

Smallpox appears even at the present time to be the *bête noir* of our civilization. There is no necessity for the existence of this disease, said the author, at the present time, if the least common sense were exercised in regard to it. We know of the beneficent effects of vaccination and revaccination, and still we have plenty of it in our midst.

From experiments made by the author he was of opinion that the great mortality from smallpox would be reduced by serum therapy.

Tuberculosis was next considered, the author saying that there was no city, village or hamlet which escaped its ravages. Tuberculosis, as now understood, is an infectious disease, its specific agent being a bacterium which is thrown off in the discharges of those affected with it. It is highly communicable from one person to another.

Typhoid fever may or may not be considered epidemically an infectious disease. It depends entirely upon the channels of infection and the conditions of environment. If the disease is contracted through a water supply, be it a well, or from a general supply, the importance of its recognition is unquestioned.

Diphtheria. Nearly every municipality which has seen fit to promulgate regulations for the control of infectious diseases has given prominence to the control of diphtheria. It is preëminently a disease of communal life. The fact of its attacking the young makes it more to be dreaded as a school disease. The author then dwelt upon the methods of making cultures in cases of suspected diphtheria, and considered the following subjects *seriatim*—notification, disinfection, house disinfection, preventive disinfection, and ambulance.

DR. N. S. DAVIS, of Chicago, read a paper entitled

## THE PRESENT STATUS OF BACTERIOLOGIC INVESTIGATIONS AND THEIR RELATIONS TO ETIOLOGY AND THERAPEUTICS.

The two leading facts which Dr. Davis desired to emphasize in his paper are: 1, the constant tendency on the part of the profession to draw hasty conclusions from incomplete investigations; and, 2, the failure to hold fast what appears well established in the past until the actual bearing of new facts or discoveries can be fully ascertained. In no other field of investigation is there so much caution and patience required as in that of therapeutics or the direct application of remedies in the treatment of disease. And there are certain well-established facts that must be constantly kept in mind by every investigator if he would avoid error:

1. It must be remembered that all acute, zymotic and epidemic diseases are self-limited in duration. That is, they are either cured or kill the patient within a limited period of time. Each case has its initial stage of development, of active progress, culmination and decline; because the physiologic processes of every living body tend to either destroy or eliminate every disturbing agent that has found entrance into it. Therefore, the first step in all reliable therapeutic

study is to know the natural tendency of the disease we propose to treat, the average duration of each stage and, if possible, the natural processes or channels through which the offending cause is destroyed or eliminated. Without such knowledge of the disease, all exhibition of new remedies is only blind chance experimentation, and as likely to hinder or embarrass the natural processes as to facilitate their beneficial work.

2. In comparing the success or beneficial effects of one remedy with another, it must be remembered that all acute diseases vary in their severity and fatality in different years, in different localities the same year, and in different individuals in the same locality. Also, that all epidemics are less fatal during the period of their decline than at the period of invasion. Consequently, the real value of no treatment can be determined until it has been tested by many persons, at different periods of prevalence of the disease, and at different stages of epidemic progress.

3. It is necessary to know the nature and actual *modus operandi* of the remedy we propose to use.

Finally, when a microorganism, ptomaine, or toxin is found in connection with any disease, the first question to determine is, Does it stand in the relation of a cause or an effect of the morbid processes constituting the disease? These are fundamental propositions, without observance of which we are constantly led into erroneous conclusions and contradictory results.

DR. GEORGE H. WEAVER, of Chicago, read a paper on

## THE BACTERIOLOGIC DIAGNOSIS OF DIPHTHERIA; THE NEED OF ITS GENERAL USE AND ITS TECHNIQUE.

The author emphasized the importance of a bacteriologic examination of all cases of sore throat in which there is any pseudo-membranous formation, and of every sore throat, even if no such formation is present, in case children are liable to exposure.

The most important reasons for having a correct diagnosis may be stated as follows:

1. The treatment of the individual case would be modified by it. The diphtheria antitoxin is useful in only such cases as are caused by the diphtheria bacillus, and as it is not certain that it is absolutely harmless, it should, for the present at least, be used only after a positive diagnosis, except in very urgent cases.

2. The finding of the diphtheria bacillus would necessitate an absolute isolation of the patient, however mild the attack, until virulent bacilli were no longer present. The virulent bacilli persist in the throat and nasal cavities after apparent recovery and disappearance of the pseudo-membrane, for weeks at times, and the only way to rationally limit the period of isolation is to insist upon its continuance until all possible danger of contagion is past—until virulent bacilli are absent. If diphtheria bacilli are not found, there is little or no danger of contagion, and isolation is not demanded.

3. The disinfection which should follow in cases of true diphtheria, is thorough and complete, while in the case of false diphtheria it is unnecessary.

4. In the absence of a positive diagnosis by bacteriologic methods, at least every case of sore throat showing any pseudo-membrane should only be consistently managed by treating it as a case of diphtheria.

Dr. Weaver then discussed the questions of how the methods required may be adapted to various conditions of population, and the technique to be employed in each case.

DR. D. D. BISHOP, of Chicago, read a paper entitled

## GENERAL MICROSCOPIC EXAMINATION OF THE BLOOD.

When making an examination of blood in hospital practice where one has the apparatus necessary for a complete study, the author says the following observations should always be made:

1. A count of the number of red and white corpuscles per cubic millimeter.

2. An estimation of the percentage of hemoglobin present.

3. A cover-slip preparation of fresh blood is examined concerning the following possible conditions: (a), apparent changes in the color of the red blood corpuscles; (b), changes in the size of the red blood corpuscles, noting whether there be present corpuscles much smaller than normal, microcytes, or those larger than normal, macrocytes; (c), changes in the form of the red corpuscles, poikilocytes; (d), the presence or absence of Laveran's organisms of malaria; (e), a number of spread cover-slips are then taken and preserved for subsequent examination by the color test, as recommended by Ehrlich.

The Thoma-Zeiss blood counting apparatus is used in esti-

inating the corpuscles. The hemoglobin estimate is performed by means of Von Fleisch's hemometer.

Though much has been done by Schultz, Bizzozero, Hayem, Osler and others, in the histology and pathology of the blood, by the study of fresh specimens, it was left to Ehrlich to introduce in 1878 the method of staining cover-slip preparations, which Dr. Bishop then described.

Dr. J. L. WIGGINS, of East St. Louis, followed with a paper entitled

INFLUENCE, RESPONSIBILITY AND PROFESSIONAL DUTY OF THE  
PHYSICIAN IN MATTERS OF PUBLIC HYGIENE AS RELATED  
TO MUNICIPAL GOVERNMENT.

Sanitary science broadens out and fills one with wonder as he contemplates the vastness of its application. It is difficult for us to say just when to leave off and in what manner to enforce rules to the end that the community can be protected, and still retain the rights of the individual. Shall the State undertake to say when and where we must bathe? What we must eat or drink? The kind and texture of our clothes? Hardly, yet the State has certain duties, and to the degree in which these are observed will she prosper. The first and most necessary condition is in the selection of a capable and educated sanitary officer. Each community of 10,000 should have a health officer or an assistant. By this means the average of life would be raised and death and sickness reduced to a minimum.

Dr. A. C. CORR, of Carlinville, read a paper entitled

EMASCULATION AND OVARIOTOMY AS A PENALTY FOR CRIME IN  
THE REFORMATION OF CRIMINALS.

This paper formed the basis of a symposium of contributions which were read at the last annual meeting of the Society, and the various propositions contained in them were taken up and discussed *seriatim*. Dr. Corr said that the criminal defect is often a mental complex, a bi-product of apparently normal mental conditions of ancestors, neither of which were criminally inclined. To have been inherited, it must be a like trait to that which was exhibited in the ancestors, one or the other. He is acquainted with the Harry Hayward family on both sides, but they were not criminals. He is also acquainted with a Methodist minister who had been a presiding elder; he and his wife are amiable people, and above reproach, yet their two sons are both criminals. Some families are all criminal but one, and where is the flock without a black sheep?

The following officers were elected:

President, Dr. D. W. Graham, Chicago.

First Vice-President, Dr. J. M. G. Carter, Waukegan.

Second Vice-President, Dr. T. J. Pitner, Jacksonville.

Permanent Secretary, Dr. John B. Hamilton, Chicago.

Assistant Secretary, Dr. J. R. Hoffman, Ottawa.

Treasurer, Dr. George N. Kreider, Springfield.

Members of Judicial Council, Drs. J. F. Percy, of Galesburg; J. O. DeCoursey, St. Libory, and Carl E. Black, Jacksonville.

Chairman of Section I, Dr. J. F. McAnally, Carbondale; Secretary, Dr. C. W. Hall, Kewanee.

Chairman of Section II, Dr. J. H. Coulter, Chicago; Secretary, Dr. L. C. Taylor, Springfield.

Chairman of Section III, Dr. H. N. Moyer, Chicago; Secretary, Dr. W. R. McKenzie, Chester.

Next place of meeting, Ottawa, third Tuesday in May, 1896.

Committee of Arrangements, Drs. J. W. Pettit, T. W. Burrows, E. H. Butterfield and E. W. Weis, of Ottawa.

Committee on Necrology and Biography, Drs. J. H. Hollister, Chicago; O. B. Will, Peoria, and E. J. Brown, Decatur.

Committee on Medical Legislation, Drs. C. C. Hunt, Dixon; B. M. Griffith, Springfield; J. B. Maxwell, Mt. Carmel, and the President, *ex officio*.

Committee on Medical Societies, Drs. E. J. Brown, Decatur; Jacob Schneck, Mt. Carmel, and W. S. McClanahan, Woodhull.

Medical Society of the State of Pennsylvania.

Proceedings of the Forty-fifth Annual Meeting held at Chambersburg, Pa., May 21, 1895.

[Special correspondence of the JOURNAL.]

(Continued from page 893.)

THE ADDRESS IN OBSTETRICS

was given by Dr. W. B. ULRICH of Chester. After alluding to the origin of this appointment he spoke of the value of the papers under this head which had been presented. He held to the opinion that labor is a purely physiologic function; there is no unnatural labor. He divided labor into ordi-

nary or uncomplicated, and exceptional or difficult labor. The first comprise nine-tenths of all, needing simply cleanliness and as little interference as may be. Normal may be converted into pathologic by too frequent examination. Laceration may be caused by the desire to hurry things. In the majority nature is competent, needing no assistance. The woman can not be compared to a case of amputation, with the expectation of blood poisoning, needing vigorous antiseptics to prevent it. Otherwise how could the human race have survived all these dangers? How about savage races, with their barbarous methods? He is also opposed to instrumental delivery to suit the convenience of the physician. We should learn when not to use the forceps. Traumatism may result and a dangerous train be fired. Consider only the patient. The duty of the obstetrician is cleanliness or asepsis. He believed with the old country doctor, who boasted that plenty of lard and a good deal of patience were all the instruments he wanted. He insisted upon the usefulness of a warm soap and water bath at the beginning and a douche to cleanse the birth canal, especially if the patient does not seem clean, yet was opposed to repeated douchings and irrigation of the uterus after labor, except where absolutely indicated to overcome an actual septic state, due to retained placenta, etc. Chemic disinfectants are not required and their routine use is to be deprecated. On the other hand, he commended the practice of rendering the hands of the obstetrician and all instruments used by him as aseptic as possible by the abundant use of soap and hot water. Follow this by a rinsing with solution of bichlorid 1 to 2000. Thus puerperal septicemia may be eliminated. By this plan Dr. Joseph Price claims that he has not had a case in nearly 10,000 labors. Again we may thus abolish ophthalmia neonatorum. Three-fourths of the blind asylums might be closed. He did not attempt to give a record of his cases, but in a practice of forty-six years his obstetric cases had run into thousands, yet he had never had a dozen sore eyes, and not a single infant had lost its sight. He had never lost a case in labor. He alluded to the law framed by a committee of this society to prevent blindness, making it incumbent upon midwives, etc., to see that an infant with sore eyes shall receive prompt attention that its sight may not be lost. He approved of this, but still considered prevention better. Absolute cleanliness in the conduct of labor is conducive to the best interests of both mother and child. He frowned on the fad of routine use of anesthetics in labor. Who can tell the effect of these pains, the result of Nature's force? Anesthetics, the hasty removal of the placenta are fruitful of post-partum hemorrhage, and of asphyxiated infants. Unless there is good reason, the ergot should remain in the bottle, as well as the castor oil, quinin and the malt liquors. Let well enough alone.

Meddlesome midwifery is bad; so is officious medicine giving. In case of eclampsia at term, and in placenta previa requiring rapid delivery he spoke highly of the method of rapid manual dilatation and delivery of Dr. P. A. Harris of Paterson, N. J., first described in the *American Journal of Obstetrics* last year. Dr. Harris reported his experience in placenta previa and eclampsia; that in all cases there were no labor pains or partial dilatation before he attempted delivery; he had not lost a single case. Since the introduction of asepsis, symphysiotomy has been revived and is largely practiced with increasing success. He quoted from the paper of Dr. Fox of last year and also from Dr. Harris of Philadelphia, who is now enthusiastic for this operation. He described the operation as performed by Professor Farabouef. The woman is placed in the dorsal position, thighs abducted, flexed on the abdomen, the pubic region shaved, this and the adjacent parts washed with soap and water, then with sulphuric acid, finally with bichlorid solution. The patient is fully anesthetized, catheterized and a vaginal douche given. The length of the incision varies with the length of the symphysis; it must be made vertically, midway between the two pubic spines, beginning at the level or a little above the superior border of the symphysis, descending to its inferior border, deviating in the region of the clitoris without touching superior part of the vulva. Then cut through all the soft parts down to the cartilage not stopping to seize vessels. Then upon the index acting as a guide, with the scissors divide the fibro-cartilage at the level of the anterior surface and superior border of the symphysis. Then we make two small incisions transversely, beginning at the median line close to the superior border of the symphysis in such a way as to cut through the aponeurotic tissues in order to make a passage for the index, which is then introduced along the posterior surface of symphysis. The finger then feels very well the posterior prominence of



the fibro-cartilage of the symphysis. Left in this position it serves as a protection to the organs lying posterior to the symphysis. With a straight scalpel, begin cutting the cartilage from before backward and from above downward, and finish the section by means of a blunt-pointed bistoury. At the moment of cutting the sub-public ligament, by means of a sound in the bladder the assistant pulls the urethra out of the way. The incisions through the cartilage are kept up as long as the knife continues to creak, for the latter indicates the resisting cartilage and ligaments giving way. Finally the iliac bones in a measure separate. The assistants now practice slow and progressive abduction of the thighs. The cartilages separate, one, then two fingers are introduced. Experience teaches no damage can be done to the articulations by a separation of 7 centimeters. When this is reached, the assistants are warned not to move and a tampon is placed in the wound, either of sponge, cotton or iodoform gauze. We now extract the fetus, apply the forceps and pull; the head descends, separating the pubis if not already sufficient. Do not exercise too much force. Let the head rotate. Now Dr. Varnier, in order to protect the vulva, etc., has the assistants approximate the thighs causing the iliacs, etc., to resume the normal position, and the head is delivered without injury to the inferior osseous and muscular straits or vulvar orifice.

The operation is terminated; a vaginal injection is given, the placenta removed, the vagina packed with gauze and next the pubic wound is cared for. The tampon is removed, the wound irrigated with a 5 per cent. carbolic solution, the assistants approximate the iliacs by continued pressure on the hips and the operator sutures the tissues with two or three buried sutures, and as many as needed to keep the parts in apposition. The wound is covered with gauze and absorbent cotton. A tight bandage is placed around the pelvis, this covered with a second, in the form of a T. A third supports the parts and for this plaster-of-Paris is used. This is applied in an oblique position to leave the pubic region free and for future dressings and these must be removed as soiled, at least twice a day, for they are always soiled at micturition. The vaginal dressings may be allowed to remain two or three days as it insures antiseptis of the vagina, and we can dispense with the injections otherwise needed. The limbs must be immobilized by strapping. About the eighth day the wound has cicatrized. Often the edema has caused the sutures to cut through. These may be taken out at the rate of one or two a day.

This operation saves the child, with a minimum of danger to the mother. It is far preferable to the Cæsarean operation or craniotomy.

In concluding, he alluded to labor delayed by unusual positions. He had not found it an easy task to change a malposition. With the present asepsis, we should more commonly resort to the effort to change vertex posterior into anterior. For many other treatments, in complicated labor, special training and sound judgment are needed. In conclusion, he made a plea for careful diagnosis, and not too much zeal for manual and mechanical interference.

Dr. T. J. MAYS, of Philadelphia, read a paper on "Fat in Pulmonary Consumption." Fat is one of the most important constituents of the body. It always diminishes in pulmonary consumption. It is a special secretion and is manufactured out of carbohydrates, proteids and fats, but for fattening purposes proteids and carbohydrates are superior to fats and oils, and therefore the latter are over-rated in the treatment of consumption, although valuable adjuvants. It is also shown that resting the invalid promotes the formation of fat, while exercise retards it; that in all probability the production of fat is under the control of the nervous system and that strychnin through its stimulating influence on the nervous system fattens the consumptive and increases the number of his white and red blood corpuscles. He gave short abstracts of the histories of fourteen patients, who were treated in accordance with the principle advocated here, which show a total increase of 350 pounds, or an average gain of nearly 22 pounds.

"Ligation of Arteries in Malignant Disease," was read by Dr. JOHN H. PACKARD, of Philadelphia. He spoke of the limitations of surgical treatment of malignant disease, of the conditions causing suffering and demanding relief, then of the dangers; finally he detailed the conditions under which the ligation of arteries may be available to afford relief, or facilitate further treatment. He concluded by quoting cases which appeared to uphold his method by the good results obtained.

Dr. JANE K. GARYER, of Harrisburg, read a paper on "Heredit," which was an effort to show something of heredity

and its power in the causation of insanity; something of the increase of the same as shown by statistics, with her view of the reasons for that increase, as well as the desirability of inaugurating new methods in the prevention of insanity.

Dr. H. G. McCORMICK, of Williamsport, presented a paper on "Management of Cases of Typhoid Fever." He had employed guaiacol with most excellent results.

"Labor complicated with Typhoid Fever," was the title of a paper by Dr. W. M. FINDLEY, of Altoona. Case was taken ill three months prior to accouchment with the usual symptoms of high range of temperature, etc. As there were three other cases in the house, the case was an undoubted one. Progress of disease was normal but severe. In due time labor set in at full term, second birth, vertex position. The bowels became much relaxed, evacuations frequent, and copious. By the liberal use of stimulants and application of the forceps, labor was terminated in four hours; child alive. Mother made a good recovery; child was minus the epidermis as though parboiled, but is living at the age of 21 years, though not strong.

Dr. T. DYLLER, of Pittsburg, read a paper on the "Influence of the Mind in the Treatment of Disease."

On motion of Dr. J. ROEBUCK, of Lititz, it was resolved to send delegates each year to the Pennsylvania Pharmaceutical Society.

On motion of Dr. S. SOLIS-COHEN, the exhibition of drugs was to be restricted to the pharmaceutical preparations known as to their ingredients, etc.

In the evening the session was resumed at the Wilson College for Young Ladies. After some musical entertainments Dr. JOHN B. ROBERTS delivered the Presidential Address. His subject was

#### THE PRESENT ATTITUDE OF PHYSICIANS AND MODERN MEDICINE TOWARD HOMEOPATHY.

This address presented in a semi-popular manner the differences between modern or rational medicine, and homeopathy, quoting the definitions given by standard dictionaries.

Homeopathy, as advocated by Hahnemann, was described as a school of medicine, while non-sectarian medicine was designated as a science, since it is in no way founded upon a theory or hypothesis, but the result of investigation of chemico, physiologic and physical facts. The reasons were given which prevent the physicians who subscribe to no dogma from accepting the doctrines of Hahnemann. The statement was made that many physicians who are called homeopaths are not believers in all of Hahnemann's theories. Long quotations were made from Hahnemann's "Organon," and recent homeopathic writers. These quotations showed that there are still some homeopathic physicians who believe in the increase of drug power by diminishing the dose, and in the efficacy, as a means of treatment, of the so-called universal and infallible law of "similars." The attitude of physicians who accept no sectarian name was said to be a dual one. Some of them hold that homeopaths who do not believe in the universality of Hahnemann's law should make a public formal statement before being admitted to the right of consultation with members of the non-sectarian medical organizations. Others believe that the profession and the public would be benefited if a graduate of a homeopathic college or a member of a homeopathic society, who simply indicates his willingness to treat patients by all means, should be admitted to the rights of consultation.

The author did not indicate to which of these classes he belonged. The paper was not written in a controversial spirit, but seemed to indicate that the author desired to permit the hearer to draw his own conclusions as to the relative merits of the case.

The sessions were resumed at 9 A.M., Thursday.

Dr. F. X. DERCUM, of Philadelphia, delivered the

#### ADDRESS IN MENTAL DISEASES.

The peculiar position which insanity has occupied in the past, in the minds both of the laity and of medical men was first dwelt upon, and also the further fact was emphasized that the first attempts to provide for the insane were purely of a practical and utilitarian character and embraced little more than the isolation and housing of the insane. The present status of the pathology of insanity was then taken up. The speaker alluded to the researches of Golgi, Raymond y Cajal, and especially to the investigations of Lloyd Andriezen. It was pointed out that through these labors the structure of the normal cortex was at length being revealed and further that, as Andriezen had shown, we were now in a position to correlate symptoms with change of

structure, at least in certain forms of insanity, for example, alcoholism. In the latter disease there are not only evidences of gross and general nutritive changes in the cell bodies, but also alteration and destruction of the fine naked collaterals and nerve terminals of the molecular layers of the cortex. These changes explain the diminished sensitiveness of the alcoholic subject to impressions from without and also the general loss of memory and lack of association of ideas. Here was the first instance in the history of insanity in which it has been possible to correlate, closely, structural change and symptom. It was, however, pointed out that while such results are sufficient where the poison producing the changes is definitely known, microscopic examination can not give us all the information that we desire when the initial cause is not known. At most, it can only reveal to us the effects of pre-existing causes, and leaves us in the dark as regards the causes themselves. This fact led to the consideration of the subject from another aspect. The conviction is steadily growing in the medical mind that the actual agents which produce tissue changes are chemic toxic substances of one kind or another; some of them absorbed or ingested from without, others the poisons produced by altered tissue metabolism and others, still, the poisons elaborated by bacteria. The evidence upon this subject was briefly reviewed, especially with reference to the toxicity of the blood, the urine and other tissues in various conditions. The toxic substances themselves were classified as follows:

1. Those which though normal to the blood and urine in certain quantities, become toxic when in excess. In such conditions there is an intoxication of the nervous system from the mere accumulation of tissue waste.

2. Substances which are present in the various diathetic insanities, some of which in small quantity are normal to the urine, while others are entirely new and foreign.

3. Substances which result from disordered visceral action. Regarding these we have but little definite information. Enough is, however, known regarding the diseases of the kidney and diseases of the liver to indicate that the insanities associated with these conditions are in all probability the result of auto-intoxication.

4. The toxic substances absorbed from without (excluding all poisons ingested as such). From much that we know we have reason to infer that in certain pathologic conditions poisons are formed in the stomach and intestines which react profoundly upon the nervous system.

5. Toxins which are elaborated by bacteria.

The various intoxications of the nervous system resolve themselves into two great groups, first, the auto-intoxications properly speaking which embrace, first, the substances normal to the blood and secretions but present in excess; then, those substances due to general disturbance of tissue change which we meet with in diathetic conditions; and, last, the poisons formed by the disordered action of special viscera.

In the second group we have those substances absorbed from the intestinal tract, some of which are produced by disordered chemic action and morbid fermentation, and others which are normally excreted by the intestinal tract but now re-absorbed; then we have the poisons which are the direct results or accompaniments of infection. It was further pointed out that the various symptom groups which we recognize as forms of insanity may result from the most diverse agents.

A plea was then made for the establishment of laboratories in hospitals for the insane, in which not only microscopic studies based on the methods of Golgi, Cajal and Andriezen might be made, but in which also the chemistry and the physiologic action of the various toxic substances existing in the blood, urine and tissues of the insane could be experimentally studied. Such investigations would be of great practical importance. They would enable us in the first place to treat insanity more intelligently, and indirectly would diminish the expense of the maintenance of the insane by the State.

DR. S. SOLIS-COHEN, of Philadelphia, gave in detail the "Modern Method of Diagnosing Gastric Lesions."

DR. G. G. GROFF, of Lewisburg, on "Typhoid Fever and its Relation to Filth," showing the great need of more care as to the contamination of wells, cleanliness in the dairy, etc.

DR. EDWIN ROSENTHAL, of Philadelphia, read a report of a

SERIES OF CASES OF LARYNGEAL DIPHTHERIA (SO-CALLED  
MEMBRANOUS CROUP) TREATED BY ANTITOXIN, WITH  
AND WITHOUT INTUBATION.

After brief mention of the historical discoveries in bacteriology leading to the latest method of treatment, he gave a

summary of his work. He divided the cases into two groups: one upon whom the operation of intubation was performed, and another group where this operation was not a necessity. In those cases—nine in number, treated without intubation, all recovered. In those cases—eleven in number, treated with intubation, two died and nine recovered; making a mortality of 18 per cent. Combined statistics before the advent of antitoxin, in cases treated by intubation showed a mortality of 72 per cent.; that is, 28 recoveries in 100. Dr. Rosenthal's own statistics in a former paper showed a mortality of 62 per cent., 38 recoveries in 100. In juxtaposition to this, the combined statistics of antitoxin treatment have shown a marvelous reduction in the death rates. Dr. Rosenthal's work was mostly done with Behring's antitoxin though he has used Aronson's, Gibbier's, and McFarland's antitoxin; almost all his cases recovering makes their value equal. The German antitoxin, however, brought quicker reaction than the domestic, and for that reason was superior. Dr. Rosenthal's conclusions are: antitoxin is a specific in diphtheria. In early cases, those seen in one or two days after infection, no death rate should be recorded. In laryngeal diphtheria (the so-called membranous croup) antitoxin is especially indicated. It should be used in every stage or date of the disease no matter how late we see the case; its influence can be proved, for cases of laryngeal diphtheria perish from suffocation long before any toxic symptoms could be manifested. For that reason he strongly urges the necessity of prompt intubation when indicated, even before the injection of the antitoxin. Regarding the use of antitoxin he said: Do not delay or hesitate in this disease because the case is not so bad, or because it might get well without it; but use it at once—the earlier its use, the more certain its success.

DR. HARRISON ALLEN, of Philadelphia, read a paper on

ADENOID GROWTHS OF THE PHARYNX.

In addition to the symptoms ordinarily associated with hypertrophy of the adenoid growth, Dr. Allen described a group of cases in which the obstruction is due, not to a growth being larger than normal, but to a congenitally narrowed naso-pharynx. He laid especial stress upon a third group of cases. For these he proposed the name "adenoid disease," and claimed that it does not excite mischief by reason of its influence, in any way, upon the functions of respiration, or excite catarrhal disease, but that its effects are noted entirely upon the general nutrition of the patient which is always abnormal. He suggested that the relation of these phases of ill health belongs to the same group of diseases with acromegaly and myxedema. He invited attention to the advisability of studying the adenoid mass in connection with the pituitary body and pineal gland, and made the request that in all cases of death of children, who are known to suffer with adenoid growth in addition to the cause of death, that the base of the skull embracing the pituitary body and the adenoid of the pharyngeal vault be removed in a single piece and prepared in the usual way for microscopic examination.

DR. F. S. NEVLING of Karthaus read a paper on the "Alcoholic Bath in Eclampsia and Suppression of Urine."

DR. H. F. HANSELL, of Philadelphia, read a paper on "A Clinical Contribution to the Study of the Relation of Convergence to Accommodation." This was a report of a case of divergent strabismus of many years' standing, in which binocular fixation was impossible without the sacrifice of clearness of distant vision. Each eye was practically emmetropic and had no organic defect and either could be used in fixation. There was no assignable cause for the anomaly. The interest of the case lies in the transient power of binocular fixation accomplished only by conscious effort and with the simultaneous contraction of the ciliary muscle by which myopia of 3.5 D. was invariably acquired, to disappear immediately when the divergence of the optic axes was restored. The association of the function of the accommodation with that of convergence where the primary stimulus is directed to the interni instead of the ciliary muscle is thus demonstrated, just as, reversely, normal contraction of the accommodation induces normal convergence and pathologic contraction pathologic convergence, instances of which are exceedingly common and indisputable.

DR. BENJAMIN LEE of Philadelphia, presented an abstract of a paper on the

EMOTIONAL BRAIN.

A recent novel which has commanded general attention contains a vivid picture of a somewhat unusual case of nervous disease. It is very boldly drawn and, with few strokes, the description being not that of a scientist but of an acute

lay observer. I give it principally in the author's words: "A gifted young artist, little more than a boy, of a temperament sensitive, emotional and high strung, receives a sudden and terrible shock, in the loss of the woman whose love he has just succeeded in winning, and whom he in turn loves to distraction. An outburst of stormy and semi-maniacal rage followed the discovery." . . . "And finally he gasped, screamed and fell down in a fit on the floor." . . . "Little Billee's attack appears to have been a kind of epileptic seizure. It ended in a brain fever and other complications—a long and tedious illness. . . . At the end of a few months spent in his native village, his health returns, he takes his part in the social life of the village, and awakes one morning to find himself famous, his pictures painted while he was in Paris having achieved a distinguished success." . . . "But one thing constantly preoccupied and distressed him—the numbness of his affections." . . . "It was as though some part of his brain, where his affections were seated had been paralyzed, while all the rest of it was as keen and active as ever."

His own diagnosis of his case occurs in a monologue held with an amiable dog of the name of Tray. "Wait," he says, "till you get a pimple inside of your bump of—wherever you keep your fondness, Tray. For that's what's the matter with me—a pimple—just a little clot of blood at the root of a nerve, and no bigger than a pin point." Thus much for the clinical picture. What shall we say as to the diagnosis made by the patient? To a certain extent it is correct. There is a lesion of an important nerve center. It may be, in his unscientific language, "a spot, or knot, or a blot, or a clot." We often come no nearer an accurate description of a pathologic condition which is paralyzing this nerve mass. But he mistakes in locating it in either the cerebrum or the cerebellum. For every human being has two brains; a thinking brain and a feeling brain; a rational brain and an emotional brain; a brain which ponders, and calculates, and schemes, and records impressions of the outer world; and a brain which loves and hates, rejoices and grieves. The rational brain is situated in the cranium; the emotional brain in the abdomen. In common parlance we speak of their respective functions or manifestations or resultants as mind and heart. As anatomists we know that the heart, being simply an ingenious pump, has nothing to do with the case—any more than "the flowers that bloom in the spring." The particular viscus from which the affections emanate and which was the seat of Little Billee's malady, is the solar plexus, composed of the two semi-lunar ganglia, with the wonderful interlacement of nerves and tissues and ganglionic enlargements which bind them together, and at the same time associate them with the sympathetic and cerebro-spinal nerves and ganglia. The old anatomists showed a correct appreciation of its importance in naming it the solar plexus, for it is indeed the sun of the system, radiating light, warmth and joy to its remotest parts.

What do we know of this important organ? Little enough. It is probably safe, however, to attribute principally to its abnormal action or condition, three, by no means uncommon and very intractable affections, hysteria, melancholia, and hypochondria. Of acute diseases the only one which we can reasonably consider as directly affecting the solar plexus is epidemic influenza, and I know of no other way of accounting for the protean manifestations of that malady, and for the profound and abject despair which is so constant a manifestation of it.

If we know little of the pathology of this organ, we know still less of its therapeutics.

Physics, rather than physic, however, must furnish our armamentarium for the treatment of disorders of this important nerve center. The imponderables—light, heat, electricity, and that which includes, involves and evolves them all, motion, are the agents on which we must place our main dependence.

Motion is administered in the form of exercise in its ordinary sense, of Swedish movements and of massage. In cases in which the patient is unable to take the ordinary exercise, the movement cure provides an admirable substitute, affording us the advantage of exercise without the expenditure of nerve force. This should always be accompanied by massage, and, indeed, in a large number of cases the latter alone can be resorted to. Its application includes the four well-known divisions of kneading, stroking, friction and percussion, which should be varied to suit the requirements of each particular case. The form known as vibrations is of special service in these conditions. They may be applied either by the hand of the manipulator or, much more effectively by means of a machine constructed for the

purpose. In this way, vibrations of excessive rapidity may be communicated to any part of the body for any required length of time. The abdomen, epigastrium and dorsum are the proper points for application in the affections under consideration. This therapeutic means produces a profound impression on the nutrition and the cellular activities of the nervous tissues, and should therefore, like galvanism be used with caution and discretion.

My object in bringing this subject before the society has been to call attention to a neglected and, as I believe, fruitful field of research, and to urge upon those who have the time, the facilities and the training, the importance of losing no opportunity of prosecuting microscopic and laboratory investigations into the pathology and the cellular affinities of the great solar plexus.

"A Contribution to the Study of Deaf-mutism," was given by Dr. A. A. Bliss, of Philadelphia. An examination of the ears, together with a study of the personal and family histories of 546 deaf mutes, pupils in the Pennsylvania Institution for the Deaf and Dumb, indicates that strictly congenital deaf-mutism is a far from common condition. On the contrary, the finding in this large series of cases indicates that loss of hearing in the majority of instances resulted from inflammation of an early infancy origin. Resulting from such processes we find three conditions of the ears: 1, a slow, non-suppurative, sclerosing process, which has immobilized the sound conducting apparatus; 2, a condition of sclerosis after suppuration, the drum head being destroyed in varying degree and the mucous lining of the tympanic cavity changed to a dermoid or fibrous tissue; 3, a suppurative process, still active, which has caused simply a chronic otorrhea without much loss of tissue, or may have caused total destruction of the drum head, exfoliation of the ossicles, necrosis of the tympanic wall and the development of cholesteatoma. Consanguinity of parents must be recognized as a causative element in deaf-mutism, but is not peculiar in any special liability to cause serious affections of the ears in the children of such unions. In such instances, deaf-mutism is simply one of the manifestations of physical degeneration, just as phthisis, idiocy, epilepsy, cretinism, insanity and functional or organic abnormalities in the cerebro-spinal or lymphatic systems may also be manifestations of a physically degenerate race. The examination, in addition, indicated that a tendency may exist in certain families to develop aural disease attended with deafness more serious and profound than would commonly follow such conditions in more normal individuals. Thus one-fifth of the entire 546 pupils had deaf-mute relations, and in some instances belonged to families all of whose members were deaf mutes. The results of the examination favor the belief that in a vast number of instances the recognition of otitis media, originating primarily or as a complication in other diseases, occurring in infancy or in early childhood, and the proper treatment and after treatment of this aural condition, would have preserved the hearing of many of the 546 pupils and would have saved them from becoming deaf mutes.

(To be continued.)

#### Rhode Island State Medical Society.

*Eighty-fourth Annual Meeting held at Providence, R. I., June 6.*

The meeting was called to order by Dr. Robert F. Noyes, and the recording secretary, Dr. W. R. White, announced as the result of the annual election of officers the following:

President—Elisha P. Clark, Hope Valley.  
First Vice-President—William A. Gorton, Providence.  
Second Vice-President—Francis H. Rankin, Newport.  
Recording Secretary—Frank L. Day, Providence.  
Corresponding Secretary—George D. Hersey, Providence.  
Treasurer—George L. Collins, Providence.  
Censors—J. W. C. Ely, Benjamin Greene, Eugene Kingman, J. H. Morgan, G. W. Jencks, H. G. Miller, W. R. White, F. H. Rankin.  
Board of Examiners—Franklin M. Eaton, Fred T. Rogers, Herbert Terry, Frank L. Day, John W. Keefe.

#### STANDING COMMITTEES.

Of Arrangements—E. F. Walker, J. W. Keefe, F. E. Peckham.  
On Publications—G. D. Hersey, C. M. Godding, G. T. Swarts.  
On the Library—H. G. Miller, G. D. Hersey, G. W. Porter, G. L. Collins, F. L. Day.  
On the Museum—W. J. McCaw, G. T. Swarts, F. B. Fuller, C. M. Godding, S. A. Welch.

On Necrology—E. Kingman, C. H. Leonard, H. C. Miller. Auditor—F. H. Peckham Jr.

DR. GEORGE L. COLLINS presented the annual report of the Trustees of the Fiske Fund, giving a record of the meetings held and the financial condition. The amount of the fund is \$9,532.58, and the amount at the disposal of the committee is \$959.52. No premium has been awarded this year, as no essay has been received. The subject proposed for 1895 is "The Etiology, Pathology and Treatment of Diseases of the Prostate Gland." The premium offered is \$300.

The society decided that Providence should be the place of the next meeting.

The deaths of Peter H. Madden of Woonsocket and Frank L. Forsyth of Providence were announced.

DR. T. D. CROTHERS of Hartford, and DR. E. H. DAVIS of Plainfield, were introduced as delegates from the Connecticut Medical Society. They spoke briefly. Dr. Newman of the New York Society was also introduced.

DR. WHITE read the report of the censors' meeting held earlier in the day.

DR. CHARLES H. LEONARD opened a discussion on the nutrition of the very young child. Dr. J. W. Mitchell followed.

DR. FREDERICK T. ROGERS read the essay entitled "Humbug as a Therapeutic Agent." He showed that superstition had ever had an important effect on human affairs. Likewise, medical theories, now exploded, had a beneficial effect in their day. They have had a good effect, both subjectively on physicians and objectively on the patients. Certain alcoholic cures were, he said, undoubtedly, humbugs. Whether these effects were due to hypnotic influences, the effect of a powerful mind over another, or to the giving up to nature and allowing her to do her own repairing, the Doctor could not say, but the facts showed there was need of less use of drugs and more attention to the nature of diseases. The physician was advised to go to the quack for example upon this point.

The Annual Address by DR. GEORGE F. KEENE was upon "Some of the Phases of Alcoholism." In introduction he said that the Legislature that passed a bill to suppress quackery had at the same time had under consideration an appropriation to promote quackery in the liquor cure bill. To alcoholism, side by side with syphilis, were ascribed the greatest pathologic effects. Alcohol was designated as not a real, but a supplementary food. Its effect was greatest upon the brain. It is the genius of degeneration. Effects were specified upon the various parts of the nerve and arterial systems, and symptoms of alcoholism were described at length. The hearers were warned against the worship of the "golden" calf of Keeley.

At the conclusion DR. NOYES introduced the new President of the Society, DR. E. P. CLARKE, of Hope Valley, as one ripe in years, rich in experience and loyal to the Rhode Island Society. In assuming his new office Dr. Clarke briefly replied.

A vote of thanks was extended to Dr. Noyes for the able manner in which he had performed the duties of President for the past two years.

The annual dinner was held in the Trocadero following adjournment. The unusually large number of 140 was present, including one lady member of the society. Dr. George L. Collins acted as anniversary Chairman. The speakers were Dr. E. P. Clarke, of Hope Valley, who Thursday began his Presidency of the Society; Gov. Charles Warren Lippitt, Samuel R. Dorrance and Prof. H. C. Bumpus, of Brown University.

DR. CLARKE spoke of the profession of the country doctor, to which class he considered himself to belong. He said they were the hardest worked and poorest paid in the profession. A great physician was allowed to profess ignorance of a particular case, but the country doctor must know everything. Therein many of necessity fail. In spite of his place in this class, he expressed the hope that the society would not lose ground during his term of office and asked for their sympathy and support.

GOVERNOR LIPPITT praised the society for its financial management of the Fiske fund, whereby it had increased 600 per cent., congratulated it for securing the passage of the bill to regulate the practice of medicine, and paid a tribute to the physicians who accompanied the soldiers to the battle field. The State should be proud of the medical profession of Rhode Island.

SAMUEL R. DORRANCE was asked to speak for the Rhode Island Hospital. He is a former President and Secretary of the corporation, and at present a member of the Board of Trustees. He said that the origin of the hospital was among the men of this society. In the face of poor success at first,

they stuck to the project. Even after its establishment the people looked upon it as a place where doctors tried experiments. But there are now many evidences that the community realizes the value of the institution. The present condition is due to the men of this society in giving their time, best thoughts and fruits of experience without price to the work.

PROFESSOR BUMPUS of Brown University, outlined the work that is being done for medical students at Brown, the increased appropriations making possible greater laboratory facilities, better apparatus, and more books. Applications for the courses are increasing. He thanked the members for their help to the college.

During the afternoon the Fellows and guests visited the St. Joseph's Hospital, and were there tendered a reception.

## NECROLOGY.

ARTHUR E. DURHAM, F. R. C. S., Eng., Consulting Surgeon to Guy's Hospital, died May 7, aged 61 years, after a short illness, from acute pneumonia. He was a native of Northampton, and entered Guy's Hospital in 1855. After distinguishing himself in the examinations at the University of London he took his Fellowship at the Royal College of Surgeons, England, in 1860. Two years later he was elected to the post of assistant surgeon at Guy's, and from 1873 to 1894 he was one of the full surgeons at the hospital. On his retirement in 1894 he was appointed one of the consulting surgeons of the institution. In the medical school attached to the hospital he lectured for many years on anatomy and surgery. He took a prominent part in all the movements which had for their object the welfare of the students. He was President until last year of the Students' Club, and of the Guy's Hospital Cricket Club. Mr. Durham's contributions to the literature of his profession were almost entirely limited to papers read before the societies, and articles to "Guy's Hospital Reports," Holmes' "System of Surgery," and Quain's "Dictionary of Medicine." In the former were published his valuable observations on "Sleeping and Dreaming," and the "Physiology of Sleep," in which were recorded his memorable experiments to show the state of the circulation in the brain during waking and sleeping. Mr. Durham was one of the first surgeons in this country to take up the specialty of diseases of the throat and nose, and he was the designer of the lobster-tail tracheotomy tube which bears his name. As an operator he was bold, neat and skillful. Nature had endowed him with hands which must have been the envy of most surgeons who knew him; the fingers were long and tapering, as flexible as those of an accomplished musician, and full of grace of movement. At the time of his death Mr. Durham was a member of the Council of the Royal College of Surgeons, England, upon which body he had served eleven years. In former years he served as vice-president. Mr. Durham was exceptionally well and favorably known to American surgeons.—*London Medical Press*, May 15, 1895.

SAMUEL PATERSON VON DER SMITH, M.D., of Bloomfield, N. J., died Friday, the 31st ultimo, of tubercular enteritis. He was born in Lancaster, Pa., in March, 1821, and was graduated in medicine from the now extinct school, the Philadelphia College of Medicine and Surgery, in the class of 1849. For several years he practiced medicine in New York. He was examining surgeon of the New York Police Department for some time, and later was an examining physician of the Mutual Life Insurance Company. At the opening of the war he was a surgeon in the 6th New York Cavalry, and afterward he was with the 16th New York Cavalry. He served through the Rebellion. Dr. Von der Smith was in Washington when President Lincoln was assassinated by John Wilkes Booth. He went with the party that chased the assassin across the Potomac into Virginia, and was present when Booth was shot. He never tired of describing the scene. He received a medal and a diploma for the part he took in running Booth down. After the war Dr. Von der Smith went to Arizona, and was attached to one of the regiments on the frontier as regimental surgeon. He was acquainted personally with Generals Grant, Sherman and Sheridan, and he was a member of Cameron Post, No. 79, G. A. R., of New York City. He had lived in Bloomfield ten years.



THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:  
PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to

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W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, JUNE 15, 1895.

MORTALITY AND CAUSES OF DEATH IN MEDICAL MEN.

DR. KORTRIGHT has recently presented this subject in the *Brooklyn Medical Journal*, bringing out some very impressive and suggestive facts. He made a study of the mortuary records of four hundred and fifty physicians who lived and died in New York and Brooklyn, and the vicinity, during the past eight years. As the surroundings and climate were alike generally, the facts are of unusual interest. The average age of death was 54.6 years, and the mortality was 25.53. This mortality is only exceeded by saloon keepers, butchers, quarrymen, and poor factory operatives. Clergymen have a mortality of only 15.93, and lawyers 20.23, so that the practice of medicine is far more hazardous and perilous as an occupation.

Among the causes of death, suicide is four times more common among physicians than other adult males. This includes many cases of accidental poisoning, such as an overdose of some drug used by the victim, either addicted to the drug, or using it for some special purpose. Others died from bullet wounds of the head, the motive of which was not clear. Consumption was a very small factor as a cause of death, reaching only 10 per cent., while the ordinary death rates among adult males in New York are 19 per cent of the whole number. Physicians have less than half the usual mortality from this cause.

Deaths from the latest fad, appendicitis, were one thirty-seventh of the whole, showing that physicians are not suffering from this trouble in the same ratio as other people. Typhoid fever appears to be exceptionally high as a cause of death; 4½ per cent. died

from this cause. The usual rate among adult males is 1¼ per cent. Pneumonia furnishes a high death rate, 13 per cent; in the adult male population the mortality is 14 per cent. Bright's disease, apoplexy and various forms of heart disease are grouped together as all having common pathologic conditions, viz., arterial sclerosis and degeneration of the muscular fibers. The mortality from these causes was 35 per cent., whereas the usual death rate from these causes among all male adults is only 25 per cent.

The conclusion is clear that these are the most common diseases that prove fatal among medical men. Arterial sclerosis was the cause of over a third of all the mortality. This is confirmed by English statistics. This means, briefly, that irregularities of the heart's action, from neglect of diet, sleep, nutrition, overeating, undereating, overwork and under exercise has left its impression in the thickening of the walls of the heart and arteries. The constant variation of the tension of the arteries has resulted in fibrinous deposits and inflammatory changes involving the kidneys, as well as the heart and arteries. Probably, defects of elimination are among the most common early causes of irritation and changes. This is followed by poisoning and starvation and increased functional activity of the heart in the effort for elimination. Then follows changes in the specific gravity of the blood from the retained products of metabolism and pathologic conditions which are expressed in the term arterio-sclerosis.

It is the irregularities of living which make the physician neglect many hygienic rules that he forcibly impresses on his patients. He is often eloquent in his arguments and reasons for rest and change, and regular hours of sleep, to those who consult him. But, alas, he does not put into practice in his own case what he so urgently impresses upon others.

Physicians keep on, long after warning voices are heard of approaching dangers. Voices of palpitation, of arterial tension, of tortuous arteries and increased flow of limpid urine, and other unmistakable signs; voices of insomnia, indigestion, morbid anxiety, slow restoration when exhausted, loss of ambition and interest in things of the present. These voices tell of the approach of the end. There is only one way open for the future and that is to give up night work, and confinements, take a long summer rest, eat abstemiously, stop all drinks except water and tea or coffee, take exercise in the open air, and give careful attention to the function of the skin, avoid chills and worry and mental care and strain, and live carefully and quietly. Take this course, and we may expect to live many years and be of great service to those about us. Here is an open field for new studies—how to prolong and raise the life work of physicians.

## ALCOHOLIC COMA, ON THE STREET.

This JOURNAL in its editorial columns has frequently called attention to this subject, and DR. L. D. MASON, of Brooklyn, N.Y., recently read a paper before the Kings County Medical Society, calling attention to the frequent blunders made by policemen and ambulance surgeons in placing all cases found stupid on the street with an alleged alcoholic breath, in cells of station houses. DR. JOHN MORRIS, of Baltimore, Md., discussed this subject in the State Medical Society of Maryland seventeen years ago in a very clear paper. Curiously, this failed to attract much attention in this country, but was translated and reprinted in many of the leading journals of Europe.

The French Academy of Medicine took up the subject, and as the result of a very wide discussion, special laws were made, requiring all cases found stupid on the street to be taken to a receiving hospital where they could be examined and observed. In London, the police were directed to take such cases to special emergency hospitals. In many of the cities of the continent, similar rules have been enacted. In New York and all the large cities and towns of this country, the diagnoses of such cases are made by the police and ambulance surgeons, or any one who may be passing. The result is that a considerable number of these cases are found dead in the cells next morning. Where an autopsy is made, hemorrhage, tumor of the brain, fracture of the cranium with concussion, Bright's disease, sunstroke, embolism, and other physical lesions are discovered. If an inquiry is made into the history of the case, epilepsy, narcotic poisoning and heat or sunstroke appears. For various reasons, spirits were taken shortly before the coma came on, and the breath determined the diagnosis. These cases are treated roughly in the ambulance or patrol wagon, and with the slightest appearance of opposition are struck on the head, or shaken violently, to intimidate and keep them down. Thrust into a cell to sleep off the supposed stupor of alcohol, the patient dies from neglect, and next morning the police surgeon certifies to death from alcoholism. The case is recognized as a man of prominence and temperate, and an autopsy reveals the real condition. There is no redress, and this is repeated in almost every city in the Union. One week in August, last summer, five cases occurred in New York City. These persons died in cells of the station houses, from hemorrhage, embolism and Bright's disease.

DR. MASON's paper was an earnest protest against this practice, and he gave numerous facts and cases showing the great wrongs committed by having the diagnosis of such cases made by persons unfit and incompetent to judge.

The Kings County Medical Society appointed a committee and passed resolutions, calling on the

Health Board to make special provisions against this evil. As a result the Health Commissioner of the city of Brooklyn has ordered that all cases of coma found on the street must be sent to the hospital. The wisdom of this was clear the next week after this rule went into effect, in the diagnosis of acute alcoholism made by an ambulance surgeon, of a case which proved to be one of fractured skull.

DR. MASON read before the Neurological Section of the ASSOCIATION at the Baltimore meeting, another paper on the same subject, which was followed by a resolution urging physicians to petition authorities in all cities to have these cases of coma cared for rationally. This paper and resolution will appear later in the JOURNAL. Thus the good work of DR. MORRIS in 1878 which bore fruit in Europe, is now taken up by DR. MASON, and will inaugurate a genuine reform all over this country in the near future.

The criminal recklessness of the present practice was recently illustrated in Philadelphia, where the police brought into the station a stupid, half-delirious man as drunk. The next day he was found dead, and proved to be a clergyman, under treatment for Bright's disease, who went out for a walk, and probably took spirits for weakness, and was arrested and hit over the head by the officer. In a list of cases of this character is one of a prominent physician who was found dead in a station house cell. His skull was fractured and the police record was "drunk and stupid." He was a thoroughly temperate man, had not been robbed, and was seen in his usual health an hour before the arrest by the police. The inference was that for some sudden illness he had taken spirits, and his skull had been fractured by blows of the officer at the time of the arrest. Our readers will recall many similar cases and recognize a radical reform in the present practice.

## RHODE ISLAND MEDICAL SOCIETY.

The eighty-fourth annual meeting of this society occurred at Providence, June 6, a detailed notice of which appears in this JOURNAL. This society differs from other State societies in many respects, and has done some excellent work in scientific medicine. Practically, all parts of the State are within an hour's ride of Providence, so that all physicians can attend the meetings which are held four times a year. These meetings open at 10 A. M., and after the informal relation of cases, an essay and address follows, then a dinner and adjournment.

The intellectual exercises are confined to two hours, and the dinner another hour or more; the whole not exceeding four hours, and the physician is home again in time for evening practice.

The State is densely populated with a succession of manufacturing villages and cities, and physicians have to do all-round practice of every sort. The

surgery from the mills, and the fevers and epidemics of these villages, with faulty water supply and bad sewers, and a most changeable climate, along the bays and numerous rivers of the State, bring a variety of medical work that requires great versatility not common in other States, for "State" medicine or "sanitary medicine" is as much a medical specialty as ophthalmology or laryngology.

Recently an act regulating the practice of medicine has been passed, requiring an examination of all physicians without a diploma from schools which did not require four years' instruction, and a certain preliminary training after July, 1895. In all cases of persons now practicing, a diploma, and evidence of respectable honorary practice from 1892 is required. This act is regarded with great favor as the beginning of better legislation in the future. Many parts of the State have large seaside summer villages of immense populations in the warm weather, and irregulars of all descriptions gather here. This practice act will do much to drive out this class who live on the credulity of their patrons.

Although in close proximity to Boston and New York, the Rhode Island physicians have retained the original Quaker independence of thought and action that has always marked the people of this State. Grave questions in surgery and general practice are largely settled at home by local experts, and the distant consultant is rarely seen. New medical works always have a large sale in this State, and the State Society has accumulated a very large library which is open to members.

Three years ago a medical monthly was started in Providence, which has now become a weekly. It is edited by a large number of local and foreign physicians, and has the promise of being a very noted journal in the future. A most commendable feature of the Rhode Island Medical Society meetings, is to have only one or two papers, and give the author ample opportunity to present the subject fully and clearly. In the meeting mentioned, DR. ROGERS' essay on "Humbug as a Therapeutic Agent," discussed the credulity and superstition which has been associated with medicine for ages. He mentioned some of the great medical superstitions of the past, now exploded, which had a beneficial effect, both subjectively and objectively on the physician and his patients. He cited the alcoholic cures of the day as examples of quackery doomed to an early death.

The annual address by DR. KEENE treated of the "Drink Problem," and the need of a medical study of cases which now come under the care of quacks. He called attention to the boldness of the "gold" curers, who had come before the Legislature claiming recognition, particularly asking the State to assist in promoting quackery of the worst form. Both the essay and address were admirable discussions of topics

that every physician should be familiar with, and be able to teach authoritatively to his patrons.

It is undoubtedly true that physicians do not give sufficient attention to mental therapeutics and the essentials, to inspire the confidence and trust of their patients, and thus neutralize some of the credulity which supports mind cures, gold cures, drug cures, faith cures and other 'isms. The coming physician will make use of many of the means now despised, and accomplish results now deemed impossible.

#### THE MICHIGAN STATE MEDICAL SOCIETY.

The thirtieth annual meeting of the Michigan State Medical Society was held in Bay City, Mich., June 6 and 7, under the presidency of DR. H. O. WALKER. The attendance was representative in character and equal to the average in numbers. The local committee had made abundant provision for the convenience of the members, and with tireless endeavor promoted cordial goodwill, so that the meeting was without friction in any respect.

It was gratifying to have the committee report the enactment of a law by the Michigan State Legislature to prevent blindness, by compelling attention to the purulent ophthalmias of the newborn, but sadly disappointing to learn from other committees that the bill to regulate the practice of medicine failed to become a law—after the manner of many previous attempts, and that the bill to secure a registration of births and deaths in accordance with common sense, had also failed to become a law. Michigan, still, by deliberate act of its Legislature, remains the dumping ground for the world's incompetent and dishonest doctors.

The society made a notable change in its requirements for membership, in that it admitted two physicians whose entire medical education was obtained in "homeopathic" medical colleges. It was stated by a member upon the floor of the house that such action was contrary to the Code of Ethics, so that the action was taken deliberately and with full knowledge of the facts; a fact the more noteworthy because last year this society refused to entertain the idea of changing the Code of Ethics in any particular.

The scientific work of the society is done in three sections. These were all well attended, the papers of scientific and practical interest, and intelligently discussed. As the papers numbered fifty it will be apparent that the sessions of two days and one night were needful in order that the work be accomplished. The arrangement of the first session of each of the sections was peculiar, in that it was devoted to the consideration of a series of papers discussing different phases of a single topic; thus the surgical section discussed urethral surgery; the medical section diphtheria, with the antitoxins; gynecology, malig-

nant diseases of the uterus. The papers prepared for these several discussions were of unusual merit. The remaining sessions of the sections were devoted to papers on widely diverse subjects, usually embodying original studies or original research, and of such general attraction as to hold the members in attendance till the time for final adjournment. Since the organization of these sections this society has been singularly free from wire pulling and disagreeable episodes. There are several reasons for this delightful change from former days: 1, there is nearly four times the amount of work called for, which engages at least four times as many physicians. This employs the surplus energy so that less is left for less useful purposes; 2, there are four times as many officers, so that the desire for office-holding is more largely appeased, and hence the diminished struggle for such positions; 3, an atmosphere of scientific study and work is created, of far greater intensity, and this represses much that is undesirable which was associated with the old style medical convention; 4, engaged in actual work constantly to a number threefold more than formerly, the members have found a pleasure and satisfaction hitherto unknown; 5, each member had a chance to select one of three papers or discussions at any time during the meetings—so that he had an opportunity to select topics hitherto unavailable; 6, the papers have become more scientific, and are prepared with greater care, because the selected audience has a chance to criticise more intelligently, and by its very selectness is better able to criticise.

It must be admitted that this new state of things is unsatisfactory to the friends of the old time medical convention. These prefer a chance to talk to a large crowd; to have a less discriminating audience; to shut off others from a chance to learn the art of public speaking in medical societies—they do not enjoy the highest grade of scientific work. However, it is hoped by the majority of thoughtful workers in the Michigan medical profession that the present system may be continued and perfected.

Mt. Clemens was selected as the next place of meeting, and the first Thursday in June, 1896, as the date for holding the same.

#### THE INDEX MEDICUS.

The following notice from MR. GEORGE S. DAVIS will be received by the entire profession with great regret. No one, however, can criticise MR. DAVIS for declining any longer to make good the large discrepancy between the expenditures and the receipts.

In our opinion the ASSOCIATION can afford to print this work as soon as the subscription list of the JOURNAL shall reach 12,000. With a subscription list of that number, including members of the ASSOCIATION, the increase of advertising would pay for

the loss in the issue of the *Index Medicus*. It seems entirely clear that no private publisher will be willing to stand the loss, and as the work is universally conceded to be of the greatest utility to medical writers and teachers, it would seem eminently fitting that our great ASSOCIATION should carry it on. But with the depleted revenue that we must probably face this year, on account of the necessary elimination of certain advertisements, such increased expenditure would be impossible unless every member puts forth his efforts to bring up the subscription. We have not found canvassers of much benefit. Most doctors are too busy to talk to them, and it naturally results that the only real growth of the power and influence of the ASSOCIATION will be made when the members, each for himself, resolves that the old ASSOCIATION shall be the greatest on the globe, and secures a new member or subscriber for the JOURNAL.

The new volume begins July 1. Let every member obtain one new member or subscriber to start the new volume on a better and higher plane than ever. With the consent of the editors of the *Index*, and the vote of the ASSOCIATION at its next meeting, not only may the *Index Medicus* be preserved, but the ASSOCIATION itself, ever foremost in work for the advancement of our profession, may still further promote its noble aims and purposes.

#### THE PASSING OF THE INDEX MEDICUS.

"DETROIT, MICH., June 7, 1895.

Dear Doctor:—I notify you, as a subscriber, that the *Index Medicus* terminated its existence under my supervision, with the April number. I have published this journal since January, 1885, at an annual loss of from \$500 to \$1000, in view of my interest in a purely scientific publication, in which I had no mercenary interest whatever. This is a larger sum than has been contributed by any professional man, or body of professional men to this purpose.

Owing to the hard times of 1893 the subscription list of this journal was greatly shrunken, and difficulty was found in making collections from subscribers. The deficit in 1893 was a very material sum, which was largely increased in 1894. Announcement was then made to the medical profession that unless the subscription list of the journal could be placed upon a paying basis I must discontinue its publication. Many friends of the *Index Medicus* appealed to me to defer action until they could by individual and organized effort arrange for an increased number of subscriptions, or for a fund whereby its continuance might be assured. After a period of six months it is found that the prospective deficit this year, assuming that all subscriptions are collectible, will be nearly \$2,000. Inasmuch as I can not afford to carry such a burden I have decided as above announced.

Very sincerely yours,  
(Signed) GEO. S. DAVIS."

#### PAN-AMERICAN MEDICAL CONGRESS.

PRESIDENT DIAZ in his annual message to the Mexican Congress, April 1, 1895, says:



"The Executive, being determined to omit no effort or spare no expense which might redound to the honor of the Nation and to the advantage of studious youth, has created an Anatomia-pathologic Museum, with the double purpose of furnishing a new and efficient element of instruction to the school of medicine, and also for the purpose of appreciating worthily the scientific labors that are to be presented to the second Pan-American Medical Congress when it meets in this Capital in 1897."

## CORRESPONDENCE.

### "Audi Alteram Partem."

SAN FRANCISCO, CAL., May 22, 1895.

To the Editor:—[Our esteemed correspondent, whose letter pronouncing the collective investigation of the antitoxin treatment of diphtheria impossible of execution was published in the JOURNAL of May 11, takes exception to the summary fashion in which his first communication was treated, and furnishes the following argument in support of his belief that the results of such investigation must be valueless.]

I feel perfectly safe in saying that, in the present light of science, no living person can make a positive differential diagnosis between typical Bretonian diphtheria and allied affections—and for the following reasons:

1. A schizomycete answering (Löffler's) description has been found in less than 50 per cent. of cases of clinical diphtheria—and then never alone, always together with other forms, such as streptococci, staphylococci, pneumococci, bact. coli communis and micrococcus prodigiosus (See Hausmann, Benda, Ritter, Körte and others. Proceedings Berlin Medical Society, Nov. 28, Dec. 7, 12, 1894; also report of New York Board of Health on the bacteriologic investigation of 6,511 cases of clinical diphtheria between May 4, 1893, and May 4, 1894).

2. This virulent bacillus has been found in the mouth and throat of perfectly healthy children, and nurses in diphtheria wards. Also in connection with cases of rhinitis fibrinosa running the same clinical course as other cases in which it was absent (Benda, Liebreich, Hausmann, Ritter, Unger and others. Proceedings Berlin Medical Society, Nov. 28, Dec. 7, 12, 1894).

3. The disease produced in the lower animals by injections of so-called pure cultures of Löffler's bacillus diphthericus, differs radically from typical Bretonian diphtheria in human beings (Hausmann, Ritter, Benda, Scheinman, Unger, Scholz and others. Proceedings Berlin Medical Society, 28, Dec. 7, 12, 1894).

4. Ritter found bacilli absent in a case of typical Bretonian diphtheria.

5. Polymorphism of schizomycetes, such as the bact. coli communis and others common to the alimentary canal of human beings and the lower animals—and constantly found within the internal organs of diseased organic forms before and immediately after death—render a scientific bacteriologic diagnosis impossible. (See reports on the following poison epidemics: 1, at Frankenhausen, investigated by Professor Gartner; 2, at Rürsdorf, investigated by Gaffky and Paak; 3, at Moorsule, investigated by Van Ermengen; 4, at Cotta, investigated by Nulsen, Zohne and Gartner; 5, at Ganstad Insane Asylum, investigated by Peter F. Holst. Also Wurtz and Hermann, Macaigne, Welch of Baltimore, Lubarsale, Tavel, Roux, Escherich, Fraenkel, Dunbar, Rodet, Stocklin, Cohn, Lankester, Billroth and others. Duclaux

writes in *L'Annales de l'Institut, Pasteur*, 1891, page 350): "*Chaque année de travail fond ensemble des espèces, qu'on croyait distinctes et en sépare d'autres, qu'on croyait identiques.*"

(Each year's labor removes us farther from the hope of distinguishing and separating from one another "forms" thought to have been identified.)

Serum-therapy is entirely "empirical," inasmuch as leading investigators in this field differ widely in regard to the *modus operandi* of "immunity," said to occur in connection with organic forms having passed through so-called "infectious diseases" and it can not be said that any of these theories, which may be enumerated as follows, has stood the test of severe adverse criticism: 1, Pasteur's exhaustion theory; 2, Chavau's retention theory; 3, Metschnikoff's phagocytosis theory; 4, Buchner and Hankins alexin theory; 5, Koch-Behring antitoxin or chemic theory. All of these theories are stubbornly adhered to by their respective originators.

Antitoxin serum-therapy is essentially the outcome of the violent opposition offered by Koch and his disciples to Metschnikoff's phagocytosis teachings—chemic or humero-pathologic processes versus Virchow's intra-cellular processes—and while many things point toward the latter, still there exist no scientific data corroborative of any theory, and any therapeutic method based thereon is unscientific—empirical as it were. For an exhaustive treatise on the various theories, experiments and data leading up to the introduction of antitoxin blood serum into human therapeutics, see my paper, "The Status Presens of Antitoxin Blood Serum," read before the State Medical Society of California April 16, 1895.

For reasons too obvious to mention, antitoxin diphtheria serum has been more thoroughly tested in Berlin where it originated than elsewhere, and inasmuch as leading unbiased Berlin physicians have tested its merits during the past five years, and expressed their views thereon professionally, we are in a position to judge correctly of the matter.

In the Berlin Medical Society, Nov. 28 and Dec. 7 and 12, 1894, Hausmann, Ritter, Benda, Unger, Scholz, Liebreich, Oppenheim, Hahn, Meyer, Gottstein and others went on record as saying that, "antitoxin diphtheria serum did neither render immune nor cure diphtheria as claimed by Behring, but that it complicated said disease by giving rise to serious inflammations of important functioning organs such as: the liver, spleen, heart, kidneys, nervous system and skin—the direct result of chemic decomposition of the blood."

Nor does the following mortality statistics, appertaining to Berlin, compiled by Gottstein from the official death register of the city, show the serum-therapy up in a very favorable light when studied attentively and without bias:

From September 30 to November 24.					
Years . . . . .	1890	1891	1892	1893	1894
Deaths in entire Berlin . . . . .	276	216	269	334	209
Deaths in hospitals . . . . .	131	124	178	197	131
Admitted to hospitals . . . . .	328	320	453	454	712
Per cent. . . . .	39.9	38.7	39.3	43.3	18.4
For the entire year.					
Year . . . . .	1890	1891	1892	1893	1894
Deaths in entire Berlin . . . . .	1,591	1,105	1,442	1,627	1,281
Deaths in hospitals . . . . .	682	613	837	956	737

For reasons too obvious to mention, hospital mortality is much less than that of private practice—hence we can readily understand why the mortality from Sept. 30 to Nov. 24, 1894, appears to be reduced to half of that of a corresponding period in 1891, because for some reason, probable panic attendant upon serum notoriety, 712 patients were admitted to the hospitals in 1894 against 320 in 1891. To what extent these 712 hospital cases have been manipulated by the friends of the serum can best be seen by referring to the last columns of these statistics which show: that the mortality from diphtheria for entire Berlin during 1894 up to November 24 far exceeds that of the entire year of

1891—in spite of the fact that over 1,000 children were treated by the serum method in the hospitals, beside numerous cases in private practice. Adding the number of deaths that occurred between November 24 and January 1, the mortality of Berlin from diphtheria in 1894 exceeded that of the year 1891 by about 600, or over 25 per cent.

Rumpf, of Hamburg, states that better results are obtained in the hospitals there by other methods.

Virchow and Baginsky have expressed themselves in favor of the serum-therapy, but inasmuch as the opinion of the former is based upon certain results said to have been obtained by his assistants during a few weeks in the summer of 1894, while he was absent on his vacation—and inasmuch as the latter entirely ignores and defies mortality statistics—their opinions upon this subject can be of little or no value. (See Proc. Berlin Medical Society, Nov. 28, Dec. 7, 12, 1894.)

I will exclude all data coming from Behring, Aronson and others personally interested in the manufacture and sale of antitoxin serum. As a rule, medical men in Europe are very conservative regarding this new therapy—as they have not yet recovered from the humiliating effects of the “tuberculin swindle,” which originated in the same quarters.

So far, nothing has appeared in the American medical press which would indicate that medical men in this country are familiar with the cardinal principles underlying this subject—and I would advise them to “look before they leap,” as perhaps neither “they” nor the “American public” are ready to accept these principles when fully understood.

These principles were exposed by Binz in 1883 at the Budapest Congress for Internal Medicine, when he said: “Our future therapeutic efforts in infectious diseases must be toward ‘*Den lebenden organismen zu entgiften.*’” (To poison the organism, as it were.)

I take issue with Binz and his followers on this doctrine, and I believe that the majority of the American medical profession will continue in the future as they have done in the past—to eliminate the contagium at the bedside. “*Den lebenden organismen nicht zu entgiften-wollen.*” Respectfully,  
CHAS. G. KUHLMAN, M.D.

#### Answer to Dr. Rogers.

NEW YORK, June 10, 1895.

To the Editor:—Dr. Rogers’ attack upon Koch’s demonstration of the causation of cholera, in the JOURNAL of June 8, is rather amusing to the medical man of to-day. While believing that he will receive answers more able than mine, I take the liberty of calling his attention to a few errors in his statement.

In the first place, Koch did not “fancy” that the comma bacillus was the cause of cholera; it had to be present in every case of cholera, it had to be capable of cultivation in artificial media in pure culture, and it had to produce the disease whenever inoculated, before he was willing to identify it as the cause. Unfortunately, the inoculation experiments do not depend alone upon results obtained in the lower animals, for several bacteriologists have themselves been infected while working with this organism.

In the second place, while comma-shaped organisms are universal, as the Doctor states, the comma bacillus of Koch is neither universal nor harmless. If the shape of micro-organisms alone were sufficient to differentiate them, what a simple easy study would be the science of bacteriology! Dr. Koch has never asserted, to my knowledge, that the cholera bacillus is frequently present in water from all sources, although any up-to-date physician knows that curved bacilli are frequently present. All cholera germs are curved bacilli, but all curved bacilli are not cholera germs.

The experiments of Drs. Pettenkofer and Emmerich, as alluded to in the letter, prove nothing, for the following (and other) reasons:

1. Koch and many other observers have shown that acids readily kill this organism; we can easily understand, therefore, how the healthy acid gastric juice of the two physicians protected them from infection. Drinking cholera broth does not necessarily imply infection; it only makes infection possible. The liquid stools mentioned can be produced by toxins isolated from old cultures, without any bacilli being present.

2. Organisms grown on artificial media for many generations are very apt to lose their virulence, even though they may have been very virulent in the first few cultures.

In conclusion, I would hardly advise Dr. Rogers to repeat the experiments of Pettenkofer and Emmerich, as such a communication as he has given us, in defiance of modern scientific research, might indicate that his gastric juice had alkaline tendencies! Yours respectfully,

WALTER G. HUDSON, M.D.

#### A Card from Secretary Atkinson.

PHILADELPHIA, June 4, 1895.

To the Editor:—Your explanation of the inability to send the JOURNAL to the new members does me great injustice. As I wrote you, not any of the credentials nor papers of the Registration Committee have yet reached me. All were sent directly to Dr. Newman, our Treasurer. Had I had the list or my own private index, made especially to prevent this, I would have had my share done at once. For this reason, I ask you to do me the justice to announce in the JOURNAL the fact that all the papers were sent at once to Chicago. I am getting letters on this subject constantly, and it is important that I should be set right before the profession. Please do me this favor at once.

Yours very truly,

WM. B. ATKINSON.

#### Literature on the Dual Brain.

ST. LOUIS, June 4, 1895.

To the Editor:—I have read with interest your editorial on the “Dual Brain,” in a recent number of the JOURNAL. Please inform me how I can procure Dr. Bruce’s article on this subject, also the writings of Holland and Wigand, and Brown-Séquard.

FAYETTE C. EWING, M.D.

ANSWER:—Dr. Wigand, “Duality of Mind,” *Lancet*, 1844; Sir Henry Holland, “*Chapters on Physiology of Mind*,” 1852; Brown-Séquard, Toner Lecture, 1877; L. C. Bruce’s article in *Brain*, Spring No., 1895.

#### Exact Address of Association Treasurer.

CORONADO, CAL., June 1, 1895.

To the Editor:—Will you please insert in our JOURNAL the exact place of residence of the Treasurer of the ASSOCIATION, that members may know just where to send dues.

F. W. TODD, M.D.

ANSWER:—Henry P. Newman, M.D., 36 Washington Street, Chicago, Ill.

## SOCIETY NEWS.

**American Academy of Railway Surgeons, Meeting of the Publication Committee.**—Pursuant to the call of the President, Dr. C. K. Cole, Helena, Mont., Drs. C. B. Kibler, Corry, Pa.; W. J. Galbraith, Omaha, Neb.; R. Harvey Reed, Columbus, Ohio; C. M. Daniels, Buffalo, N. Y., and Webb J. Kelly, Galion, Ohio, met June 1, at Galion, Ohio, to arrange the preliminary work for the coming session of the American Academy of Railway Surgeons. After considerable discussion, the date of the meeting was set for September 25, 26, and 27. This was thought advisable on account of the previous date conflicting with those of other prominent associations; and

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, JUNE 22, 1895.

No. 25.

## ORIGINAL ARTICLES.

### METHODS OF DIAGNOSIS AND THERAPEUTICS OF DISEASES OF THE STOMACH AND INTESTINES.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY FENTON B. TURCK, M.D.

CHICAGO.

Diagnosis based upon a group of symptoms only is of little significance in determining pathologic conditions, and, therefore, is of no decided value in rational therapeutics. However, symptoms and history must not be ignored. When a group of symptoms present themselves with a history pointing to a gastric disorder, we must depend upon direct examination to complete a diagnosis.

It has always been my custom to make a general physical examination for the purpose of establishing a diagnosis in gastric diseases. I begin with the hair, continue with the eyes, nose, mouth and skin, the general appearance of the body, and especially the contour and configuration of the abdomen. I use boundary lines which connect fixed points: the median line from the interclavicular notch to the symphysis pubis; the parasternal lines (parallel to the median) from the junction of the middle and inner third of the clavicle, to Poupart's ligament; a line connecting the apices of the twelfth ribs; another from the xyphoid appendix to the twelfth rib (on both sides); a transverse line connecting the anterior superior spines of the ilia.

After examining the chest organs, we locate the solid organs of the abdomen—liver and spleen—by the usual methods. Then the size, position and location of the hollow viscera are determined. The usual method of percussion in locating hollow viscera often lead to grave errors, since the stomach may contain food and the transverse colon may be filled with fecal matter, so that the flat percussion may run far below the lower border of the great curvature. If, on the other hand, the stomach is empty and contains gases, and the colon is well dilated and inflated, these conditions may lead to similar errors. The method devised by v. Frerichs and also employed by v. Ziemssen of producing CO<sub>2</sub> with bicarbonate of soda and tartaric acid is now of historic value only. Ewald's method of introducing air through the stomach tube is reliable in cases in which the colon can be outlined definitely. To overcome the difficulty of outlining the colon, Ewald recommends the introduction of water into the colon. This is often impracticable and for obvious reasons can not always be depended upon.

Various instruments have been devised for locating the stomach, for determining its size and outline,

especially that of the greater curvature, and for ascertaining its motility and degree of sensibility on pressure. For determining the degree of pain, especially that found in gastric ulcer, Boas has devised an ingenious method by using what he calls the algescimeter. This consists of a cylinder containing a spring with an indicator graduated in 10 kg. When pressed upon the xyphoid appendix or twelfth dorsal vertebra, it indicates the degree of pressure a person can endure in normal condition. When only from 3½ to 5 kg. of pressure can be endured, it is considered abnormal and arouses suspicion of gastric ulcer.

Einhorn's gastro-diaphane is an electric light which is introduced into the stomach for the purpose of transillumination. It has been found very valuable in determining gastropnoia, simple dilatation and the rare cases of tumors and cicatrices on the anterior wall.

Einhorn also devised an instrument for determining the motility of the stomach. The electric gastrograph, as it is called, is described in the *New York Medical Journal*, September, 1894.

The gastric motor-meter is an apparatus I have devised for determining the contractility and the movements of the stomach. It indicates: 1, the character of the movements—respiratory (passive), or peristaltic (active); 2, the number of movements; 3, the degree of energy of the movements. It consists of a small rubber tube, to one end of which is attached a small oblong rubber bag. When this bag is inflated, it is pear-shaped, and about three inches long with two inches at its greatest diameter. Bags of various sizes may be filled with air or water. The other end of the rubber tube is connected with a Schiel's manometer with water as an indicator. The collapsed bag is introduced into the stomach, inflated with air and connected with the manometer; the rise and fall of the manometer indicate the long respiratory movements and the short peristaltic waves. The small tube of the manometer shows a rise of 30 mm. during ordinary respiration; in deep respiratory movements there is a rise of 200 mm. or more. The peristaltic contractions in health vary from 10 to 15 mm.; in dilatation from 2 to 5 mm.

The fact that respiratory movements affect the pressure on the bag, showing a rise during inspiration and a fall during expiration, is of great significance. From these observations I would conclude that respiratory movements have the most marked effect on the mechanical movements of the stomach contents. The gastric unit is obtained from examinations and observations made on the stomachs of healthy persons. It is found that normal stomachs show 200 to 300 mm. (water) of pressure, produced by the contraction of the stomach and the respiratory movements. From this we can make an exact mathematical formula of the motor power of the stomach.

The contractility and dilatation of the stomach

may also be determined by means of cables of various degrees of flexibility used with the gyromele.<sup>1</sup> The stiff cables, after having been introduced into the stomach and allowed to glide along the great curvature, distend the stomach, while the more flexible cables will not stretch it. The difference between the two indicates the degree of contractility and dilatation. The revolutions of the sponge within the stomach can be readily palpated on the abdominal wall.

The gyromele is not only useful for exploring the stomach, but by attaching the ordinary esophageal ivory bulbs, it can be used to locate strictures anywhere along the esophagus to the cardia. The flexible cable being encased in a rubber tube is less dangerous than the stiff short whalebone formerly used for exploring purposes, which was not at all adequate and always involved danger of puncturing.

We use the gyromele for the purpose of removing adherent material from the walls of the stomach, for microscopic, chemic and bacteriologic examination.

Microscopic examination will reveal epithelial cells of glands, round cells, leucocytes, bacteria of various forms, either in colonies or otherwise. When colonies are found, it shows that there is an active bacterial growth, and a further bacteriologic study is necessary to determine the microorganisms which are present in gastritis.

Chemic examination can be roughly made during the progress of treatment, as, for example, to determine the return of HCl. Dr. Wesener<sup>2</sup> has just finished a line of very interesting experiments in cases of anacidity of the stomach. He has examined the stomach contents of patients after Ewald's test meal and found no HCl. The patients are then asked to return to the clinic with an empty stomach. No HCl being present the stomach is washed out to remove any other acids that may be present. The gyromele is introduced and revolutions are made for five minutes. On chemic analysis in a number of experiments HCl was found to be present as high as .1 per cent. This shows that HCl is secreted on stimulation. I have made use of this fact in establishing a differential diagnosis between functional disturbance and atrophy of the stomach. In simple functional disturbances HCl is produced after the revolutions of the gyromele, while it is not found in atrophy.

After we have determined the size, location and motor power of the stomach and the chemistry of the stomach contents, we make a simple bacteriologic examination. To determine the character of the infection a more extensive and accurate bacteriologic examination is necessary. By simply removing the contents and examining them, we can obtain no exact knowledge of the varieties of bacteria which are characteristic of the disease. The material must be taken from the walls of the stomach. This is done by means of the gyromele. Cultures are then made, preferably by the method of developing microorganisms on the mucous membrane of the stomachs of pigs: 1, this medium approximates a more natural soil for the growth of the microorganisms which are especially found in gastritis; 2, it produces a

more luxuriant growth of colonies in less time; 3, colonies can be preserved *in situ*, the mucous membrane being dried and preserved as parchment.

In carcinoma I have found lactic acid microorganisms to be more prevalent than in any other disease of the stomach. Their presence in carcinoma of the stomach is so constant as to make it of great importance in the early diagnosis of carcinoma of the stomach. (See JOURNAL AMERICAN MEDICAL ASSOCIATION of March, 1895; Turck, on "Early Diagnosis of Carcinoma of the Stomach.")

#### THERAPEUTICS.

Having reviewed the various methods of diagnosis, we will now consider the rational therapeutics that would result from an accurate and complete examination of pathologic conditions.

Lavage of the stomach has been universally used for a number of diseases and is especially indicated in dilatation. In a large percentage of cases, however, where lavage has been practiced, the removal of the stomach contents instead of improving the condition has caused rapid emaciation, on account of the withdrawal of nutritious material, and the dilatation has been increased by the weight of the water. Indications for lavage are limited to selected cases of dilatation.

Massage in the recumbent position has been recommended by both Cseri and Boas, as it empties the stomach and overcomes the objection of withdrawing nutritious material and weighing down the stomach. However, this manipulation does not remove the material adherent to the walls of the stomach, in which are lodged the microorganisms, which form a very important pathologic factor in gastritis. The indications in these cases are:

1. To remove the adherent material.

2. To disinfect as far as possible, or to render the soil unfavorable for the development and growth of microorganisms.

If the stomach has been washed out until the water runs clear, it is observed after the gyromele has been introduced with three to five minutes' revolution that the contents then withdrawn contain thick tenacious masses, in which are found necrosed epithelial cells, cells from the mouth and esophagus, leucocytes and detritus of food swarming with colonies of different varieties of microorganisms. The removal of this irritative material is still further facilitated by the use of soap solution made by dissolving one ounce of green soap in one quart of water. It has also been observed that in cases where there has been anacidity the HCl would reappear after this treatment, and in cases of hyperacidity which might be due to the irritation caused by the microorganisms, this condition was alleviated.

Furthermore, the motor power which had become abnormal, would resume its normal activity. This method with its results was first presented before the International Medical Congress at Rome in 1894.

I now present a method of disinfecting the mucous membrane which I have demonstrated in the laboratory. This method has been used for the past year and has been satisfactorily proved to check the growth of colonies on the mucous membrane. It consists of nebulizing oil of cloves and oil of cinnamon with a simple nebulizer, so that a cloud of pure essential oils is formed. The apparatus I have devised for applying this coating

<sup>1</sup> The uses of the gyromele (revolving sound) was first presented before the International Congress at Rome in 1894, with report of cases. It was also described, with additional cases in the Wiener Med. Woch., Nos. 1 and 2, 1895. It consists of a flexible cable to the end of which is attached a sponge covering a spiral spring which can be removed and changed. The cable passes through a rubber tube and this again is attached to a revolving apparatus for the purpose of producing revolutions of the sponge within the stomach.

<sup>2</sup> Proceedings Illinois State Medical Society, 1895.



to the wall of the stomach consists of a nebulizing bottle, connected with a Wolf bottle; this is in turn connected with a tube, on the side of which is attached a smaller tube, made in one piece with it. The inlet tube extends into the stomach; the outlet or shorter tube extends only to the cardia. The extra bottle prevents the contents of the stomach from entering the nebulizing bottle. The advantage of nebulized oil over aqueous spray is that it remains in contact with the mucous membrane for a longer time. I have also demonstrated experimentally that a thin layer is applied to the whole surface of the stomach. I recently made the following interesting observation: a patient complains of an intolerable sensation of hunger; after the nebulizer has been applied, the sensation disappears and the patient feels very comfortable.

Besides these oils, any substance soluble in glycerin may be used: silver nitrate dissolved in small quantities of water, potassium bichromate (1 per cent. solution can be used with glycerin); a weak solution of formalin. The nebulizer is applied for three minutes. The advantages of oil of cloves and oil of cinnamon in the nebulizer are:

1. It is antiseptic.
2. It prevents the growth of microorganisms. (See experiments in laboratory.)
3. It is analgesic; pain ceases immediately after application, viz., gastralgia.
4. It is a vasomotor stimulant; it assists in removing congestion; a feeling of warmth and well being is experienced by the patient after the application.
5. The introduction of air distends the stomach, and contraction forces the air out through the other tube, so that we have a pneumatic massage.

For cleaning the stomach, I use an apparatus which consists of a double tube; a small short tube with a perforated ball at the end to be introduced into the stomach; a larger tube for the immediate return of the water introduced. The water is forced through the small short tube under pressure and returns through the large tube. This procedure will remove material from the walls, especially if soap is used. The apparatus possesses a great advantage over lavage, as it will simply remove loose material in the lumen.

Among other advantages of this process of cleansing the stomach may be mentioned: in cases of dilatation, the large quantity of water which is necessary to wash out the stomach only aggravates the already prolapsed condition and distension of the stomach. To overcome this objection, Fleiner recommends lavage in the recumbent position. In using the apparatus I have described, the water returns immediately through the large tube, so that it is impossible to overload or distend the stomach. Not only does this apparatus cleanse the stomach, but it also acts as a needle-douche, and as such is a vasomotor stimulant. It has been used with remarkable results for the last year in cases of pronounced gastroparesis and dilatation, restoring the latent muscle and sluggish vessels to their normal condition.

Before this treatment, soap and water or one-half of 1 per cent. of formalin, or thymol, or resorcin, or oil of cloves is introduced through a syringe with the gyromele. As before stated, liquid soap is made by dissolving an ounce of green soap in one quart of water and is especially valuable in removing irritative material from the walls of the stomach, as well

as cleaning the mucous membrane and neutralizing acids.

Lysol, 30 minims, to 1 liter of water with the liquid soap is a valuable antiseptic solution. It is useless, however, to apply antiseptics before the stomach has been thoroughly cleansed.

#### GENERAL THERAPEUTICS.

Congestion of the stomach and abdominal viscera is shown by cold hands and feet and the peculiar color of the fingers and lips. To distribute the blood over the body and remove the contraction of the arterioles, the following bath (described in *Wiener Med. Wochenschr.*, No. 2, 1895) is used: the patient is placed in a common salt bath at 100 degrees F. and requested to lie quiet. The temperature is raised 110 to 112 degrees F., in some cases to 116 degrees F., until the whole surface of the body has turned red. The patient is then removed from the bath and massaged all over the body with a cake of ice. This stimulates the vasomotor nerves and increases the heart's action. A stream of ice water containing a little ammonia is directed to the body of the patient. A large horse syringe or pump is used in applying the stream. The procedure is similar to a Scotch douche.

#### ADVANTAGES OF THE BATH.

1. It increases the metabolism of the body, producing general activity.
2. It effects the removal of toxins.
3. It promotes the supply of fresh arterial blood to the tissues.

The stimulation lasts from six to twenty-four hours, according to the case. General improvement ensues immediately, as the bath has no weakening effect.

A bath is given every day during the first week; then three times a week until the general condition of the body has improved. Counter-indication: mitral regurgitation without compensation and fatty degeneration of the heart.

#### TREATMENT OF THE INTESTINES.

For the purpose of lessening putrefaction in the intestines, a pill is made, containing oil of cloves and oil of cinnamon, and in some cases ox-gall; this is coated with several layers of shellac and betol. The coating is not dissolved in the stomach and the pill passes into the intestines where it is set free. Remarkable clinical results have been obtained in some obstinate cases of diarrhea by the use of these pills.

Cases of dilated sigmoid and atony of the lower bowel and severe cases of constipation have been overcome through the use of the gyromele with revolution. Where there is marked congestion of the colon, atony of the colon, and retention of fecal matter, I have introduced ice water through a soft rubber tube. The patient lies with hips elevated; the ice water is introduced and then massaged out through the tube after it has been disconnected from the reservoir which is placed five feet above the patient.

#### ADVANTAGES OF USING ICE WATER.

1. It stimulates the vessels; and
  2. Increases the muscular action of the colon.
- Lavage of the colon with warm water simply washes out the mucus, which should be retained in certain cases for the purpose of lubrication. Its removal aggravates the symptoms of constipation.

Two quarts of ice water are generally used to which in some cases tannic acid may added; also lysol, one ounce to one quart of water; liquid soap; inspissated ox-gall to one quart of water.

Constipation is also much improved by eating bran gems three times a day with meals. Common bran from the feed store is used in making these.

#### ADVANTAGES OF BRAN GEMS.

1. They mix with the food and assist in the churning process.

2. They furnish material for stimulation to the whole intestinal tract.

3. They do not furnish a nutrient medium for the growth of microorganisms.

Boas recommends the use of two teaspoonfuls of milk sugar at night to overcome constipation. This, however, has been found inadequate. Treatment by dietetics, the use of bran lavage of the colon with ice water, the use of the gyromele as described, with the addition of faradization as recommended by Ewald, have given very satisfactory results.

#### MECHANICAL THERAPEUTICS.

In many cases of gastric disease, the abdominal walls are relaxed, so that they allow the protrusion of the abdominal organs, presenting the appearance known as Glenard's disease. The common abdominal belt is not sufficient to hold up the abdominal wall, as it simply presses the organs backward. I therefore utilize the usual web abdominal belt, to which I have affixed lifting straps. The lower strap is drawn first. It is fixed just above the pubis, passes through loops on each side and runs upward and backward and is buckled to the support at the back. A second strap is attached above this and also brought to the support at the back. This elevates the viscera and keeps them in place. However, this is not sufficient, as it will not cause hyperplasia of the abdominal muscles which is necessary to hold up the viscera. For the purpose of producing hyperplasia I use Gaertner's ergostat. This apparatus is something like a grinding-stone. The patient turns a wheel with friction brake, which is weighted to suit different cases. I have devised a method of using the abdominal muscles by extending the arms and legs perfectly straight, thus throwing the work mostly on the trunk and giving exercise to the abdominal muscles. Deep breathing exercises, arm extension, backward bending, side-twisting are the movements performed. During all the exercises the legs must remain extended, so as to throw the work on the trunk as much as possible. The best physiologic effect is obtained by exercising slowly. Respiratory exercises are the best for the stomach, since they produce stomach movements.

#### DISCUSSION.

DR. STOCKTON—I am not willing to allow this very interesting paper to pass without discussion. The Doctor has taken up so many points that he has not been able to give to some of them the attention which he would like to give and which he will undoubtedly complete in further contributions. He has suggested a great variety of thoughts. The contributions that he has made to the treatment of gastric diseases are certainly very ingenious and very interesting. He has spoken of the function of the instrument which he calls the gyromele which seems like a very interesting instrument. The Doctor speaks of the use of that in differentiating between the functional acidity and gastric disturbance. I can not quite agree with him as to that point. We have various degrees of acidity. There are many cases of functional acidity, without, to my mind, demonstrable lesion of the mucous membrane where even marked irritation

by electrical currents, or other local stimulants in the form of drugs, seem not to produce local symptoms. Occasionally we do find an acid secretion. As to the limitation of lavage, there can be no doubt that lavage, like every other new procedure, has spread widely into popular use for obvious reasons, but has been overdone. It is used where it is quite improper, and without any depth of purpose in view. I congratulate the Doctor upon calling attention to the uselessness of lavage in many conditions, and in cutting down its use to merely emptying the stomach in a therapeutic sense. Finally, may I ask him to explain a little more definitely about the coating of the pills to which he referred, so that we can know exactly how it can be obtained, or how we can get this coating. The ordinary pills which pass the stomach untouched are very prone to pass the intestines untouched.

DR. TURCK—The statements that this revolving apparatus does relieve functional disturbance and stimulates the formation of hydrochloric acid were quite as surprising to me as they are to the Doctor now. This work was accomplished by Dr. Wesener, who is with me in the clinic work, and a large number of cases were examined. We found by all the other means that we could not in any way produce any hydrochloric acid. The introduction of drugs is not sufficient; you can give any amount of hydrochloric acid, nux vomica or faradization, but there would be no amount whatever found in the stomach. The introduction of the revolving apparatus for five minutes would start up a circulation, and at once stimulate all the glandular elements of the organ, because you reach the whole of the stomach. I have been able to apply materials in the entire organ in that manner, and demonstrate it upon animals. As to lavage, about four years ago I used to think that lavage was a great thing, but we would find that some of the cases became thinner under its use. In fact, many of our cases would become rapidly emaciated. At first we thought it was because of the loss of the food which was washed away, and many would come with an empty stomach, and we washed out the secretions. The simple washing out of the stomach is not sufficient in gastric disturbances. In cases of dilatation the removal of the irritating material is quite useful. But it seems apparent that the secretions which are removed by the use of lavage are essential to the system, and that their abstraction results in nutritive loss. As to the pills, Dr. Rode, of Chicago, has made those pills. Several coats of shellac and betol were found to be necessary. The pills were dipped into the fluid, and then taken out and allowed to dry, and then this was repeated over and over again. These pills were found to pass through the stomach into the intestine, without being absorbed in the stomach and contents set free in the intestine.

NOTE.—All the apparatus mentioned in this article can be had of Tieman & Co., New York; Hausman & Dunn, Sharp & Smith, or Truax, Greene & Co., Chicago.

## THE DIFFERENTIAL DIAGNOSIS OF CHOLELITHIASIS.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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*General Statement.*—Gall stones were observed by Johann Kentman in 1565. They occur at all ages, having been observed in the newborn infant. Ten per cent. of all adult males,<sup>1</sup> 25 per cent. of all adult females<sup>2</sup> and 36 per cent. of the insane<sup>3</sup> have gall stones. Schroeder of the Strassburg Hospital, says they are found in 4.4 per cent. of all males and in 20.6 of all females, especially if they have borne children. The number varies from a single stone to over eight thousand.<sup>4</sup> Symptoms are observed in 1 per cent. of those having gall stones. As the surgery of the gall tracts is brilliantly successful and inasmuch as solution of the stones is an illusion, and removal by medicines is seldom successful, an early and correct diagnosis is important, that we may turn them over to a surgeon whom they should consult, in

order that they may have a chance for recovery. Send them to a surgical clinic and not to Carlsbad.

*Diagnosis.*—In the differential diagnosis of cholelithiasis it will facilitate our thinking about the matter if we divide the cases into two classes, placing in the first class those in which there is stone in the cystic duct, or in the gall bladder, describing the signs and symptoms and considering also those affections with which it is liable to be confused.

In the second class we place all those cases of stone in the common duct. The latter are always accompanied by more or less jaundice, while in the former, for very obvious reasons, jaundice is absent. We should not forget, however, that in a given case it may, in the early stages, belong to the first class, while the stone is still in the cystic duct, and that it may subsequently pass on into the common duct, and give rise to all the characteristic phenomena of obstruction at that point.

As already stated, the fact that 10 per cent. of all males and 25 per cent. of all females have gall stones, while only 1 per cent. of all these have symptoms, makes it evident that we are to concern ourselves only with those cases which manifest symptoms of stone in the gall bladder or in the cystic duct. The diagnosis is sometimes easy and at other times it is exceedingly difficult. The most characteristic symptom is the colic which consists of an acute, severe pain coming on a few hours after a meal, at the time when the food is passing through the duodenum. It is usually felt in the right hypochondrium or in the epigastric region, is commonly sudden in onset, and varies from a feeling of uneasiness and discomfort, to one of such extreme agony that it becomes unbearable and convulsions may occur.

The duration and intensity of the attack are varied by the size and situation of the stone, or stones, the age of the individual, the posture of the patient, lying on the belly often relieving the pain, the course of the stone whether dropping back into gall bladder or passing on into the common duct, and lastly, intensity of the nausea and vomiting. Probably the extreme relaxation allows the stone to fall back, pass on, or permits the bile to flow by or else relaxes the spasm of the muscles of the duct. The pain may last from a few minutes to a week. Southworth says<sup>5</sup> that histology has demonstrated that in youth the muscular fibers are abundant in the walls of the duct, while in old age they have either atrophied or disappeared. This is denied by Strumpell. This would explain the variation in intensity and duration of the pain which is probably caused by the spasmodic contraction of the muscular fibers upon the passing or impacted stone.

The accompanying symptoms are chills, fever as high as 104 degrees F., profuse sweats, but without distinct regular periodicity. The pulse is frequent, small, soft, the face pale, bathed in a profuse sweat, there may be a condition of collapse and reflex cramps may occur in the legs, arms, etc.

*Physical Examination.*—It may be laid down as a general proposition that dilatation of the gall bladder is common and that atrophy of the gall bladder is uncommon where there is any obstruction of the cystic duct from stone in the gall bladder. On the other hand, atrophy is the rule where there is movable stone in the common duct. The gall bladder may vary from the normal size to that of a large

tumor reaching to the pelvis. When there is a palpable tumor it will be found to descend with inspiration, is continuous with the liver, describes the arc of a circle, the center of which is beneath the right lobe of the liver,<sup>6</sup> is not as freely movable as a movable kidney. In rare cases, the rubbing of the stones in the gall bladder may be felt by the palpating finger. When in addition to the tumor, the kidney may also be palpated this serves to distinguish them. In rare cases the grating sound may be heard upon auscultation, and still more rarely, a friction fremitus from a localized peritonitis may be elicited by the same method of examination. During the attacks there is tenderness over the region of the gall bladder. When, in addition to the foregoing, the stones are found in the feces, it amounts to an absolute demonstration. The occurrence of jaundice makes it almost equally certain. It is to be borne in mind, however, that gall stones may remain in the bowels for many days, and also what is far more important, that not finding them in the stools is only negative evidence, as it has been shown experimentally<sup>7</sup> that when gall stones are swallowed, they may be dissolved in the alimentary canal and do not reappear in the feces. Exploratory puncture needs to be mentioned only to be condemned as criminal.

The mode of termination of an attack may be either by the falling of the stone back into the gall bladder, it may pass on into the intestines, or it may become impacted in the common duct. The intervals between the attacks vary from a few days to many years. A stone in the gall bladder may be passed and, no others forming, there is no recurrence of the colic. On the other hand, when there is a movable stone in the common duct one of the characteristic evidences is frequent recurrence, perhaps every few days. Lastly, with stone in the gall bladder or in the cystic duct, there is an entire absence of the characteristic signs and symptoms of stone in the common duct. It will readily be seen that, while the diagnosis is easy in the typical case, it might readily be confused with lead colic, malaria, renal colic, peritonitis or gastralgia. The following points ought to serve in distinguishing them:

*Lead Colic.*—This may commonly be easily differentiated, because, in addition to the colic, there is nearly always some of the other manifestations of plumbism. We should consider the occupation, water supply, food, cosmetics, etc. Among the other evidences are blue lines along the gums, lead may be found in the urine after the administration of the iodid of potassium, there may be dropped wrist and obstinate constipation. In addition to these more common evidences there is anemia, there may be multiple neuritis, with sensory and motor derangements, and cardio-vascular-renal changes are common.

*Malaria.*—The chills and fever followed by profuse sweats which occur in cholangitis or cholecystitis may be differentiated by bearing in mind that in malaria the chills are distinctly periodical, the spleen is enlarged, the complexion is sometimes characteristic and, lastly, the plasmodium of Laveran will be found in the blood.

*Renal Colic.*—In renal colic the pain is more likely to start in the lumbar region, extend forward, thence downward along the inside of the thigh and also to the testicle in the male, causing its retraction. There will be present vesical tenesmus, tenderness over the kidney, blood and pus in the urine, absence of bile

in it, and the feces will be normal in color. If the kidney be movable and enlarged it may be grasped between the two hands and will not descend with inspiration, is freely movable and may be replaced in its normal position, and the colon usually lies in front of it. It goes without saying that it is only in disease of the right kidney that any confusion can arise. Tumor in the region of the gall bladder may be due to carcinoma of the head of the pancreas, echinococcus cyst, fecal impaction, renal tumor or movable kidney.

*Peritonitis.*—While there is a remote possibility of peritonitis and hepatic colic being confounded, yet the association of the former with nephritis, typhoid fever, dysentery, tuberculosis, appendicitis, infectious diseases and trauma, the hard, small, tense pulse, drawn face, shallow thoracic respiration, tympanitis, vomiting, etc., should leave no doubt in the mind as to the true nature of the affection.

*Gastralgia.*—Pain in the stomach is due to irritation of the sensory fibers of the vagus, either in its terminal filaments or nucleus, or in reflexion from higher centers. Thus the causes may be numerous, the manifestation uniform. The attacks of pain may closely simulate an attack of gall stone colic. Indeed, I have no doubt that many of the cases diagnosed as gastralgia are hepatic colic. The following points should be borne in mind: that not uncommon class of cases where the gastric crises are among the earliest manifestations of tabes as first described by Charcot. The other evidences of this disease of the cord would enable us to make a correct diagnosis. Then there are the hysterical gastralgias where the detection of the hysteria enables us to recognize the true nature of the affection. The gastralgia of neurasthenia will be associated with other evidences of the neurasthenic condition. In all the foregoing, there is no fever, no palpable tumor, the onset of pain has no reference to food or time of day, there is no change in the taste in the mouth, no gall stones are found in the feces, and lastly, they never end in an attack of jaundice with the characteristic changes in skin, pulse, urine, feces, blood, etc.

It seems probable that we are not yet in a position to be dogmatic in regard to the question whether a cholangitis or a cholecystitis is present or not, as we may have fever, chills and sweat without any lesion of the mucous membrane, while on the other hand, empyema of the gall bladder may exist without chill, fever or sweat.<sup>8</sup>

*Stone in the Common Duct.*—The early diagnosis of stone in the common duct is of the utmost importance, as the operative procedures instituted for its relief are more difficult and dangerous than for stone in the cystic duct or gall bladder, and at the same time the indications for removal are more imperative. In most cases, the diagnosis ought to be reasonably easy if the following evidence is carefully considered:

*History.*—Remember the age, sex, and if a female whether she has borne children. A very important point is the history of a previous attack of jaundice, even though many years have elapsed. Also whether it has been preceded by attacks of colic, unaccompanied by jaundice, and perhaps diagnosed as gastralgia.

*Jaundice.*—As all jaundice is obstructive,<sup>9</sup> it must follow that this is one of the most constant signs of stone in the common duct. Immediately after an attack of colic the jaundice becomes intense, while

in the intervals between the attacks it fades but does not disappear entirely so long as the stone remains in the duct. A varying degree of jaundice which does not disappear entirely between the attacks is characteristic of a movable stone in the common duct.

*Colic.*—The attacks of pain are similar in character to those already described. They may be slight, vague, short, or intense and long. When there is a movable stone in the common duct, and it is too large to be passed and where the duct is dilated sufficiently to allow the stone to move freely in the duct, the attacks are usually frequent, occurring every few days, are not often very severe and nearly always relieved by lying on the belly. On the other hand, with stone in the cystic duct, the intervals between the attacks may be from a few days to many years. The attacks are usually accompanied by chills, fever and profuse sweat.

*Urine.*—During the attack of colic the urine contains an abundance of bile, while in the intervals it is diminished but does not disappear entirely. Biliary poisoning or cholemia ultimately causes some degeneration in the hepatic cells. Poisonous products are not rendered innocuous in the liver. All these products irritate the kidneys and renal inadequacy results. There may be a slight amount of albumin in the urine, the latter being lessened in amount. The urea is diminished on account of the interference with the function of the liver, the total solids are much less than normal, and this faulty lessened elimination of waste products is probably the cause of the melancholia, while the renal inadequacy is one of the great dangers in severe, long-continued jaundice from any cause. So long as the poisons are eliminated by the kidneys the urine is poisonous and may cause convulsions in animals, but if the kidneys become inadequate then the patient may be poisoned. Jaundice urine is convulsive and not narcotic.<sup>10</sup> This liver inadequacy also explains why it is that in some of these cases, some time before the fatal termination, the jaundice begins to fade, this leading to the fallacious hope that the patient is improving. Instead of being a beacon of hope it is often a signal of grave danger.

*Stools.*—During, and frequently long after the attacks, the bowels are obstinately constipated and the stools are clay-colored. In the intervals between the attacks the feces may be coated with a darker layer and the breaks and fissures may be colored, showing that some bile is reaching the duodenum.

*Circulatory System.*—The pulse is slow and infrequent, often not over 40 per minute, the blood pressure is low and septic endocarditis may occur. The blood shows a fragmentation and destruction of the red corpuscles and the hemoglobin is diminished.

*Digestive System.*—The appetite is poor, tongue coated, bad taste in the mouth and the rate of diminution in body weight is proportioned to the degree of obstruction. In addition to the foregoing there is intense itching of the skin, tendency to hemorrhage, melancholia, etc.

#### PHYSICAL EXAMINATION OF THE LIVER REGION.

It may be laid down as a general rule that a continuous obstruction of the common duct, from any cause, leads ultimately to dilatation of all the biliary passages, including the gall bladder. This is seen in a marked degree in cases of compression from cancer



of the head of the pancreas, malignant disease of the duodenum involving the duodenal end of the common duct. Nevertheless, it may be asserted with equal dogmatism that in cases of movable stone in the common duct, there is ultimately atrophy of the gall bladder, and this atrophy of the gall bladder is one of the most characteristic signs of movable stone in the common duct. Not only this, but it gives indisputable evidence of the folly of connecting an atrophied gall bladder with the duodenum.

The statement is made by Frerichs,<sup>11</sup> that the gall bladder is dilated, and yet he tells us that he observed that later in the disease it "gradually lost its tenderness and distension and caused but little inconvenience."

The reason for the atrophy of the gall bladder is probably the following: with the patient in the upright position and with a movable stone in the common duct, it is most easily accommodated, naturally lies at the mouth of the cystic duct and thus by its action as a ball valve, prevents the bile from reaching the gall bladder. The bile has a specific gravity of 1010,<sup>12</sup> while gall stones, especially when composed largely of pigment and calcareous salts, etc., may have a specific gravity as high as 1966.<sup>13</sup> If the patient lies on the belly, the stone, sometimes from the force of gravity alone, falls back into the wider portion of the tube, the flow of bile is less obstructed and relief is obtained. On the other hand, patients tell us that they hope they will get very sick, as they will then get relief more quickly. Nausea and its accompanying relaxation allows the bile to pass the obstruction. The change in the urine, feces, skin, pulse, etc., have already been described.

Not only is the course as described, important from a diagnostic standpoint, but it is of far greater importance in indicating methods of operation. This paper is intended to discuss diagnosis only, but as a medical man I desire to enter my earnest protest against simply connecting a gall bladder, atrophied from obstruction, with the duodenum and then not removing the stone from the duct. It does not do away with the ball valve action of the stone, increases the liability to malignant disease<sup>14</sup> and is of little value to the patient.

Any one of the following may be mistaken for stone in the common duct: catarrhal jaundice, cancer of the pancreas, cancer of the gall bladder or ducts, cancer of the liver, malaria, disease of the heart, tuberculosis of the liver.

*Malaria* has already been considered.

*Catarrhal Jaundice* follows or accompanies gastric disturbances. There is absence of chills, temperature, colic, extensive emaciation and the jaundice is of a mild unvarying type.

*Cardiac Disease* which causes such extensive hepatic engorgement, thus favoring the accumulation of mucus in the tubes, may give rise to jaundice, but it is apt to be mild in degree and the evidences of cardiac disease could not possibly be overlooked by any careful diagnostician.

*Cancer of the Liver.*—Remember, that cancer of the liver is nearly always secondary, that the liver is usually enlarged, that there may be irregular, dense, firm, hard nodules, rapid emaciation, cancerous cachexia, ascites, malignant disease elsewhere, jaundice of gradually increasing intensity, or else absent entirely. The gall bladder will be greatly distended if the growth involve the common duct.

*Cancer of the Head of the Pancreas.*—This disease is often diagnosed as gall stones. In perhaps the majority of cases, a correct clinical diagnosis is impossible. To decide between an immovable stone and cancer of the head of the pancreas is rarely possible. Both may cause jaundice of an unvarying intensity, or, if any variation, then a gradually increasing degree. When the pancreas is affected and there is pressure upon the common duct the jaundice is constant. In cancer of the caput there may be pain of a lancinating character, glycosuria, intestinal indigestion, fat in the stools, cancerous cachexia, ascites if the veins be compressed. The onset of the jaundice is gradual, not sudden and not preceded nor accompanied by colic, and the gall bladder will usually be found to be dilated.

*Cancer of the Gall Bladder or Ducts.*—Unlike malignant diseases of the liver, cancer of the ducts and bladder is commonly primary. When we remember that Musser has shown<sup>15</sup> that 91 to 95 per cent. of all cases of cancer in this locality are accompanied by gall stones, and that the latter probably bear an etiologic relation to the former, it will be conceded that the clinical picture will change, depending on whether the stone or the new growth is the predominant factor in the case. It is probably seldom that a correct clinical diagnosis is made.

The necessity of an early correct diagnosis is perhaps best indicated and emphasized by the dangers of delay. Perhaps the greatest and most important of these is renal inadequacy, as already pointed out. Then we must remember the possibility of organic change in the liver itself, the increased tendency to malignant disease and the danger of cholemia in an attack of which the patient may die. Even though the patient do not succumb to an attack of cholemia, the heart may become so weakened and its muscle so degenerated, the blood pressure so low, and the tendency to hemorrhage so much augmented that it increases the danger of operation and the probability of death during or soon after it, either from renal or hepatic inadequacy. Suppurative cholangitis with or without perforation is not a remote danger, and either may lead to a fatal termination. When a stone has been diagnosed in the common duct and there is progressive emaciation and cholemia, the patient should be operated upon without delay.

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#### BIBLIOGRAPHY.

- 1 Trousseau's Clinical Medicine, p. 517.
- 2 Frerichs, Diseases of the Liver, p. 200.
- 3 Naunyn.
- 4 Trousseau's Clinical Medicine.
- 5 Southworth, New York Medical Record, Dec. 8, 1894.
- 6 British Medical Journal, Feb. 2, 1895.
- 7 Southworth, New York Medical Record, Dec. 15, 1894.
- 8 Keuleutt, New York Medical Record, Dec. 8, 1894.
- 9 Bunge, Physiological Chemistry.
- 10 Bouchard, Auto-infection, p. 82.
- 11 Frerichs, Diseases of the Liver, p. 208.
- 12 Bunge, Physiological Chemistry.
- 13 Frerichs, Diseases of the Liver, p. 194.
- 14 Musser, Johns Hopkins Hospital Bulletin.
- 15 Musser, Johns Hopkins Hospital Bulletin.

In only one of the cases upon which this paper is based, was an attempt made to determine this point. The patient was my own brother and the case was one of multiple stone in the common duct. There were chills, sweats and a temperature of 102 degrees F. He was operated upon by Dr. Christian Feuger of Chicago, and at his suggestion, Dr. Stanley P. Black made cultures upon agar-agar and gelatin, both from the bile as it flowed from the wound, and also from the scrapings from the surface of the stones. These cultures were negative.

#### DISCUSSION.

DR. MUSSER, Philadelphia.—There are many thoughts which arise in connection with a paper of this character, and there are a few, especially, dwelt upon by the report in Dr. Webster's paper which to me are of striking interest, and I think should be emphasized. From very considerable experience in connection with cholelithiasis, I am sure that we

can not rely as definitely upon age as an element in the diagnosis as the text-books would lead us to infer. We have been taught that gall stones, prior to 30 years of age, were extremely rare, at least the symptoms which lead us to believe they are present were of rare occurrence. My ideas in regard to this have been changed, and I am sure that as early as the fifteenth year gall stones may be formed and may give rise to symptoms. This was very much emphasized by a case which came under my notice during the winter; a man 24 years of age, of the bilious type, had obstruction of the common duct. The diagnosis was made without much difficulty, and after being under observation for a short time it was found necessary, because of the rapid destruction of the blood, to employ surgical measures. Some 160 gall stones were removed. The interesting point about it was that the very attacks from which he suffered at the time that we could diagnosticate biliary obstruction, he had suffered from since the time he was 13 years of age, and I am quite sure that these attacks of pain in the epigastrium were due to the presence of gallstones. There were found such an enormous number of stones that it was almost positive that a long term of years must have elapsed during their development. Many of the stones were large, exhibiting a number of layers, which must have required many years in their formation. Again, in regard to this very symptom of pain, I am sure that we have cases of biliary obstruction without the occurrence of much pain. Pain is a symptom which is present in a large majority of instances, but it may come on suddenly, and at stated intervals, and still be due to gall stones. In a recent case the pain was not only a remittent factor, but there was scarcely any distress in the region of the liver. Every two or three weeks, however, there would be an attack of distress, with vomiting, clearing off in a short time, with the other evidences of cholelithiasis. In the differential diagnosis, the question of gastralgia was touched upon. I am beginning to be suspicious of gastralgia as a disease, except in connection with neurasthenia, and organic nervous disease, as locomotor ataxia and save, too, in connection with organic disease of the stomach. I am inclined to think that a large majority of the cases that are called gastralgia are due to gall stones. I am satisfied that if the pain is severe, and if the patient is debilitated or prostrated on account of the pain, that an exploratory operation is certainly warranted, in order to determine absolutely the presence or absence of cholelithiasis. In many cases which had been treated, just as this young man I refer to had been treated, for gastralgia, the trouble has turned out to be gall stones. Barring the limitations I have given, gastralgia is extremely rare. I should like to have heard the reader laying down some of the diagnostic indications by which we could be guided to resort to operative measures. He did refer incidentally to renal indication and the danger of development of polemia. I am guided very much by the examination of the blood. The bile destroys the red blood corpuscles, and after the destruction falls below 3,000,000 it is surprising to find how rapidly this takes place; it is, indeed, not only surprising but shocking. A case which I had under observation fell to 2,500,000, and suddenly I found the blood reduced to 1,800,000, and he went into profound polemia, or the comatose state which accompanies profound anemia and death ensued, whereas if I had resorted to operation early the patient's life would probably have been saved. Watching the blood, therefore, is an indication. I do not feel that in a case of gall stone you should at once resort to operation. You ought to hold your hand firmly on the case, observing the urine, and all the other conditions, observing all the danger signals, and when these are out do not hesitate to operate.

One word further: many diseases have been confounded with gall stones, and I think Dr. Orr of London wrote a paper on these affections. I would refer to a case of pneumonia I was asked to see. The patient was being treated, however, for gall stones. The man had a very intense and severe diaphragmatic pleurisy; he had ascites, as often occurs in pneumonia; there was vomiting, and many other symptoms of the hepatic colic, and the physician in attendance felt quite sure that he was treating a case of hepatic colic. One of the very important symptoms, and a symptom I always inquire into and believe to be present, is the occurrence of fever. This has been so extensively treated in papers recently that it is not necessary to refer to it again, that is, to that form of hepatic intermittent fever, except to say that it is a common form, very frequently attending gall stones, and may lead to confusion with other affections.

Dr. TURCK, Chicago—It is to be regretted that there is not more time for the discussion of this paper. There are two

points of importance in differential diagnosis between gall stones of the cystic duct, of the gall bladder and of the common bile duct. The differential diagnosis must be made, as it is of great importance. In the bile stones of the common duct, in which there is a sacculi formed behind the opening, we can not consider anything else in a case like that but an operative procedure at once, because we have seen the disastrous effects from retention of poisons, the irritation of the vessels, etc. What is the temperature due to? There has been a great controversy waged between two schools, the German and the French, upon this point, the German holding that it is bacteriologic in its nature, and the French claiming that there are no germs connected with it. Recent experimentation has thrown the balance in favor of the French school, because the bacteriologic examination of the gallstones of the bile, and of the material from the walls has revealed negative results. As to the differential diagnosis between bile stones in the cystic duct and in the gall bladder, and the differential diagnosis between those in the gall duct, a little remembrance of anatomy is required as to the manner in which the cystic duct branches off, running to the gall bladder. There is atrophy in case of obstruction of the bile duct, of the gall bladder, and there is dilatation of the gall bladder in cases of gall stone of the cystic duct, because in case of gall stone of the cystic duct we have an increased secretion of fluid and dilatation occurs. In the other case there is a loss of use of the gall bladder and atrophy results. We are also aided in this differential diagnosis by the examination of the blood, of the urine, by the physical examination, and a careful analysis of the symptoms of the case.

Dr. WEBSTER—The point referred to by Dr. Turck of Chicago, in regard to the etiology of these cases is very important, and yet in my paper I simply made this note, and did not really intend that it should go into discussion. I appreciated the importance of it, but did not want to take it up, as I desired to confine myself as far as possible to the diagnosis and not to the etiology. Dr. Musser regretted that I did not go more thoroughly into the question of indications for operation. The statements which I made were that the indications for a correct diagnosis were those that indicated operation. If there is gradual emaciation, with the evidence of stone in the common duct, it is an absolute indication for operation. I referred also to the examination of the blood. The careful examination of the blood, estimation of the hemoglobin and number of corpuscles from day to day is a better fact in determining the patient's condition than clinical evidence, but where you can not do this you must rely upon the clinical evidence that the patient is losing in weight. I wish to emphasize again, not only the state of the blood, but the condition of the heart. We have degeneration of the heart muscle; renal injection; liver injection, and I think these last two points especially have not been understood by the profession as they should be, and that whenever we begin to get renal and hepatic injection, these are signs of great danger and absolute indications for operation.

## TREATMENT OF ASIATIC CHOLERA.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY ELMER LEE, A.M., M.D., PH.B.

CHICAGO.

Spasmodic cholera—called also malignant, epidemic, Asiatic, Indian, blue, and pestilential cholera—is generally epidemic, though not contagious. The first symptoms are generally experienced during the night, sometimes beginning with a light general uneasiness and moderate diarrhea; at other times the symptoms come on violently and follow each other rapidly. In fatal cases death usually occurs at some period between six and twenty-four hours; in a few fatal cases the patient lingers two or three days. The ordinary course of symptoms are more or less diarrhea; the discharges at first feculent, but soon presenting the appearance of rice-water or gruel; there are flying pains, or sense of coldness in the abdomen, as if purgative medicine were about to operate; the countenance is pale; there is nausea, vomiting, prostration of muscular power, and nerv-

ous agitation; cramps in the legs, arms, loins and abdominal muscles, more or less severe; small, weak pulse, intense thirst, and urgent desire for cold water; in most cases cold, clammy skin; all these symptoms may appear successively or almost simultaneously. In some cases the premonitory symptoms exist for eight or ten days; and sometimes the patient is prostrated at once. When the disease comes on suddenly the cramps usually begin in the fingers and toes, rapidly extending to the trunk; the eyes are sunken and surrounded by a dark circle; there is vomiting and purging of white matters mixed with flocculi; the features are sharp and contracted; the expression of the countenance wild and confused. The face, extremities, and often the whole surface of the body manifest a varying intensity of a leaden, bluish or purplish hue; the extremities shrunken, the nails blue, the pulse thready or wholly imperceptible at the wrist, arm, axilla, temple or neck; there is great restlessness, incessant jactitation, severe pain in the epigastrium, loud moaning or groaning, difficult and oppressed breathing; difficult inspiration, with short and convulsive expiration; voice hoarse, whispering, or nearly suppressed and plaintive; the tongue is white, cold and flabby, and the external temperature often sinks below 80 degrees; convulsions recur at short intervals, or a constant tremor exists. The secretions of bile, saliva, tears and urine are entirely suppressed, and a cadaverous odor exhales from the body. The patient retains his faculties to the last.

Some of the symptoms may be disproportionately severe, or may be entirely absent. Those usually regarded as pathognomonic are: watery dejections, blue appearance of the countenance or surface, thirst, coldness of the tongue, and pulselessness at the wrist.

The foregoing description of the symptoms of cholera is indicative of the nature of the disease calling for human aid. The time in which to treat the patient sick with cholera is exceedingly limited. What is to be done must be executed with rapidity. There is not a moment to lose between the time when the patient is first seen and the accomplishment of severely practical efforts. Many wise theories may be promulgated, but there are few practical measures that will avail against Asiatic cholera. The experiences during the cholera epidemic of 1892 in Europe, both in Russia and Germany, produced in me a profound conviction that, for the most part, remedial agencies that have been used are of questionable utility. Nearly every prominent remedy proposed and tried has been found to end in greater or less disappointment. Years ago, great reliance was placed upon the far-famed "mild chlorid of mercury." Twenty and ten years ago this remedy was given in large doses. Three years ago, during the latest epidemic, small doses prevailed. Next to this, the synthetic drug salol, the product of the laboratory of the Imperial Institute of Experimental Medicine in St. Petersburg, was the most widely used and the most favorably received. Professor Nenski, the originator of salol, personally informed me that the value of the drug could not be seriously recommended as of much importance, but that it perhaps answered the requirements as far as any drug could answer, in the hands of his colleagues. Widely circulated and various reports, enthusiastically commending and moderately commending this

remedy were received by the Professor in St. Petersburg, but he himself was silent as to its efficacy. The far-famed and seemingly unmatched drug, quinin, has been used, and has been held as a dazzling gem before the eyes of the profession by some of our best men, who believe that cholera is analogous to malarial disorders, and consequently the medicine which occupies the position of keystone in the arch, for malarial treatment, is a remedy suitable to contend with the rapid and desperate symptoms of Asiatic cholera. Quinin has a stout advocate in our own country, in the person of a well-known professor in one of the Ohio medical colleges. It was not used, to my knowledge, in the treatment of cholera during the last epidemic in Europe.

A remedy was brought to Hamburg during the latter part of the epidemic of 1892 by the representative of an English syndicate, who posed as a chemist, not a physician. His remedy was a preparation of iodine, to be administered through the mouth. He called the medicine a periodate, and made some experiments upon patients in one of the cholera hospitals in Hamburg. His remedy, however, was not favorably entertained by the medical authorities in charge of the cholera patients, and whatever claims were reported came through the interest of a friendly correspondent of one of the Hamburg weekly secular papers. To show how misleading some of our supposedly authentic information often is, it is only necessary for me to refer to the report given in the "Year Book of Medical Progress," published in Philadelphia. Of all the progress made, of all the combined investigations during the entire epidemic of cholera throughout Europe in 1892, and there was an immense amount of original investigation and great effort made to discover a remedy, the curious spectacle in the Year Book, which alone refers to the remedies brought by an agent of a syndicate from London to Hamburg, at the closing of the epidemic of cholera, shows that there are some things in our profoundest medical publications that are to be taken *cum grano salis*. Uretin was extensively used hypodermically for its alleged influence upon the secretions of the kidneys, upon the ground that the kidneys were to be aided by irritating them to greater functional activity to eliminate morbid elements through the urine. The result of many investigations recorded in Russian practice show that this drug is not to be commended. Digitalis was used, supposedly to benefit a weak heart. This remedy, if at all useful, could be little more than palliative. The use of acidulated water was extensively employed in different hospitals in Europe as a drink, but not prescribed as a remedy. The water was acidulated with HCl and H<sub>2</sub>SO<sub>4</sub>. Subcutaneous injections of salt water were made. The proportion of salt was one-half of 1 per cent., and the amount of salt water injected subcutaneously was sometimes as much as a quart at a single injection. In one instance, during an illness of several days, as much as thirteen quarts was subcutaneously injected into the cellular tissue, principally that of the abdominal wall. This process of subcutaneous injection was known as hypodermaclysis. The purpose of the hypodermaclysis was to maintain the volume of the blood. The diminished volume of the blood is directly the result of the waste of its liquid portion or serum into the alimentary canal. In this serous discharge, flakes of intestinal

mucous gave the name of "rice-water discharges" to the bowel evacuations, the particles having a resemblance to grains of rice. The general inflammatory state of the intestinal mucous membrane, throughout its entirety, drains the blood of its liquid portion rapidly, and collapse due to stagnation of circulation quickly ensues.

The remedies mentioned are only a portion of those tried, but there is no living advocate who to-day can point with unerring certainty to one single organic or inorganic substance, howsoever administered, that can be safely depended upon in the treatment of Asiatic cholera. Both botany and mineralogy have been searched in vain for a cure for this disease.

The cause of this disease is perhaps accurately stated to be due to invasion of the blood and, secondarily, of all the tissues of the living organism, by toxins or ptomaines, which originate in the upper portion of the small intestine at the early stages of cholera. These products of organic activity, whether of animal or vegetable organisms it is here unnecessary to debate; but these noxious products enter the circulation through the villi of the intestine and rapidly and desperately poison the blood. It is clearly proved that the disease is the result of general blood poisoning from an intestinal origin. Whatever the chemic nature of the poison may ultimately be found to be, may be safely left to the bacteriologic laboratory. The practical and intensely important part that remains for physicians seeking to cure patients in times of this disease is to realize how much, as well as how little, it is within human power to do. The human organism is prostrated by a fierce and deadly poison. This poison is in the blood and in the cells of the tissues, and its work of destruction is quickly and effectually accomplished. Reflectively, to say nothing of experimental research, it would seem to me that the rational and only course that could be advocated with scientific assurance of relief is to, as far as possible, literally cause to be removed these products which are death-dealing to the body in which they happen to be found. Now, in this same reflective mood, think for a moment and try with me to determine whether it is possible in such conditions as produce the symptoms of Asiatic cholera, it is safer to introduce other poisonous products to neutralize the noxious elements in the blood and cells, or whether it is a better process to, without the introduction of additional foreign substances, remove what we already find in the blood. To make this proposition clearer, it could be stated in another way, namely, the body is already bearing a crushing burden; shall we add other foreign substances as an additional burden to the load already carried? The principle seems to me to be at fault. The principle is the principle of allopathy, but in the light of facts is it a safe principle to follow? It is reasonably scientific to produce in the laboratory, definite results in vessels of glass by the use of fixed reagents; in the organic laboratory of the living body, no such definite results can be demonstrated. The vital principle is an entity which enters into the formula and may be represented by the unknown quantity  $x$  in algebraic equations. Great and laudable efforts have been made to prevent as well as to cure this disease by inoculation.

Ferran, of Valencia, Spain, thrilled the world ten years ago with his proposition of a universal cure

for this disease. His glory was then at its zenith. His fame has long since faded. So obnoxious became his proposition to the government of Spain that laws were adopted to suppress Ferran's cholera inoculations.

A worthy colleague and laborious investigator, Professor Haffkin, of Pasteur Laboratory fame, proposed a modified inoculation for the prevention and cure of cholera in 1892. A reporter of the *New York Herald* was inoculated at the Pasteur Institute, and with credentials sent to expose himself to Asiatic cholera at Hamburg in September, 1892. The same reporter had been similarly inoculated by Ferran in 1886 and had the courage to make further exploits in behalf of his newspaper, at Hamburg. A very widespread opinion prevails in America that the exploit of the *New York Herald* reporter during the ten days' stay as a nurse in the Hamburg hospital, constitutes a proof of the validity of Haffkin's claim, but the scientific world of Europe knows differently. *En passant*, it may be interesting to state at this place that further experiments have been made by Professor Haffkin in India with the cholera inoculations and, unfortunately for the proposition, reports have recently come to me from reliable medical sources, that a greater percentage are attacked with cholera who have been previously inoculated than of those who have not been inoculated. This subject of prevention, however, is to be discussed by me in a paper to be read before the Section on State Medicine.

The result of prolonged reflection, covering many years, and the observations resulting from personal experience in the cholera epidemic in Europe of 1892, is the conviction that there is provided in the laboratory of the universe a remedy which surpasses the results of human ingenuity as much as does the sun surpass in brilliancy the light of the artificial lamp. The all-pervading and all-wide remedy, the greatest product of omniscient nature's laboratory, which alone can cope with this pestilential disease of the human race, is nothing more and nothing less than the unmatched, unmatchable  $H_2O$ . Pure water is absolutely the only trustworthy cure for cholera, and if it came at a great price it would probably be more greatly valued. The human organism is so constituted that if it is assisted by  $H_2O$ , every morbid element may be eliminated out of its domain. The acutely poisoned body quickly recovers its equilibrium and its harmony of action as soon as the processes of elimination can remove the invading poison. In the construction of the mucous lining of all the accessible cavities and channels it is prepared by an undiscernible law to successfully resist the entrance of every form of organism. The products of organic action alone are able to pass into the blood. If sufficient quantities of pure water, of a suitable temperature, are introduced into the body through the natural channels, it is actually possible to wash morbid products as well as organic form of life, out of the human body. The mouth gives entrance to the causative germs in Asiatic cholera. That is quite conclusively established. The locality of the development and formation of the toxin in the earlier stages is determined to be in the upper end of the small intestine; and from experience, as well as from the powers of reflective analogy, there is no doubt that the system can be saved from death if the morbid entity, the germ, is literally deluged away from the



alimentary canal by the copious use of a remedy that can not be of the slightest danger to the victim. The amount of water to be used varies in different cases. It is impossible to use too much; it is possible to use too little. From the earliest moment that the patient is seen, the propositions should be, first, wash the whole alimentary canal with pure water; wash the lower portion by introducing irrigations of warm soapsuds or merely warm water into the colon sufficiently frequently and sufficient in quantity to cleanse that portion of the bowel effectually. The frequency of washing that portion of the bowel which is accessible from the rectum should be one, or two, or three, or four times a day, according to circumstances. At the same time from one to ten quarts of warm pure water mildly medicated with peroxide of hydrogen or hydrozone should be administered at regular intervals, during the day, as the prescribed remedy by the mouth. If the patient vomits, very well. Immediately re-introduce the quantity of water that was vomited. No harm can be done in any case, and if it is possible to save life it is possible to save it through this method. It is the quickest and the surest method of exciting the activity of the kidneys, and is the safest. It is the rational and effective measure for maintaining the volume of the blood. It is the scientific process by which to establish cutaneous circulation in the capillaries.

The use of simple and useful hygienic measures are the same as in other prostrating diseases. Patients should be fed with regularity at not too frequent intervals, giving the proper time, between administrations of simple food, for its digestion. The use of appliances for maintaining the heat of the body are not to be neglected.

The precise details of the method of treatment indicated at this time will be forthcoming in a subsequent paper.

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#### DISCUSSION.

DR. HOLLISTER—I found, during an experience of treating cholera in at least four marked invasions in this country, long before I knew anything of germicidal effect, that there were two substances which in my own hands were very satisfactory. The one was that of the vegetable in solution, tannin mixture, and the other the stimulating influences of cinnamon. These were reinforced by copious injections of water, and drinking also moderately strong infusions of cinnamon tea, a matter that seemed to be of decided benefit to my patients, with the injections of large quantities of water holding tannin in solution. It has only been within three or four years that I have come across the fact that either of these remedies is markedly germicidal upon the bacilli. This has been stated by several of the experimenters in connection with the treatment in Germany during the ravages of the cholera there. While water is of use in washing the alimentary canal, if we have these germicidal remedies it seems to me that the water treatment alone is not only necessary, but that we should also obtain the benefits to be derived from the others. In the irritated conditions of the alimentary canal, in infants, the remedies used seemed to me thirty years ago to have a peculiar effect in reducing the irritations.

#### LEUCOCYTES AND NUCLEINS.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY T. O. SUMMERS, M.D.

ST. LOUIS, MO.

I believe that St. Luke was the only physician upon the Apostolic Board, and that he is the generally accredited author of the Acts of the Apostles,

in which, describing the visit of St. Paul to Athens, he declares parenthetically this very remarkable historic note:

"For all the Athenians and the strangers that were there, spend their time in nothing else but either to tell or to hear some new thing." And this neophilism which the great Apostle of the Gentiles has given as an historic character to the "City of the Violet Crown," has descended unto us of later days, and it may be said with truth that among all the workers in the great field of science, medical men are most eager for discovery and most earnest in the search for the ever-unfolding mysteries of truth. And notwithstanding the fact that this spirit of investigation has often been held up to us by those who profit by our labors, and yet are ever ready to sneer at our methods, as the "*opprobrium medicorum*," it will be a sad day in the history of medicine when we care not to "hear or to tell some new thing."

It is to a new departure in therapy, developed by recent investigation, that I direct your attention in this paper. There is nothing which has so distinctively characterized the trend of modern therapeutics and separated it from the empirical methods of the past, which has crowded our materia medica with vast masses of useless rubbish, as the contribution of physiologic products to the control of disease. It is strange that we have moved so long in the floodlight of physiologic discovery, thrown upon us by the microscope, the spectroscope, and the ingenious apparatus which makes our laboratories more wonderful to the untutored mind than were ever the alembics of alchemy to an age of romance and superstition; it is passing strange, I say, that we have so long overlooked the very principles upon which alone a scientific system of therapeutics could ever be established—the functional relations of the cellular elements of the organism.

As long ago as that stormy time in the history of the British Association, when the Thompson-Tyndall prayer-test was convulsing the religious and scientific world, a no less interesting discussion grew out of that contest upon the subject of spontaneous generation. So strong was the antagonism developed, that it affected even the terminology of physiology. Dr. Lionel S. Beale, the recognized champion of the "orthodox" party, clinging to the principle of "vital force," and giving to the blastema of the ultimate physiologic unit of the organism the name of bioplasm, while Professor Huxley gave the name of protoplasm to that which he and all of his school recognized as the physical basis of life. Nothing then was known of the exact structural and functional character and relations of this peculiar cell substance, which appeared to act so differently under conditions apparently the same. It remained for later physiologists to show just what part this ultimate vitalized material played in the great drama of physiology. It was found that both these great scientists were correct, but viewing this cell-blastema under different conditions, their definitions differed accordingly, yet led up to the same result as in the case of Copernicus and Ptolemy, or to speak poetically:

"Like that target discussed by the travelers of old  
Which to one appeared argent, to one appeared gold;  
To him ever lingering on doubt's dizzy margin  
Appeared in one moment both golden and argent."

The first step in what may be called the new

physiologic system was taken, when with the improved mechanism of the microscope, it was demonstrated that of the two kinds of corpuscles which float in the plasma of the blood, the larger or white corpuscle, the leucocyte, was in every respect a perfect cell, possessed of a cell wall, which Dr. Beale distinguished as "formed material," a blastema or plasmic granular substance, in which floats a body called the nucleus. How many of these may be thus involved can no more be estimated than can the problems of time and space be solved by the finite mind.

The next step toward establishing our new physiologic system, was taken when the leucocyte was found to be the real unit of the organism, the agent through which all nutrition is accomplished. Up to a very recent date, it was believed that all the nutritious material which had been operated upon by the digestive agents, passed directly into the general current of the circulation, floating freely in the plasma of the blood till it reached the capillaries, and then by a reversed osmotic process was taken up by the individual tissue cells, only that part being taken up by them which was necessary to the support of that structure represented by the cell, and the rest passing on in like manner to the other structures until all parts of the organism were nourished.

The red corpuscle was recognized as the oxygen carrier of the system, and the eliminator of carbonic acid, but neither the origin nor the function of the white corpuscle was in the least understood by even the most skillful observers. Later investigations, however, proved the identity of the leucocyte with the lymph corpuscle, which was itself supposed to possess as the simplest original cell, metabolic functions. This gave a new importance to the leucocyte, and when to this was added the recognition of the pus corpuscle in retrograde metamorphosis, as nothing more nor less than leucocyte under altered conditions, it was not long before its true significance as the real tissue-builder of the organism was fully established. A peculiar movement of the leucocyte as it goes along through the current of the blood, had long been noticed, called on account of its resemblance to that of the amœba, the lowest form of animal life, the amœboid movement, by which it changed its form apparently at will, becoming often so elongated and slender that it slipped through the walls of the blood vessels and held high carnival in the surrounding tissues. All this pointed to some mysterious power or function as yet unrevealed to the eye of the physiologist. A closer study of its morphologic characteristics proved that there were several forms of leucocytes, differing in the number of nuclei which they possessed. The simplest, those having but one nucleus, were called mononuclear, those possessing two or more nuclei, were called multi- or polynuclear leucocytes. In these it was seen that the amœboid movement was most active. Vierordt, who has made the most accurate observations upon the blood, of any other physiologist, perhaps, found the numerical relation of the leucocytes to the red corpuscles to be in health in the ratio of 1 to 671.

Now, we are prepared to understand the next step in the functional history of the leucocyte. These bodies differing in size, shape, and number of nuclei, were observed to swell up and burst, pouring out a plasmic granular mass, which appeared to be in a

state of active molecular vibration. The nuclei came forth from the breach in the cell wall with some of this blastema hanging closely around it, while the rest of the blastema, with the ruptured cell wall, floated off in the blood current. Where there were two or more nuclei, each one became rapidly a perfect cell with its nucleus and nucleolus, and in this way was established a great increase in the number of leucocytes. This process of cell proliferation, it will be seen, lies at the foundation of all nutrition. The next phenomenon observed was what might rationally have been expected to be established—the taking up by the leucocytes of the proteids which are delivered to the blood by the absorbents after digestion is complete.

As soon as these proteids get within the walls of the blood vessels, they are immediately attacked by the leucocytes and taken into their cell walls by that osmotic process which is the basis of all physical action in the organism. Mingling with the blastema of the leucocyte, these proteids become suffused as it were, with a certain molecular activity imparted to it through the influence of the nucleus, something like that observed when an electric current renders nascent certain chemic agents that without it are negative or inactive. It is this vitalized pabulum to which physiologists have given the name of nuclein.

The next step in physiologic evolution is the appropriation of this pabulum by the individual tissue cells of the body as it passes through the capillaries. And here it must be noted that no assimilation of any nutritive substance (except of inorganic origin, as water, etc.), can take place through any medium but that of nuclein, and it is in the multinuclear form of leucocytes that we find it developed. It has long been known to physiologists, but its wonderful place in the economy of the organism was never known until the close study of the leucocyte developed its origin and function, and in this way cleared up some of the most hidden mysteries of the organism, and placed in the hands of the therapist, the most wonderful agent of therapeutic power yet known to scientific medicine.

To return to our panorama of nutrition. Seeing then the proteids must all report to the leucocyte and be stamped with this nuclear influence before delivery to the several tissues, the bursting of the leucocyte is readily understood, for by this means the nuclei are set free to become new cells, and a great quantity of this cellulized tissue pabulum is poured out into the circulation, bathing with food every hungry cell of the several tissues through which it floats, each cell taking up that which is necessary to its molecular activity and returning to the current that which belongs to other and remote tissues of the organism. This conversion into tissue through the circulatory system, of material lifeless in itself, is the most wonderful phenomenon presented to the human mind. We can not explain the affinities by which certain kinds of pabulum are accepted and others rejected by the several tissue cells of the body, any more than we can explain the affinities between the sexes, often so seemingly astounding. We know this, however, that the change which goes on is the elaboration of a vitalized or cellulized substance, which is capable of entering at once into tissue as soon as it meets the various cells which have this power of elective-assimilation. This primal cellulized pabulum has,

therefore, been appropriately called nuclein, from the mode of its generation, and when operated on by the individual tissue cell it becomes proto-nuclein, after the analogy of Professor Huxley's nomenclature, which represented its real origin. This substance is rich in phosphorus, and has been separated in active form from the lymphoid structures of the body, as we shall see later.

We are brought now, face to face, with one of the most formidable problems of physiology, the solution of which will destroy many of our old pathologic ideas, upon which so many therapeutic systems have been wrecked. Up to a very recent date in the history of pathology, leucocythemia was considered a specific disease. Upon the *post hoc propter hoc* principle of medical philosophy, the rush of leucocytes to any point of irritation was regarded as a feature, or even a distinct stage of the disease. How vividly can the memory of some of you recall the old professional saws, as they were called by those of us who sat at the feet of the Gamaliels of those days, among which there was none more familiar than the *ubi irritatio ibi fluxus*. We answered almost all our questions upon inflammation with this single axiom, as we believed it. Often have I heard the venerable Gross straighten his lofty form and declare in a stentorian voice, that inflammation consisted, pathologically, of the rapid afflux of leucocytes! How startled would he be to learn that modern physiology has demonstrated that that rapid afflux was Nature's reinforcing battalions! Every white blood corpuscle that gathered about that point of irritation bore with it the materials of repair, and as still later investigation has proved, also the power of overwhelming toxic germs, themselves in their incipency, and protecting the organism against their poisonous and deadly exudations.

As to the phagocytic action or cell-eating power of the leucocytes, which has been strongly claimed by some observers and as strenuously denied by others, it is, after all, a mere question of difference in the manner of destroying toxic germs, which has developed antagonism among physiologic observers. It is, as I have upon a previous occasion already remarked, not at all necessary that because the physiologic or pathologic function of one cell is lost in that of another, we should, in speaking of such action as a phagocytic or cell-eating process, imagine a mouth and teeth and all the paraphernalia of mastication, deglutition, etc. The result is the same, whether the pathologic germ is swallowed, destroyed or neutralized; so long as the cellular influence of the leucocyte is the agent which accomplishes this, it is immaterial whether we use the term "phagocytic" literally or metaphorically, but notwithstanding all the adverse criticisms of the word as used in this connection, there is none given us which more emphatically expresses the idea we wish to convey; the difficulty of nomenclature is too great to lightly reject so expressive a word which as bacteriologists and morphologists all admit, does certainly most vividly express the primordial condition of which this is the physiologic analogue. In its last analysis, after all, it is the molecular disturbance produced in the germ that deprives it of its toxic power. This we know will effect even chemic action. Upon this, all fermentative processes depend.

Isomerism is another example of the effect of molecular arrangement or disarrangement. Where

can you find two substances more distinctly different than sugar and gum arabic, and yet they are exactly the same in composition and in the proportion of elementary combination, the difference in arrangement of the molecules being sufficient to account for the difference in chemic and physical properties. With these examples before us, and I could, if time permitted, bring out many others equally as striking, it is very easy to see how the slightest disturbance of molecular arrangement in any germ will deprive it of its specific character, and by investing it with certain cellular elements, emasculate the most deadly of toxic bacilli and send them harmless through the blood currents of the organism. Having, therefore, found that it is within the leucocyte that all protozoic material is developed, that upon the proliferation of the leucocyte all assimilation depends, it is but a step further to establish the action of the leucocyte in resisting the effect of toxic germs, as well as divesting them directly of toxic power. It would perhaps be more accurate to define this action as a supporting of the elementary structures of the body to such an extent that they are capable, of themselves, to overcome the pathologic influences which are being continually introduced into the organism. To those whose daily experience brings them face to face with the awful side of human life, I think I can appeal with emphasis, when I state that there is scarcely a breath we breathe, or a drop we drink, or a morsel we eat, that is not charged with the germs of deadly disease, and if there were not in our organism a distinct provision made for the resistance of such germs, to use a Pauline expression, we should "die daily." When the tocsin of disease is sounded through the organism, it is the rushing of the leucocytes that constitutes the first physiologic response to directly resist a toxic agent, or supply the structure attacked, with material for nutrition or repair in case of lesion. And yet there are still those among the ranks of intelligent practitioners who consider the increase of leucocytes as an element or phase of disease itself, instead of nature's effort to support her crumbling battlements. At this stage of my argument, I shall, upon the strength of what may be microscopically demonstrated to be the function of the nuclein-charged leucocyte, make an assertion which, I have no doubt, will be considered perhaps too arbitrary. It is, that whatever of so-called specific effect lies in the antitoxin obtained from the immunized animal, as opposed to the bacillus and the toxin of diphtheria, is accomplished by the excitement of leucocytosis and, after all, the end is reached by the same physiologic process.

The ultimate aim of all antitoxic agents must be overwhelming of the toxic element of the germ, and this can only be accomplished by a great excess of physiologic tissue building material. Let us observe the process by which this antitoxic effect is brought about. In the first place, the physiologic relation of proto-nuclein would, naturally, preclude the idea of its action as a direct specific antidote to a specific poison such as that observed between chemic agents, or even physiologic antagonists, as for instance, the hydrated sesquioxide of iron against arsenic, or atropia against morphia, or chloroform against strychnia. Were this the principle of the functional activity of proto-nuclein, its therapeutic range would be limited to such an antagonism, but I am prepared to show, by careful experimental records, its effect is first ob-

served when the system has been thoroughly charged with it, thus preventing the expression of the toxic agent by a preoccupation of the nutritive field, and an investment of the attacking germ. I have often noticed a leucocyte thoroughly charged with original nuclein adhere to the cell of a sarcoma, and after bursting itself, send the round cell floating away in the field crenated and almost emptied of its contents. Such effects have been observed also upon the blood after days of treatment with proto-nuclein. This appears to me to be the very *ultima thule* of therapy; and the question will be, has been, very naturally asked after such developments: "If such be the power of a substance capable of investing, controlling and overwhelming toxic agents, where is the limit to its action?" If I spoke the truth boldly, as it should be spoken, I should answer that, properly applied, I can see no limit to its resisting power. When, side by side with my own experiments, I have observed what I admit to be the wonderful effects of antitoxin in the organism of the bacillus and toxin of diphtheria, I have nevertheless felt that proto-nuclein was as far superior to it in pathologic results, as the whole realm of pathology is greater than a single disease.

And now we come to the question of practical interest to the general profession, How is it possible to extract this delicate substance from the animal tissues? and its corollary, What are the methods used to preserve its cellular activity?

There are three forms of nuclein material now before the profession: 1, nuclein made from yeast; 2, another preparation of nuclein has been prepared which is taken from the animal organism by chemie methods, prepared in tablet form for internal use. I am not aware that this form has ever been prepared in solution for hypodermic use; 3, the third form of proto-nuclein is a product taken directly from the lymphoid tissues of the healthy animal, the thyroid and thymus glands, the brain substance within the area in and about the corpora quadrigemina, the pituitary body and pineal gland, the pancreas, spleen and liver. No chemicals are used in this process, the methods of extraction being purely physical, and the proto-nuclein is kept active by an investment of gum benzoin and milk sugar which preserves it indefinitely, just as the germ of a grain of corn is kept potentially active by its environment. The activity of the proto-nuclein may be easily shown by dissolving some of the powder in distilled water. After the sediment has settled, draw off the supernatant fluid and apply a drop of it to a drop of freshly drawn blood. You will see a most beautiful physiologic panorama, instantaneous photographs of which I have here for your inspection. Proto-nuclein is richer in nitrogen than the ordinary nuclein of the text-books. Its formula, as far as it is possible to be chemically accurate in quantitative analysis, is  $C_{29}H_{49}N_{10}P_5O_{32}$  differing by about one equivalent of nitrogen. It will be noted how rich in phosphorus this wonderful physiologic agent is.

So much, therefore, for its preparation and extraction. The most important factor in the problem is the answer to the questions, What will it do? What can it cure? What will it prevent? in the great battle between science and death. Were I to give free range to my own confidence in the therapeutic power and range of proto-nuclein as observed from day to day for the last six months, under the most favorable

circumstances and under the direction of experienced and authoritative clinicians, you would discredit even the demonstrations of this report. But if you will consider for a moment what a sweeping therapeutic power must belong to any agent which is the normal tissue builder of the organism and the direct antagonist of its invading toxic germs, you will see how difficult it is to limit its indication as a therapeutic agent. Its most pronounced results have been observed in tuberculosis, sarcoma, neurasthenia, tonsillitis and la grippe. In such cases it has shown a most wonderful power. In the hospitals of New York it has been used with general success in the following diseases, beside those already mentioned: diphtheria, neurasthenia, pernicious anemia, general marasmus and other cachectic disorders, fevers, etc. As to its dose and mode of administration, I subjoin to this paper full directions which have been carefully prepared from the closest clinical observations.

Nothing has been left undone to thoroughly test the practical truth of what has been theoretically claimed as a therapeutic power. I believe with others even more conservative and less sanguine than I, that it will mark an era in therapeutics. Such relationship between the pabulum and the individual tissue cell of the various structures of the body, seems to be the very last analysis of function in the human organism. We approach, as it were, the very *Shekinah* of physiology. Up to the time when therapy began to look to physiology for help, our whole system was a vast accumulation of clinical reports without one iota of determining philosophy—a vast labyrinth without an Ariadne thread to guide the returning footsteps of our reason. I doubt not that before the close of the nineteenth century, our therapists will look back upon the thousands of agents vaunted in the cure of disease, as the modern soldier gazes upon the spear and shield of ancient Greece and Rome. The simplification of physiologic methods has been followed most naturally by the use of those physiologic principles of therapy upon which the normal curative conditions of the organism depend, and without which no scientific system of therapeutics could ever be formulated.

## THE PHYSICIAN OF THE PAST, THE PRESENT AND THE FUTURE—A DEFINITION OF HIS SOCIAL POSITION.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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In this age of progress, when we behold a constant race for new discoveries in medicine and surgery, when nearly every day brings new surprises, it may not be amiss to pause and take a glance at our profession from a different point of view. May be we will discover that it needs a little attention in another direction. I admire every diligent worker, every untiring student. But with all this, the nobility of our profession must stand foremost. Our calling is not a business alone; neither honor nor the desire for dollars and cents alone are at stake. It is an exalted vocation. The unsullied social position of the



physician should tower high above his other achievements.

#### THE PHYSICIAN OF THE PAST.

It is only for the purpose of introduction that I will dwell as concisely as possible on the history of medicine, and the physician of the past. Some historians, among others Daniel LeClerc, have traced it into the remotest ages, as far back as twenty-eight hundred years before the Trojan war. The most of it is mythical, and it would be a waste of time, from a medical point of view, to analyze the fables of the ancients. Whatever was known to the ancients of medicine, rested in the hands of their pseudo gods and priests.

No doubt that at all times there was disease and suffering and that attempts at healing were made. The Bible throws no light on the subject of regular practitioners of medicine and surgery among the Jews. If we look around among their cotemporaries, we find the Aryans prominent. They inhabited for many centuries as a compact nation the great plains, the highlands of middle Asia. Like the history of nearly all ancient people, theirs is transmitted to us through their religious and their war hymns. They possessed no other literature. Their songs and prayers reveal to us their doings, their pleasures, their wishes, their joys, their ills, their knowledge and their ignorance. In the collection of their hymns, the "Rig-Veda," they implore the gods for help in sickness—not one special god—they name several, but most frequently the twin god, Aswin. Eventually, in one of their songs, the word physician appears. They sing: "Our wishes are many; the charcoal burner wants wood; the priests, gifts; the physician, patients." This shows for the first time in the history of medicine a distinct recognition of the physician and the separation of that science from the office of priest. Magic is also mentioned as a healing power in the "Atharva-Veda."

There is no doubt about the existence of the Egyptian priest-physicians. While the divine mission of Moses will not be questioned, nevertheless his knowledge of medicine and hygiene was obtained in the land of the Pharaohs.

The Phœnicians must certainly have had their physicians, and without the existence of some medical literature before Hippocrates, it would have been impossible for him to have left us so much information that, even in these advanced times, is of incalculable value and benefit to the profession.

Prior to Hippocrates, schools of medicine existed at Kos, Knidos, Rhodes, Kroton and Kyrene, and however primitive and imperfect they may have been, we must consider them as pioneers. With Hippocrates began a new era. What had been up to his time a mass of blind mystic empiricism, mostly in the hands of the priesthood, was by him for the first time in history, converted into a system, and when we consider the limited resources at his command it is wonderful how perfect he has made it. For centuries it was the only guide, and Galen who lived in the year 131, Celsus and others, down to Avicenna in 980, notwithstanding their renown, and the great works they too have left, were unable to add much to it. At last Paracelsus, in about the year 1500 introduced chemistry into medicine and thereby changed the whole system. About the year 1520 he destroyed by fire publicly, in the city of Basel, all the works of Galen

and Avicenna, indicating the final closing of the ancient methods of medical practice.

How much valuable medical history was destroyed at Alexandria by the fanatical Moslems will remain unknown to us forever. Even after Paracelsus, medicine was not looked upon as an independent scientific system. The church which monopolized all branches of science, was very slow in granting it freedom, and the students of theology in Sweden, and other continental countries, were compelled to take a course of medicine as late as the beginning of the present century.

During the Middle Ages the study of medicine, together with the other natural sciences, rested of necessity in the hands of the priesthood, and many were better versed in these branches than in theology. Students at the centers of learning in those days devoted nearly their whole lifetime to become masters of all sciences, so much so that in course of time regulations had to be adopted, and we find about the year 1200 the pious and learned monk Helinand, giving utterance to his feelings in the following plaintive words: "*Eccc querunt clerici Parisiis artes liberales, Aureliani auctores (sc. classicos) Bononiæ codices, Salerni pyridces, Toleti Dæmones et nusquam mores.*"

Later on, the practice of medicine, especially surgery, was by a decree of Pope Gregory forever prohibited in the following language, and confirmed later by Pope Innocent III. in the General Council of 1216: "*Sententiam sanguinis nullus clericus aut dicet proferat, nullus quoque clericus ruptariis vel ballistariis aut hujusmodi viris sanguinem præponatur, nec ullam chirurgiæ artem Subdiaconus, Diaconus vel Sacerdos exerceat, quæ adustionem vel incisionem inducit.*"

Regular physicians and surgeons had to fight their way against many obstacles, to bring about the emancipation of the profession. At best, the practice of medicine during the three hundred years preceding the present century was a mixture of science, theology, astrology, magic, witchcraft, superstition, spiritualism and a mass of other indescribable 'isms. It was empirical to a great extent. The last fifty years must be credited with having given to the world the exact sciences of medicine and surgery, and their emancipation has been completed.

We, their disciples, should rejoice to have lived to see this. With gratitude we should look back to the giants in our art who have preceded us. Imagine the clouds of darkness with which they were surrounded, often frustrating their best endeavors. Let us admire their diligence in delivering to us their literature without the assistance of the printing press. Let us give credit to those that preserved it for us during the Middle Ages, often mis-called the Dark Ages. Let us turn with reverence and admiration to the industrious monk in his lonely cell, through whose midnight labor we have had preserved to us the manuscripts of the ancients.

What would have been left to us if he had not saved those treasures from the destroying hordes of Alaric and Attila, the Gaul and the Saracen, in whose invasion of the then civilized Europe, the lifework of the sage perished with the handiwork of the peasant.

We are prone to censure these pioneers of science, but it is questionable, whether our most learned cotemporaries could have done more for medicine and surgery than those persecuted scholars of ancient days.

Looking over the history of Rome, we find that our days produce the same impostors as lived during the Roman Empire. Notwithstanding the teachings of Hippocrates and Galen, the special healing gods were appealed to by the best and most refined of those days. There was a continual pilgrimage to the temple of Petosiris, for astrological advice in sickness, regarding which Juvenal ironically exclaims as follows: "*Capiendo nulla videtur aptior hora cibo, nisi quam dederit Petosiris.*"

What difference is there between this and the modern Christian science healer, and kindred humbugs?

#### THE PHYSICIAN OF THE PRESENT.

But let us consider the obstacles surrounding the physician in our days. Quackery will never die. The Indian medicine man of the forests of undiscovered America, with his invocations and posturings, has but changed his name and garb and is with us now in the nineteenth century, stealing his way as a Christian science healer or sophist of some kind, into all classes of society; into the hovel of the ignorant poor and the palace of the rich and apparently educated. The quack and his victim will live forever. Ignorance and dishonesty will always seek the false, the mysterious and the superstitious. It seems impossible to educate the masses into an understanding and appreciation of the unerring laws of nature. The physician of to-day and of the future will have the same never-ending contention with charlatanism and ignorance.

I come now to consider the position of the physician of the present. Medicine and surgery are recognized by the entire civilized world as independent sciences, and we, their disciples being intrusted with their care and application have assumed, as the physicians of the present day in this immense field, the greatest of obligations and responsibilities. We have at our command the whole earth and its surroundings, and have the right to press all into our services, but with these rights are manifold duties which I shall attempt to enumerate in part.

The duties of the physician to himself, his patients, and his fellow-practitioners, are well laid down in the rules and regulations adopted by this ASSOCIATION many years ago, and they come as near perfection as any set of laws known to me. For the purpose of brevity I will not dwell on them, but will at once come to the consideration of the duties of the physician in regard to some of the great social questions of the day.

It may be asked, What has the physician to do with the great social questions? I answer, His relations to such questions place him on a footing equal to, if not above, that of the spiritual advisor. No one comes in daily contact oftener with his fellow-men than he. He is their firm friend and recognized superior in matters pertaining to a knowledge of nature and her laws, which he is in duty bound to promulgate every day. When the great Creator of the universe made laws, in silent obedience to which the stars and heavenly bodies move, laws which all nature obeys, he formulated a code of law, which even man, the prince of creation must obey.

But I hear the question, Is not this the province of the church and State? I answer, yes. They have their part to perform, but whether or not they do their duty is a question about which there is grave

doubt. Looking at the State and the enforcement of its laws by the courts, it is apparent to every thinking man that it falls far short of performing its great duty. As to the church it seems to have lost its hold on mankind to a large extent. Self-styled evangelists travel through the land, seeking by preference the large cities. Their discourses are sensational, for their hearers love sensation. After a season of pretended exhortation, and addresses made to men only, they shake the dust of the city from their feet and depart, their pockets well filled, leaving behind them only a cloud of smoke. The churches are turned into club-houses; sweet songs, sweet music, (of a nature mostly unsuited to the worship of the Creator), mouth preaching is all that remains, and only the dance is lacking to make the entertainment complete. The masses of to-day want entertainment. It does not matter what is given them. They are ready to applaud Ingersoll to-day, the traveling religious mountebank tomorrow, and Barnum's show the next day. It is only a modified repetition of the cry of *civis* and *plebs Romanorum*, during the declining period of that mighty empire, "*Panem et Circenes.*"

The honest pastor who educates the youth of the land in morality, in order to make good men and women of them, is at a discount. Church dignitaries, high and low, quarrel among themselves to the detriment of their flocks. If any one doubts the poor outlook for help to mankind from the church, let him cast a retrospective glance at the monumental farce of the present century, the Religious Parliament, held at Chicago during the World's Fair. Unless the spirit of a Peter Cartwright, Marquette, Father de Smet, Prince Galitzin or others, of like character reappear, not much can be expected. Not even the last resource of the masses, the salvation army, will avail.

Let the doctor, the emancipated physician of the nineteenth century, with a grateful heart do his duty.

I say the physician must take a firm stand on all social questions. When he is girded with the armor of the never-erring laws of nature, he is ready to fearlessly take up the gauntlet against any antagonist. Let me begin with the laws of the propagation of the race. It is not the purpose of this paper to give a dissertation on them; they are prescribed by God, the church and the State. That which comes within the province of the physician is of a twofold character. On the one hand, he is called on to remove physical obstructions which stand in their way, but oftener, in our days, he is called upon to interfere with the laws of nature. The first one belongs to one of the proudest duties of his profession; the other is the offspring of Satan and alike detestable and abhorrent.

The duty of the physician upon being consulted by the moral leper who would prostitute the noble science of medicine and surgery to the foul purposes of such wretches is plain. He should stamp upon such intention and prevent by all means in his power the consummation of the greatest crime against nature. Procreation impregnates all nature and all natural laws, and a society which tolerates the violation of these natural laws deserves the fate of a Sodom and Gomorrah.

About three years ago, a number of so-called learned people held a convention in the city of Detroit, Mich., in which the subject of interference and prevention was discussed by some male and female

physicians there assembled, and the disgraceful spectacle was presented of a large advocacy of these unnatural and abhorrent methods. There was only wanting the presence of the majesty of hell to furnish the diabolical perfume befitting such a discussion. Let no reputable physician soil his hands and disgrace his profession for filthy lucre. These foul practices once taking a firm hold on society destroy mankind, womanhood, the family and the State. The history of the world is filled with the proofs of their dire results. A once powerful prominent nation of Europe, where the system began about one hundred years ago, goes begging to-day for a ruler and the end of it has not yet come. I deem it to be the highest duty of the true physician to destroy all literature aiding the practice, whether called by their true names or under the delusive title of tokology, etc. Such literature is properly called "Satan in society."

But enough; let us proceed to a further branch of our inquiry. What is the duty of the true physician regarding the question of the emancipation of woman?

Man has his place in the world, so has woman, and nature has drawn the line. Man should be the protector of woman. In all the ancient nations, which can be held up as an example, the Jewish nation seems to have taken the proper stand. There the woman was conceded the place belonging to her. Christianity has done the same thing somewhat improved, but step outside the boundaries of Christendom and the woman is found to be a slave. Physicians should unite against the modern false emancipation of woman, for they know it is a perversion of nature. Protect the woman, give her a chance to sustain herself honorably when those to whom she has a right to look for sustenance neglect to do it, but do not delude her and assist her in the belief that she is man's physical equal. Put her on the same footing with man, with full-fledged rights and privileges, let her contest on a physical plane with man, to sustain herself, what will become of her? The physician must know the ills and evils that will beset her. There have been and there still are, very many great women who will forever shine in history, empresses, queens and others in all stations of life, among them the sisters of charity, the physician's best friend and helper. There were the brave women of Saragossa, and our own great American women of the wars of independence and of our late war for the Union. I doubt if all these great and good women would join in the cry for woman's emancipation, in the modern sense. The physician should be the daily teacher to refute the falsehood for the sake of woman. The physician can never approve of the perversion of the laws of nature, and it is believed that such laws stand forever as a barrier to the attainment by woman of that equality so much desired by the agitation of the present generation.

And now the liquor question. Wines and liquors are the gifts and products of nature, then why make war on them, instead of upon their abuse? The physician needs them. He knows the genuine from the adulterated, by virtue of his knowledge of chemistry and pharmacy. Prohibit a legal traffic in wines and liquors, and the physician, his patient and the public in general are at the mercy of the smuggler. The physician should advocate laws for inspection of food and drink. He should see to it that these absolute necessities of mankind are pure. He should

never lend his aid to the enactment of prohibitory laws because they are unnatural. Nature gave to man the earth and its contents for his use, but not for its abuse. God created man to be like him, not to be muzzled like a wild beast, to prevent him from harming himself with his Creator's gifts. A godlike man in chains, guarded against himself, protected by law and force from his own acts, presupposes that he is affected with a species of insanity, which requires confinement and curtailment of liberty. Physicians, the students of nature, can not sanction laws so unnatural. If the teachers of mankind have neglected their business, do not help them to patch up their work with nostrums, but as true helpers of mankind point the way to obedience to those natural laws by which mankind must ever be governed. The physician should be found on the side of sound reason, performing his duties regardless of the cries of fanatics or the claims of quacks.

These are some of the more important duties of the physician, considered with reference to his social position. Time forbids a discussion of the numerous minor duties.

I do not wish to be understood as advocating that the physician should seek controversies on the subject of his duties. His duties are of such a nature that they do not admit of public discussion, except with and by physicians. The nature of his duties, reaching as they do into the privacy of the home, preclude particular open discussion, and permit but of a generalization when presented for public inspection.

The object of touching on these social questions is to define the position of a physician toward them, as he is above all others the intimate friend as well as helper of the family, the foundation of all human government. Intimately connected as he is with the inner life of his patients, he should above all things strive to be in the right, the just and natural side of all matters which come within his sphere.

The physician of the nineteenth century must not allow future generations to think of him as narrow and contracted, but history should record him as a man of broad and upright views, a scholar, a sage, whose best thoughts and aspirations were for the advancement of the noble science he had espoused. His care for his patients, his thoughtfulness and watchfulness for them requires his most earnest examination of all their surroundings and the principles of hygiene and sanitation should receive his closest attention; he must make war on the sins committed against them daily; privately, when he comes in contact with them in the case of his patients; and publicly when his duty as a citizen, having in view the welfare of his fellow-man requires it.

Mankind needs much instruction and, considering our boasted learning, it is astonishing how little the principles of hygiene are understood by the masses; how little attention is paid to pure air, pure water, pure food, clean houses and proper ventilation, as medical assistants. What a field for the physician, and in a direct line with his work socially! It is wonderful what can be accomplished in this direction by well-directed action on the part of the physician; adapting himself by reason of his close relations with his patients, to their needs and wants, he becomes at once the purifier of their minds, their bodies and their houses, a position socially to be envied by all men.

## THE PHYSICIAN OF THE FUTURE.

The first duty of the physician is to sustain himself in the position heretofore described, and to accomplish this he must be equipped with a thorough education. The standard of education must be raised. It is true that nearly every medical college is proclaiming that necessity, but such proclamations are but as traps for the unwary, and it is expected that by the mere noisy declarations of the necessity they will be credited with having accomplished the fact.

Before we can speak of a medical education we must look to the education of the student, and that question solved I have no fears for the professional education. When this country was new and there was a demand for physicians, it was quite natural that this demand should be supplied. I will utter no word of censure against the medical school of the past. The profession of medicine and surgery in our country in the past can boast of a great number of pioneer giants. I would name some of them out of respect, but since they are known to the members of the ASSOCIATION I will, for the sake of brevity, deny myself that pleasure. We are now, however, on the threshold of another and different period, and this ASSOCIATION must place itself on record as indicating the path which is to be followed in the future. This ball, the earth on which we dwell, is growing smaller, figuratively speaking, day by day. We are surrounded by a world of intelligent neighbors. The oceans that separate us from other continents have lost their terrors. We must become the equals of other nations in literature and science, as well as in trade and commerce. Can the American physician and surgeon afford to be behind his brother of the old world? Never!

The time when the green country lad, however intelligent and ambitious, or the man advanced in years, can take up books at any time and begin to read law and medicine is past; the education of the professional man of the future must begin early in life. At the age of 10 years the boy intended for a professional career must be able to read and write correctly and he must know the rudiments of arithmetic (I am describing now the education of the student in Europe). He has by this time had a glimpse into history and geography. At the age of 10 he is removed from the common schools and enters into a higher grade. There the study of Latin and one other modern language begins, together with higher mathematics, history, geography, botany (botanical gardens are attached to these schools in many places), zoology, etc. By the time this boy is 14 he is a pretty well educated fellow. Other studies then follow in still higher graded schools, and other languages are added to his studies until at the age of 17 or 18, our European student, if he has any of the ambition of youth is a highly educated person. Give us a young man brought up in this way. Give us one who has in addition to that, or in lieu of some of the unnecessary branches, pursued those taught in the manual training schools (called polytechnic schools in Europe), and you have the only student fit to take up a profession.

Our future American student of medicine or law will have to be brought up in just this way. Hundreds of them pursue this course now. One prepared in such a thorough way can accomplish more in two years of professional study than the one not so pre-

pared in four or six, nay even in a lifetime. Give us the well-prepared student, and the bogus medical schools will die without legislation, for the want of students. I think, in fact, I know, that many of our schools of medicine are good. They exhibit an honesty of purpose which is commendable. Let the AMERICAN MEDICAL ASSOCIATION assist in furnishing them the proper students. Legislation is now pending in several States which will, when perfected, take the entrance examination to medical colleges out of the hands of the college faculties. This is a step in the right direction. In one of our States this move will be inaugurated in the near future. It must only be borne in mind that in this, as in all progressive measures, radicalism is to be avoided. The truth once conceived can force its way to a triumphant acknowledgment only by sensible measures. Step by step this must be accomplished. Step by step, just like the education itself. The wisdom of those who are by law empowered to regulate such matters will have to be exercised to its highest degree, and justice and impartiality must form the basis of all their actions.

With chemistry and the microscope the study of the germs—histology, physiology, pathology, etc., have been revolutionized. How is it possible for the future physician to combat the problems of nature and disease; how can he expect to master the study of his profession with a few courses of lectures? It is an absurdity to suppose it. It requires a lifetime and a foundation well laid. Twenty-five years hence when we observe a physician's sign, we must expect to find a true physician; the pill-peddler with his saddle-bags will only be known in history.

The future doctor will have his private laboratory. He can not even prescribe for a simple case of rheumatism without a preceding chemic analysis of the excretions of the body. The future doctor will not permit every ambitious manufacturing concern, as is customary at the present day, to do his thinking and lull him into the false habit of lazily prescribing their stuff. The future doctor will not prescribe before his diagnosis is complete. He will examine the sputa, the ulcerated throat, in short, everything else, to make sure what he is dealing with. Chemistry, the microscope, electricity, and all the powers and resources of nature will be pressed into his service. What is done by only the few to-day will then be the universal practice.

Medicine will then, indeed, be a science, a profession. The man with an 'ism or 'pathy will also vanish. He is only the product of ignorance and perverted education. Science has no 'isms. Facts alone count in science. Truth has no barriers; it penetrates everything, and the spirit of truth rules the universe. It may be hidden, it may be trampled upon, but it will come out victorious in our science as in everything else. The physician of the future must follow the truth. The laws of nature are his guide and they will never mislead him. Honest study, honest investigation will lead to his individual success and to the honor of his profession. The well-educated and, I hope, the well-bred physician will be an ornament to society. He will be the people's friend and advisor. When he enters the house of his patients, or when the inmates of the hospital hear his steps in the corridors there will be rejoicing. His very presence will inspire confidence and hope in them. They will willingly submit to



his orders and instructions. They will read truth and consolation in his countenance. In return, he will enjoy his vocation. His life, though full of hardships, will bring pleasures that riches can not buy, and when his career on earth is ended and he closes his eyes in that sleep that knows no waking, I am certain that his heart will be at rest. He has, indeed, faithfully served both God and man.

## SOCIETY PROCEEDINGS.

### Michigan State Medical Society.

*Thirtieth Annual Meeting, held at Bay City, June 6-7, 1895.*

#### FIRST DAY—MORNING SESSION.

The society convened in the Madison Avenue M. E. Church, and was called to order by the PRESIDENT, DR. H. O. WALKER, of Detroit.

Prayer was offered by REV. M. C. HAWKS. This was followed by an Address of Welcome by ex-CONGRESSMAN T. A. E. WEADOCK, who trusted the meeting would be one of great intellectual profit to those in attendance. He said that Bay City considers it an honor to entertain such a distinguished body of men. He spoke of the pulpit, the bar, and of medicine, holding that they all aimed to uplift mankind. The professions should act together for honorable and honest dealings. He closed his remarks by welcoming the society to the city.

DR. A. F. HAGADORN, on behalf of the Bay County Medical Society, then extended a hearty welcome to the city. He said a very warm feeling exists in Bay City toward the State body.

The Executive Committee then reported the different arrangements that had been made to entertain the society outside of business hours. The Masonic and Bay City Clubs were accessible; the steel and wooden shipyards were open; the sawmills and the salt blocks might be visited, and the carriages of the people of the city would be at the disposal of the visitors Friday morning at the hotel doors to take them around the city.

The SECRETARY, DR. CHARLES W. HITCHCOCK, of Detroit, read his annual report. It told of the benefit to be derived from the passage of a bill to create a Board of Medical Examiners, but inasmuch as Governor Rich had just vetoed the bill, that portion of the report, he said, would have to go for naught. The Secretary further reported that owing to the inaccessibility of portions of some counties, it had been impossible to get local societies organized. He cited one case where one side of a county had a well-organized society, while the doctors of the other side were not members because they could not conveniently attend the meeting. Dr. Hitchcock urged that more effective work be done by forming a society in every county in the State.

On motion, a committee consisting of Drs. Boise, Connor, Patterson, Newkirk, and the Secretary, were appointed to devise some means to increase the membership of the State Society.

The report of the TREASURER, DR. WM. G. HENRY, of Detroit, was read by the Secretary, owing to the fact that Dr. Henry was confined at home by sickness. The reports were adopted.

During the morning session the Committee on Admissions reported favorably on several applications for membership.

The Committee on Necrology gave short sketches of twelve deceased members.

Under the head of reports of Special Committees the following were adopted: 1, to memorialize the Legislature in reference to the bill for the prevention of blindness; 2, to take action on establishing a Bureau of Public Health; 3, to petition the Legislature with reference to an improved plan for registering births and deaths.

The Committee on Legislation told of the hard work it had to do, in order to have the Legislature pass the bill creating a Board of Medical Examiners, and when it was announced that all the work had amounted to nothing because Governor Rich had seen fit to veto the measure, the news was received with hisses.

DR. DONALD MACLEAN, of Detroit, called the attention of the Society to the advisability of reverting to the old method of electing officers, by which nominations are made in open session.

The following amendment was adopted: To change Article v, Section 1, of the Constitution, so as to read: "To facil-

itate professional and scientific work, three Sections are established, namely: 1, Section on Medicine and Obstetrics; 2, Section on Surgery and Ophthalmology; 3, Section on Abdominal Surgery and Gynecology."

The amendment to add to Article II, of Section 1 of the Constitution, "Provided that no alien can become a member of this Society," was lost.

A committee of three was appointed to take into consideration the question of undertakers embalming bodies. The point aimed at is to see if some preservative aside from arsenic can not be employed.

PRESIDENT WALKER announced that it would be necessary for him to leave the city in a few hours, and asked permission to deliver his address, which was granted.

In his remarks he touched on general topics, and among other things he said: Should we make an inventory of the progress of medicine and surgery, we will find that the advance in our profession during the last fifty years is far beyond that of any previous half century. In fact, our authorities comprise but few men, while to-day the life of an authority is of short duration, for intense active criticism is such that no observation is accepted as true, until it has stood the test of crucial criticism. This progress is largely due to the aids that have been given us through the discovery of anesthetics and a more accurate knowledge of disease, thereby permitting the surgeon the greatest opportunity for exploration and the physician the widest field for experimentation with remedies. Sims, through the invention of his duck-bill speculum, and the employment of the silver wire suture made him master of a class of operations that had heretofore been failures. Speaking of silver wire as a suture, it is undoubtedly the best and safest owing to its being easily made aseptic. We notice that many surgeons are for this reason returning to its use. The introduction of anesthetics, such as nitrous oxid in 1844, ether in 1846, chloroform in 1847 and cocaine in 1859, made it possible for many operators rather than the few, such as flourished in the days when it was necessary to immobilize the patient with buckles, straps and other apparatus. Surgery had now entered upon a new era when greater care in detail of manipulation could be exercised rather than manual dexterity. Yet ideal surgery was not realized until the advent of antiseptics, due to the efforts of Pasteur through his studies of spontaneous generation, when after twenty years of investigation in 1878 he announced his results to the Paris Academy of Medicine; that which overthrew the doctrine of spontaneous generation, and established a pathology founded upon bacteriology. This study of bacteriology has opened a still wider field of investigation and made it necessary that we must have at least a thorough theoretical knowledge of the subject to appreciate its importance, while every progressive surgeon and physician must do practical work in the bacteriologic laboratory. Suppuration twenty-five years ago was the rule and meant a fight to the death of either the phagocyte or bacterium. Pus is dead phagocytes, the prevention of which is the aim of the surgeon; how well he does it is shown by results. Antisepsis and asepsis are too often a farce. Few but believe in its efficacy, yet how few accomplish it, simply from a failure to follow out every detail, for a weak link in a chain makes the whole worthless. The knowledge of the bacteriologist has made surgery what it is to-day, a nearly perfect art. All reverence to Pasteur and Lister!

How is it with the pathology of the internal organs? The toxins of the microorganisms producing typhoid fever, cholera, diphtheria, etc., are gradually becoming better understood and immunity by inoculation promises much. Jenner by accident gave us the first evidence of immunity which has been used empirically for nearly a century, and is now regarded as a scientific application of the principles of bacteriology. It is hardly necessary to measure the results by this method in the treatment of hydrophobia. We have not, however, been as successful with the uses of certain remedies against tuberculosis, yet much is promised by the nucleins. Serum-therapy evidently possesses great advantages in combating diphtheria; it has not, however, stood the test of crucial criticism as yet. This intense investigation has developed a large body of specialists who in many departments have done the great wonders of our profession. Yet with all due respect to the specialist I can not but feel the furore in some instances goes beyond its environment and has done much to injure true conservative surgery and medicine. A specialist is not made in a day. He should be the product of scientific evolution. The laxness of the laws governing the practice of medicine in this country is gradually disappearing.

The adoption by a great majority of the medical colleges

of the United States of a four years' graded course is another step in the proper direction, and a still further advance should be a more rigid entrance examination; a thorough scholastic training, a knowledge of biology, botany, chemistry and bacteriology should be a part of the requisites for entrance, and not a part of the curriculum of a medical college.

Recently I sent out a circular letter to all of the regular practitioners in this State outside of our own membership, inviting them to become members of the society. I have received many responses of promises to attend, and others who find it inconvenient to be here at this time, asking if it is not possible to become members upon application without being present. I would suggest that a resolution be offered at this meeting making it possible for a regular practitioner of this State to become a member by application on the recommendation of two members and referred to the Committee on Admissions, who should have power to pass upon their eligibility, notifying the Secretary of their action. In this way we would secure a larger membership and a larger attendance in the future.

"I have some hesitancy in presenting what I am about to do, that is in suggesting the doing away with our Section work. There are many attending these meetings who would like to hear all the papers read, for the general practitioner comes here for the purpose of absorbing as much medical and surgical knowledge as possible, which he can not do when the work is going on in different places at the same time. Make the session three days; the morning of the first day for general business reports of committees, etc., on the opening of the last day and the rest of the time devoted to scientific work. It gives the writer of a paper an opportunity to be heard by all and not by a corporal's guard as is often the case in our present plan of Section work. I am aware that there will be opposition by many to this proposition, yet I think the majority will agree with me.

Dr. Walker concluded by quoting Joaquin Miller's poem, "Down in the Dust."

#### FIRST DAY—AFTERNOON SESSION.

In the Section on Surgery, the following papers were read and discussed: A Plea for the Employment of an Almost Discarded Method of Treating Urethral Strictures, by Dr. C. B. Nancrede, of Ann Arbor; Treatment of Urethral Stricture, by Dr. E. T. Tappey, of Detroit; The Cystoscope and its Limitations as a Diagnostic Aid, by Dr. F. W. Robbins, of Detroit; Methods of Relief in Prostatic Obstruction, by Dr. Wm. N. Wishard, of Indianapolis, Ind.; Operations on the Prostate, by Dr. H. O. Walker, of Detroit.

Papers were read and discussed in the Section on Medicine as follows: The Etiology of Diphtheria, by Dr. F. G. Novy, of Ann Arbor; Its Diagnosis, by Dr. C. H. Johnston, of Grand Rapids; Treatment, General and Medicinal, by C. G. Jennings, of Detroit, and Treatment by Serum, by Dr. C. T. McClintock, of Ann Arbor.

In the Section on Midwifery and Gynecology, papers were read on Malignant Diseases of the Uterus, as follows: Pathology, by Dr. J. B. Whinery, of Grand Rapids; Etiology, by Dr. E. G. Minar, of Bay City; Diagnosis, by Dr. Eugene Boise, of Grand Rapids; Surgical Treatment, by Dr. J. H. Carstens, of Detroit. Palliative Treatment, by Dr. H. W. Longyear, of Detroit.

#### FIRST DAY—EVENING SESSION.

The evening session was presided over by Dr. Victor C. Vaughan. The session took the form of three addresses.

DR. SCHUYLER C. GRAVES, of Grand Rapids, after a pleasant introduction to his address

#### THE POETICAL IN SURGERY

said in part:

As to title, novelty will certainly be granted, because the laity, and, for that matter, many medical men and women as well, have never thought of any possible connection between the "ars poetica" and the "ars chirurgica."

Science is knowledge, nothing more or less. Art is the application of knowledge. Art is the ability to make manual application of the principles perceived by science. For instance—the knowledge that drainage is one of the greatest of the underlying surgical principles in science. The application of this principle to any individual case; that is, the securing of the conditions necessary for its operations, art, and the better this is done the more artistic the action.

Surgery, then, is a science and an art. As a science, however, surgery is purely professional; but as an art it passes beyond the professional and into the poetical. Inasmuch as poetry is an expression of the good, the true and the beautiful, surgery, if poetic, must, also, be a reflection of the same

attributes. Let us see. Surgery is good, because it relieves suffering and saves life. Surgery is true, because it falters never in the steadfastness of its purpose. Surgery is beautiful, because it exhibits results which are pleasing to the eye, and to the mind and heart as well.

To many people, thoughts of surgery are associated with such matters as pain and blood and pus, and tumors, and deformities, over which the bird of poesy's paradise does not seem to spread her irised wings; but these things do not constitute the sum total of surgery, and in the contemplation of our theme we must remember that such matters are, oftentimes, but the means to an end; oftentimes, the very stimuli to poetic effort. They are but the marble dust and clay on the floor of the sculptor's workshop; the daubings of color on the palette of the painter.

DR. C. B. BURR, of Flint, delivered the Address on Medicine. He selected for his subject,

#### SOME CURRENT ERRORS RESPECTING INSANITY.

He said it was a grave error to believe in harmless lunacy; that the existence of an insane delusion was a menace to the community's safety. Graveyards are recruited constantly through the conduct of the harmless cranks, sane on all subjects but one. He asked the question: "What marked kinship exists between genius and insanity?" and answered it thus: That geniuses become insane through too close application in some particular mental groove is possible, but I am indisposed to think that the existence of genius, properly so-called, is a menace to the person's well-being. If his inventive or his literary efforts occupy his entire working hours, interfering with his rest at night, prevent him from exercising and taking food at regular periods, the physical cause for insanity becomes operative. If he occupies himself in one line to the exclusion of every other diversion and mental exercise, his horizon will be apt to become contracted but this does not constitute insanity.

Great geniuses have usually been great brain workers, have frequently burned the nervous candle at both ends, have too often resorted to stimulants and opium to excite imaginative power, have led profligate and dissolute lives under the temptations and flattery with which they were surrounded, and have placed themselves under conditions which jeopardize the integrity of the nervous system.

That there is any legitimate relationship between genius and insanity, may be disputed. I have never in my experience discovered such connection.

I think there is a general error respecting the relative liability of brain workers and hand workers to insanity. As a matter of fact, hard manual labor appears to break down more men and women proportionately than brain work.

Another error is the belief that insanity is increasing to an alarming extent. That there is a relative increase in nervous diseases is probable. This is due to the absence of any legal restriction upon marriage and the unchecked propagation of the defective classes. I am inclined to the belief that diseases which the alienist is called upon to treat, display in recent years a greater tendency to assume organic forms. From this tendency which must operate to shorten life and diminish productivity it is perhaps safe to credit a diminution in the number of those nervous diseases in which heredity plays so important a part.

Dr. Burr, in closing, said that one of the greatest errors was the admission of inferior classes of foreigners who are permitted to become residents of the United States.

DR. W. H. YOUNG, of Nashville, read the

#### ANNUAL ADDRESS

of the Section on Midwifery and Gynecology. Among other things Dr. Young gave expression to the following views and ideas:

I hold that no person can be thoroughly equipped in gynecology whose mind has not been expanded by a general practice, sufficient to enable him to grasp the human system as a whole, and not merely as a part of it. Without such training, the specialist is liable to see and to interpret things in the dim light of his own limited sphere, and to forget that the human body consists of and contains more organs and performs more functions than is dreamed of in his philosophy.

To be a successful specialist, be that gynecic or whatever else it may be, requires that the mind and modes of reasoning be so fully developed that he may not be blinded to the fact that all headaches are not caused by errors of refraction, to be cured by the proper adjustment of the lenses, or that all pains in the head and back of the female are necessarily due to some organic or functional derangement of the generative organs.

## SECOND DAY—MORNING SESSION.

PRESIDENT WALKER called the general session to order. The following officers were elected:

President—Victor C. Vaughan, Ann Arbor.

First Vice-President—H. McColl, Lapeer.

Second Vice-President—R. W. Erwin, Bay City.

Third Vice-President—F. B. Tibbals, Detroit.

Fourth Vice-President—F. G. Novy, Ann Arbor.

Treasurer—William G. Henry, Detroit.

Secretary—C. H. Johnston, Grand Rapids.

Judicial Council—Henry B. Baker, Lansing; Francis A. Rutherford, Grand Rapids; Wm. T. Dodge, Big Rapids.

The officers of the sections are: on Medicine, Chairman, David F. Stowe, of Bay City; Secretary, A. P. Biddle, of Detroit; Orator, H. H. King, of Grand Rapids.

Surgery, Chairman, D. M. Greene, Grand Rapids; Secretary, A. F. Bulson, of Jackson; Orator, C. H. Baker, Bay City, Mich.

Gynecology, Chairman, F. G. Minor, Bay City; Secretary, J. B. Winnery, Grand Rapids; Orator, Reuben Peterson, Grand Rapids.

Mt. Clemens was chosen as the next place of meeting.

Under the head of "miscellaneous business" the Constitution relative to the election of President, Vice-President and Secretary was changed so that, hereafter, on the morning of the first day's session, the nominations for these offices are to be made in open session.

After the adjournment of the general session, the Sections reassembled, and the following papers in the Section on Surgery were read and discussed: Shock, W. S. Connery, Saginaw. Cataract—Simple Extraction—Report of One Hundred Cases, Eugene Smith, Detroit. Abdominal Nephrectomy, with Report of a Case, Reuben Peterson, Grand Rapids. Selected Cases of Railway Surgery, F. B. Tibbals, Detroit. Some Reflexes, with Cases to Illustrate, J. A. Porter, Brooklyn. Deafness; what are we doing to Prevent It? W. F. Strangways, Flint.

The Section on Medicine. The Public Care of Epileptics, by Colonization, W. M. Edwards, Kalamazoo. Friedreich's Ataxia, with Cases, Sidney I. Small, Saginaw. Some Forms of Tropic Neurosis, with an Illustration, W. J. Herdman, Ann Arbor. A Case of Insanity during Pregnancy, W. G. Henry, Detroit. Nuclein in Tuberculosis, with Report of Cases, H. M. King, Grand Rapids.

The Section on Midwifery and Gynecology gave the following papers: Retro-displacements of the Uterus, J. L. McLaren, Saginaw. Surgical Treatment of Ectopic Pregnancy, J. G. Lynds, Ann Arbor. Ectopic Pregnancy, Hugh McColl, Lapeer. Some Points Relative to the Use of Forceps, C. H. Johnston, Grand Rapids.

## SECOND DAY—AFTERNOON SESSION.

The reading of papers in the Section on Surgery was continued: Extraction of Biliary Calculus from the Common Duct, T. A. McGraw, Detroit. Reports of Interesting Cases, D. Milton Greene, Grand Rapids. Some Features of Strabismus, Leartus Connor, Detroit. An Analysis of Twenty-five Cases of Appendicitis, Schuyler C. Graves, Grand Rapids. Neuro-Retinitis with Special Reference to the Monocular Variety, A. E. Bulson, Jackson. Pathologic Lesions of the Inferior Maxillary Bone, with Report of a Case, E. B. Smith, Detroit. An Unusual Fatal Aural Case, Luke E. Schell and Don M. Campbell, Detroit.

The Section on Medicine read and discussed the following papers: A Case of Multiple Sarcoma, W. F. Breakey, Ann Arbor. The Present Management and Treatment of Croupous Pneumonia, D. S. Campbell, Detroit. Salicylic Acid in Pleurisy and other Diseases with Serous Effusion, George Dock, Ann Arbor. Rheumatism; Its Pathology and Modern Treatment, E. S. Pettyjohn, Alma. The Nervous Symptoms of Gout, David Inglis, Detroit. Personal Experiences Regarding Altitude in Organic Cardiac Disease, Hugh McColl, Lapeer.

The Section on Midwifery and Gynecology read and discussed these papers: Ultimate Results, Physical and Mental, in Gynecologic Operations, Eugene Boise, Grand Rapids. Menopausal Polysarcia Abdominalis, Walter P. Manton, Detroit. Vento-fixation of the Uterus, J. J. Mulheron, Detroit. The Status of the Buried Animal Suture and Ligation in Abdominal and Gynecic Surgery, H. W. Longyear, Detroit.

Blank Applications for membership in the Association at the JOURNAL office. Write for them; sent free.

## Medical Society of the State of Pennsylvania.

*Proceedings of the Forty-fifth Annual Meeting held at Chambersburg, Pa., May 21, 1895.*

[Special correspondence of the JOURNAL.]

(Continued from page 939.)

DR. KATE D. MIESSE of Easton, read a paper on "Nerve Muscle Atony in Girls."

DR. J. N. HUNSEBERGER of Skippack, a paper on "Aconitin in Neuralgia." He spoke of the treatment of the causes of the different neuralgias. The use of aconitin was briefly outlined, and he gave a short description of the physiologic action of this drug, and a report of his clinical experience with it.

DR. E. V. SWING of Coatesville, read a paper on "Rational Treatment of Fracture of the Femur near the Hip-joint in Aged Persons." The Doctor briefly related the history of eighteen cases of what is usually called "intra-capsular fracture femur," and advocated complete freedom in bed, on a cotton or hair mattress, without any attempt at extension and counter-extension, as giving almost the only promise of life, the old treatment being almost invariably followed by exhaustion and death.

At the afternoon session DR. L. H. TAYLOR of Wilkesbarre, read the

## ADDRESS IN OTOTOLOGY.

He referred briefly to the work of his predecessors, and then discussed the operation on the bones of the middle ear, quoting at some length the reports of Drs. S. MacCuen Smith, Grunert, Blake, Gomperz, Randall and others. He takes a conservative view of the operation and believes it should not be resorted to, until all proper remedial measures have first been tried. He thinks the operation in non-suppurative cases will soon be abandoned.

The work of the general practitioner in ear diseases should be in the line of prevention, i.e., such treatment of acute otitis media as will make subsequent operation unnecessary. He highly recommends early paracentesis of the membrane and thorough attention to cleanliness, with instillation of a few drops of a 4 per cent. solution of cocaine in Magendie's liquor morphine, to relieve pain. He also urged especial attention on the part of the general practitioner to treatment of catarrhal troubles of early life, as a means of preventing chronic deafness—the majority of such cases being caused by catarrh of the nose and throat.

The work of the rhinologist can not be separated from that of the otologist; operations on hypertrophied turbinates and deviated septa, to secure patency of the nasal passages, being an essential part of the treatment of chronic deafness. He uses Dench's apparatus for inflation of the Eustachian tube in preference to Politzer's air bag.

Mastoid disease was referred to briefly, recommending the general practitioner to perform Wilde's incision early rather than wait to send the patient to a specialist for opening of the mastoid. The address closed with a short discussion of foreign bodies in the ear.

DR. JOSEPH McFARLAND of Philadelphia, presented a paper on "Bacteriologic Examinations in Medicine or Surgery." He commented on the necessity for accurate systematic study of cases, not only by observation and physical examination, but also with the microscope and culture media, so that unexpected but likely important etiologic factors may be detected. He suggested the organization of laboratories by county and other medical societies, who shall buy and own the necessary apparatus, and delegate the work to some competent member who shall receive sufficient compensation to enable him to devote a necessary amount of time and labor to the work. The ideas contained in the paper refer more especially to the organizations in rural districts than to those in cities. For the establishment of the work, and its inception, reference can be made to the gentlemen who have offered their services to the State Society through Dr. Stevens, and who will gladly visit any society and tell them how to start and maintain a laboratory.

DR. JEAN SAYLOR-BROWN of Williamsport, read a paper on "Relief of some Cases of Functional Nerve Troubles by Curing Eye Strain." He gave a list of a few serious cases cured by relieving eye strain; notably, one of tic douloureux, several of diabetes, and one simulating Basedow's disease, with entire inability to walk, caused by injury to the brain.

DR. H. G. CHIRITZMAN of Chambersburg, presented a paper on "Faith and Therapeutics."

DR. H. M. ALEXANDER of Marietta, on "Vaccine Virus," showing the dangers of impure virus, the need of care in the culture of bovine virus, etc.

DR. H. A. ARNOLD of Ardmore, discussed the subject, "Whither are We Drifting?" He described the characteristics of the medical man in mediæval times, and again at a later period. He compared medicine and medical men of those times with the present. The present evil is the secret processes of manufacture, private formulæ, and the large space devoted to them in the medical journals. Is the practice of medicine soon to become nothing more than the means of finding a market for the wares of a host of unknowable medicine makers? Should the wholesale production of new "ines" and "antis" continue, and the flood of literature distributed through the mails be augmented? May it not be possible, in the near future, to discontinue the study of materia medica at our medical schools, and give the time to etiquette, society manners and other nice little things so necessary to attain prosperity?

DR. H. A. MOWERY of Marietta, on "Typhoid Fever."

DR. A. ENFIELD of Bedford, read an article on "Auto-Intoxication with Special Reference to Certain Diseases." He asserted that no germ can produce disease by itself. That the vitality and stamina or resisting power of man must first be broken down before a germ can effect entrance to the tissues. We do not always escape typhoid fever when we have pure water. The fact that the germ of typhoid fever has been found, does not prove that this germ is the pathogenic agent. We have found cases of typhoid fever developing long after all sources of possible infection have been removed. The development of disease is not due alone to chance meeting of man and microbe. No one pathogenic agent or condition is sufficient to produce disease. Man contains within himself the causes for most of his sickness. All diseases that have their origin in auto-intoxication can be controlled by the free administration of intestinal antiseptics.

DR. GEO. E. SHOEMAKER presented a paper on

#### VENTRO-FIXATION OF THE UTERUS.

Retroversion with descent of the ovaries or of the uterus is a prominent factor in a large number of chronic gynecologic cases. The condition is not fully described by the term retroversion, but is far from a simple one. Treatment confined to the perineum, if that is lacerated, to the endometritis or pelvic congestion, will produce no permanent change if adherent retroversion persists. The pessary can only be used when adhesions are absent, inflammation is slight and the organs capable of being thoroughly replaced. In a few cases, watched, it gives all the relief necessary. It cures only minor cases and these very seldom.

Practically, many cases apply from remote districts, or who are obliged to labor, or to whom months of rest with palliative treatment are out of the question, and then the surgeon's experience teaches that long-continued minor treatment will fail. Graver degrees of retroversion accompany conditions practically incurable without surgery. What shall it be?

The operation for shortening the round ligaments in the inguinal canals is limited to the cases without adhesions, and where the tubes and ovaries are known to be normal. These are not the most important cases. If thoroughly done it weakens the canal almost as much as a celiotomy weakens the abdominal wall.

Ventro-fixation is especially adapted to the adherent cases. Tubes and ovaries buried in inflammatory adhesions can be freed and treated. The bladder is not hampered greatly, as it widens in filling. Cases of the writer's hold six, eight or more ounces almost from the start. The attachment elongates into a muscular band which allows uterine and bladder movements. Pregnancy is not interfered with, except in probably increased vomiting and traction in early months. The band elongates and again shrinks.

Remote results in relieving symptoms are excellent in the writer's experience; but only cases should be chosen where the symptoms are due to the uterine condition. Minor retroversion may exist *per se* without symptoms.

Ventro-fixation is accessory to curetting and packing for endometritis, to perineal repair and other measures. Descent of the uterus below the pelvic outlet demands other treatment.

The method followed by the writer includes the buried silkworm gut suture through the rectus muscle and its sheath for the entire wound. The second and third sutures below include the fundus uteri. None of these sutures have ever required removal.

DR. S. MACCUE SMITH gave an interesting paper on

#### EMPHYEMA OF THE MASTOID AND ITS RELATION TO ACUTE AURAL DISEASE.

It was formerly taught that empyema of the mastoid could only occur as a complication of a *chronic* suppurative inflammation of the middle ear. While this is usually true, it is now conceded that this purulent invasion often occurs as the result of *acute* suppurative otitis media. This inflammation may arise either by direct continuity of structure, by infection through the venous circulation, or through the nutrient vessels which traverse the canaliculi and pass from the carotid canal to the mucous lining of the tympanic cavity. This extension of the inflammatory process may be prevented or promptly relieved, by intelligent action on the part of the attending physician.

Out of eleven cases of mastoid empyema, arising from acute otitis media, four showed only a superficial abscess, five were confined to the mastoid antrum, and two extended into the mastoid cells. In the four cases of superficial abscess the pus had burrowed its way through the thick outer walls in less than one month, and a Wilde's incision was sufficient to establish free drainage. In the remaining seven it was necessary to trephine the mastoid. It is difficult to account for the extensive destruction to the soft parts and to the dense bony walls, which may occur in a very brief period. It is also difficult to explain why the confined pus should burrow out through a very thick plate of bone, instead of penetrating through the thinner osseous wall that separates the mastoid and middle ear cavities from the interior of the skull.

The points to be noted are: 1, the fact that mastoid complications do frequently develop from *acute* inflammation of the middle ear; 2, the necessity for prompt recognition and relief of *acute* inflammatory disease of the ear; 3, immediate evacuation of pus when present.

DR. S. D. RISLEY read a brief paper on

#### OCULAR AFFECTIONS ASSOCIATED WITH LITHEMIA.

Disclaiming any purpose of discussing all the protean manifestations of the gouty or rheumatic dyscrasia, he pointed to the fact that many of the minor discomforts and affections of the eye found their *fons et origo* in fleeting and recurring attacks of lithemia in persons who have acquired the diathesis by sedentary habits, imprudence in diet, by chronic malarial poisoning, syphilis, etc., or are victims of hereditary liability. Fleeting attacks of conjunctivitis which not infrequently pass for catarrh of the conjunctiva, hyperemia of the uveal tract which may develop the milder forms of recurrent iritis, or even more violent attacks, are frequently due to this systemic condition, and not infrequently their essential nature passes unrecognized. Many patients with weak eyes and low grades of refractive error, receive correcting glasses for the relief of their tender eyeballs, periorbital neuralgias and occipital headache, when they might be spared the incubus of a pair of glasses, certainly for constant wear, if due attention had been given to this constitutional malady. Cases were briefly related to illustrate the various phases of the teaching. Unfortunately, its manifestations were not confined to these milder forms of eye disease, but were very frequently at the foundation of the most rebellious and fatal forms of ocular affections. The serious involvement of the general vascular tree, in the more advanced stages of lithemia, was mentioned briefly, and the great liability of the vessels of the choroid and retina to participate in the general disaster urgently insisted upon as of great importance in the study and treatment of many forms of eye disease, occurring during and after middle life, in patients afflicted with the gouty or rheumatic diathesis. It stood second only to syphilis in the etiology of iritic disease. The impairment of the nutrition of the eyeball consequent upon the disease of the choroidal and retinal vessels, rendered it especially liable to choroiditis, hemorrhagic retinitis, incipient cataract, and the more vicious forms of glaucoma. It was this state of the ocular circulation which not only was the origin of many cases of these perilous forms of disease, but which rendered them so fatal to vision and so slightly amenable to all purely local treatment. It was the frequency of such participation in general disease which made it necessary for the ophthalmic surgeon to be also a wise physician. There was no room, anywhere, for the specialist who divorces his special work from the broad field of medical science.

DR. J. K. YOUNG of Philadelphia, read a paper on "Massage in Surgery," in which he reached the following conclusions:



1. Massage as an adjunct in the treatment of surgical disease is apt to be overlooked by the surgeon.

2. Its field of application is very large, including the diseases of the joints, traumatism, after operations, and diseases of the nervous system.

3. Its mode of application differs in the different conditions, and must be understood to obtain the best results.

4. The advantages to be gained by its more frequent use are more rapid and complete recovery from surgical disease.

Dr. E. E. MONTGOMERY, of Philadelphia presented the subject "When should Vaginal be Preferred to Abdominal Incision in the Treatment of Pelvic Disease?" Dr. Montgomery advocated vaginal incision in all collections of pus in the pelvis which could be readily reached through the vagina, and said that this method of treatment in the majority of cases afforded a decreased danger to the patient and an opportunity for recovery without sacrifice of important organs. Its practice does not add to the danger of an abdominal operation if the latter is necessary for the cure of the patient. Where the uterus is the source of infection, as in puerperal sepsis, and the sacrifice of the tubes and ovaries is indicated, he would also extirpate the uterus and do the operation per vaginam.

Dr. CHARLES P. NOBLE, of Philadelphia, read a paper upon the subject of

#### MOVABLE KIDNEY,

and the following are his conclusions: Movable kidney is a very common condition among women. I find it in one-fourth of my own patients. Both kidneys are movable in about one-tenth of the cases. The underlying cause of movable kidney is a deficiency of adipose tissue, especially in the peri-renal region. Tight lacing, multiple pregnancies and falls, occasionally act as contributing causes. The symptoms of movable kidney are both reflex and local. The reflex symptoms are those, at times, of neurasthenia, irrespective of its cause. In other cases, nervous dyspepsia, palpitation of the heart; distension of the abdomen with gas and neuralgic areas are the symptoms complained of. Patients usually are unable to lie upon the side opposite to the movable kidney. The local symptoms are a sense of weight or bearing down, soreness in the kidney region, attacks of pain similar to renal colic, and in rare instances symptoms of strangulation due to torsion of the vessels of the kidney.

Movable kidney may be suspected when its rational symptoms are present, but the diagnosis must be made by a physical exploration. This should be made with the patient in a standing position. The diagnosis can be made with the patient lying on her back only in long standing cases, where the displacement is extreme, as usually in this position the kidney slips up under the margin of the ribs. In many cases movable kidney gives rise to no symptoms, and therefore does not require treatment. The rest cure promises to be efficient in cases of slight degree, as the kidney returns to its normal position while the patient is lying on her back, and the increasing fat which the rest cure usually brings about should effect a cure. The rest cure used in cases of long standing, with extreme displacement of the kidney, will improve the general condition of the patient but will not improve the local trouble. Nephrorrhaphy is a simple and safe operation, which should be done in the cases having well-marked displacement, that is three inches and upward. The more marked the local symptoms the more necessary the operation. The reported cases indicate that the results are permanent.

One object of this paper is to emphasize the great frequency of this condition, and the ease with which it can be diagnosed. Also, to urge upon those who have not done so, the necessity for studying its relation with the various reflex and nervous symptoms met with in thin women.

Dr. LOUIS J. LAUTENBACH, of Philadelphia, read a paper on

#### DEAF MUTES—CAN THEY BE MADE TO HEAR?

During the past sixteen months the Doctor has had under treatment six deaf mutes. All of these he has treated by massage methods—phono, pneumo and mixed massage. In all there has been some improvement in hearing; in three the improvement has been very noticeable. From the study of these cases he has derived the following conclusions:

1. That no negative opinion as to the results of treatment can be considered as justified, even when all our ear tests fail to indicate the slightest trace of hearing power.

2. That every deaf mute should have his ears thoroughly examined, the proper treatment instituted, and that this treatment should consist not only of former methods but should include pneumo, phono and mixed massage treatment.

3. That as a result of this method of treatment, favorable effects have been obtained which have not been realized by any former treatment.

4. That in the present status of our knowledge, we know not to what extent the power of hearing may be developed by this method; the lack being occasioned by the need of a greater period of time to allow of the further development of the hearing function.

5. That even though the hearing of deaf mutes be not restored to normal or anywhere near thereto, yet the hearing powers as developed during the comparatively short period that this method of treatment has been in use, would prove of great value to the deaf mute, not only in the development of his speech functions and in the protection of his person from external injury, but would be of great value to his family and friends in their more ready communication with him.

6. That through the improvement by the massage treatment the teaching of deaf mutes of the lip-reading method and the utterance of sounds in accordance with it, this teaching can be more readily accomplished and more deaf mutes thus be given the advantages of such education.

On motion, the Committee of Publication were given discretionary power to issue the proceedings in journal form.

On motion of Dr. BENJAMIN LEE, of Philadelphia, it was unanimously

*Resolved*, That the Medical Society of the State of Pennsylvania believes that the time has arrived when questions of public health should be decided and administered by an authority at the National Capital, constituted for that purpose solely; and therefore urges upon the representatives of the State, in the Congress of the United States, the importance of sustaining the movement already inaugurated for the establishment of a Department of Health at Washington.

On motion of Dr. I. C. GABLE, of York, it was resolved that this society respectfully suggests to the State Board of Health that the sanitary condition of the establishments for propagating vaccine virus should be subjected to frequent inspection; that we will be ready to cooperate with the board in any measures which may be necessary to provide for such action.

On motion of Dr. S. S. TOWLER, of Marienville, it was

*Resolved*, That the Medical Society of the State of Pennsylvania congratulates the AMERICAN MEDICAL ASSOCIATION upon the decision of the Trustees to exclude unethical advertisements from the JOURNAL of the ASSOCIATION.

*Resolved*, That a committee of three be appointed to communicate with the editors of the medical journals of the United States, calling their attention to this action of the JOURNAL of the ASSOCIATION, and requesting them to accede to the wishes of the profession by adopting a similar rule.

Committee—Drs. Towler, C. H. Thomas, of Philadelphia, J. J. Buchanan, of Pittsburgh.

A resolution indorsing the idea of the individual communion cup was laid on the table.

On motion of Dr. H. B. GUTHER, it was

*Resolved*, That the Committee on Pharmacy request of the Pharmaceutical Society of Pennsylvania to transmit the constituents, etc., of the newer preparations for publication in our Transactions, etc.

On motion of Dr. J. A. EHLER, of Lancaster, the Secretary, Dr. Atkinson, was requested to prepare a History of the State Medical Society and present it at the annual session of 1896.

Resolutions of thanks were adopted to the ladies, the Committee of Arrangements, the Franklin County Medical Society and the officers of this body for what has been done to make this one of the most successful and enjoyable ever held.

The society assembled May 24, and formally installed the newly elected officers, after which it adjourned to meet in Harrisburg, the third Tuesday in May, 1896.

#### American Electro-Therapeutic Association.

*Fourth Annual Meeting held in New York Academy of Medicine  
New York, Sept. 25, 26, and 27, 1894.*

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 898.)

#### THE INCANDESCENT ELECTRIC LIGHT, OR RADIANT HEAT BATH.

This paper was read by Dr. J. H. KELLOGG, of Battle Creek, Mich.

Almost since the discovery of the electric light, it has been

made the subject of interesting experimentation for the purpose of discovering whether this excellent artificial substitute for sunlight possessed the property of stimulating the vital processes of plant life in a manner analogous to the action of sunlight. An interesting paper, by Wm. Siemens, published in March, 1880, contained a detailed account of experiments made for the purpose of determining the influence of the electric light upon vegetation, and from which the following conclusions were drawn by the author:

1. That the electric light is efficacious in producing chlorophyll in the leaves of plants, and in promoting growth.

2. That an electric center of light, equal to 1,400 candles, placed at a distance of 2 meters from growing plants, appeared to be equal in effect to average daylight at this season of the year (March), but that more economical effects can be attained by more powerful light centers.

3. That the carbonic acid and nitrogenous compounds generated in diminutive quantities in the electric arc, produce no sensible deleterious effects upon plants inclosed in the same space.

4. That plants do not appear to require a period of rest during the twenty-four hours of the day, but make increased and vigorous progress if subjected during the daytime to sunlight and during the night to electric light.

5. That the radiation of heat from powerful electric arcs can be made available to counteract the effect of night frosts, and is likely to promote the setting and ripening of fruit in the open air.

6. That while under the influence of electric light, plants can sustain increased stove heat without collapsing, a circumstance favorable to forcing by electric light.

Similar experiments have been made by others. The first to make experiments was Hervé-Mangon (Compt. Rend. 53, 243). These experiments showed that the electric light was capable of causing the development of chlorophyll and inducing heliotropism, or the phenomenon of turning or bending towards the light.

Prillieux (Compt. Rend. 69, 410) showed in 1869, that the electric light is capable of promoting assimilation of plants, or decomposition of carbon dioxide and water.

Siemens found that the plants exposed to ordinary daylight and six hours of electric light in addition "far surpassed the others in darkness of green and vigorous appearance generally." Strawberries and other fruits were fully equal to those raised under ordinary conditions, and grapes were of stronger flavor than usual. Melons were remarkably large and aromatic, and bananas were pronounced by excellent judges to be "unsurpassed in flavor."

Many of these experiments have been repeated in this country and with similar results. The most important experiments were those conducted at the Cornell University Agricultural Station in 1889-90. These results showed clearly:

1. That the electric light may be used under such conditions as to make it fairly comparable to sunlight in its power to promote protoplasmic activity.

2. That the electric light acts as a tonic to plants so that they are able to endure adverse conditions which otherwise would cause them to collapse.

3. That the electric light is a true vital stimulus, since the effect of its use at night, upon plants, is essentially the same as that of the longer day of the Arctic upon plants growing in that region.

Another fact of importance which had sometimes been observed, was the deleterious influence of powerful arc lights upon workmen engaged in close proximity to them, effects analogous to those of sunstroke.

Although not fully acquainted with the facts above referred to, when I first began the use of the electric light bath, I had seen brief notices of these experiments, and thereby became interested in the subject from a therapeutic standpoint. For more than twenty years I have made use of the sun-bath as a therapeutic means, and twelve or thirteen years ago experimented with large convex lenses for the purpose of concentrating the sunlight, and thus intensifying its effects in the treatment of neuralgia, spinal and other hyperesthesias. I found good results from its use employed in this way, but did not complete my observations on account of the great amount of time required and the uncertainty of having sunlight at the time desired.

Something more than four years ago I began experiments with single lights provided with reflectors, and soon after I had constructed two cabinets, or small rooms, large enough to contain one person, and arranged in regular rows on the inside 50-60 incandescent lamps. Since that time I have made constant use of the electric light emitted by the in-

candescent lamp, as a therapeutic means. Together with my colleagues I have employed the bath by this means nearly ten thousand times, and in a great variety of ailments, at the Battle Creek Sanitarium, and have largely used it as a substitute for the Turkish, Russian, vapor, and hot-air baths, all of which I had previously employed for many years. Finding it free from any of the objections to which the baths named are open, for numerous reasons, some of which I will point out subsequently in this paper, and also finding its effects extremely agreeable to patients, and remarkably efficacious in many stubborn cases which did not readily yield to other therapeutic agents, I have employed it much more frequently than I had previously made use of analogous means, and in a much wider range of cases.

My earliest experiments in the use of the electric light bath showed me that it was capable of producing very characteristic effects. This led me to undertake a series of physiologic experiments for the purpose of placing its therapeutic use upon a rational basis, and for the purpose of comparing the effects of the electric light, Turkish, and Russian baths. Some of these experiments were made three years ago; others have been made more recently. The objects of the experiments were to determine the effects of the electric light bath as compared with those of the Turkish and the Russian baths upon:

1. CO<sub>2</sub> elimination.
2. The urea secretion.
3. Perspiration.
4. Surface and internal temperature.

5. The number of blood corpuscles and the amount of hemoglobin. The results of these experiments and the methods employed may be summarized as follows:

1. *CO<sub>2</sub> Elimination.*—Three healthy young men were subjected to the influence of the incandescent electric light or radiant heat bath for five, ten, twenty, and thirty minutes respectively, the time being the same for each, and all other conditions being made as near alike as possible. The same young men were likewise subjected to the influence of the Turkish and the Russian baths for the same lengths of time, but on different days, care being taken to maintain a uniform dietary during the entire series of experiments, at the same hours of the day. The influence of the bath upon CO<sub>2</sub> elimination was determined by carefully measuring with a delicate air meter which I had constructed for the purpose, all the air expired during the ten minutes before the experiment, collecting an average sample of the air for analysis. During the bath the air was collected for the same length of time. In a case in which the bath lasted only five minutes, the figures were doubled so as to make them comparable with the rest. In case the bath continued twenty minutes or more, the air was measured and collected during the last ten minutes; the results obtained were corrected for barometric pressure and vapor tension so that the figures given in the table for the different experiments are, in every respect, properly comparable. The results were as follows:

The average per cent. of CO<sub>2</sub> obtained before the experiment was 3.60.

For the electric light bath the average per cents. obtained were as follows:

5 minutes	4.10
10 "	4.10
20 "	4.20
30 "	5.10 and 5.13

In a repetition of the thirty-minute bath, the higher percentage of 5.13 was obtained.

For the Turkish bath the average per cents. obtained were:

5 minutes	4.03
10 "	4.07
30 "	4.01

For the Russian bath the per cent. was 3.96 for a bath of thirty minutes.

The highest amount of CO<sub>2</sub> elimination was 4.20 liters, which was in the incandescent electric light bath for thirty minutes.

The temperatures of the air in the baths were as follows: Electric light bath, 28 to 36 degrees C. (85 to 97 degrees F.), or constantly below the temperature of the body; Russian bath, 38 degrees C. (100 degrees F.); Turkish bath, 55 degrees C. (131-155 degrees F.).

2. *Urine Secretion.*—The following table shows the average figures obtained for the three young men who were the subjects of experiment. The facts determined in relation to the urine were: the amount of specific gravity, the acidity, the amount of urea, the amount of uric acid, the total chlo-

rids expressed in terms HCl, the phosphoric acid and the total solids. The figures given were determined by accurate quantitative analysis of the whole amount secreted in twenty-four hours. The figures obtained in relation to the most important of these quantities were as follows:

Electric light bath: Urea . . . . .	26.32 gms.
Total chlorids . . . . .	5.25 "
Total solids . . . . .	49.30 "
Turkish bath: Urea . . . . .	27.39 "
Total chlorids . . . . .	6.91 "
Total solids . . . . .	52.70 "
Russian bath: Urea . . . . .	29.56 "
Total chlorids . . . . .	7.60 "
Total solids . . . . .	55.14 "

The figures obtained for the urine were the exact reverse of those obtained for the CO<sub>2</sub> elimination.

3. *Perspiration*.—Two points were determined in reference to perspiration:

1. The time required to induce perspiration.
2. The temperature at which perspiration began.

The averages were as follows:

Incandescent electric light bath: time required to induce perspiration, three minutes, thirty-two seconds. The average temperature at which perspiration appeared was 27.2 degrees C. (81 degrees F.).

Turkish bath: the time required to induce perspiration, five minutes, thirty-five seconds. Temperature of the bath, 53.6 degrees C. (128.5 degrees F.).

Russian bath: the time required for perspiration, six minutes, forty-five seconds. Temperature, 101.8 degrees F.

The above figures show very clearly the superior value of the electric light bath as a means of stimulating cutaneous activity.

4. *Surface and Internal Temperature*.—The influence of the bath upon surface and internal temperatures is a matter of importance, since Bouchard has shown that the heat regulating apparatus of the body is called into operation by a rise in the temperature of the blood equal to 40 degrees C. (104 degrees F.).

In experiments made in December, 1891, for the purpose of determining the effect of the bath upon surface and internal temperature, I obtained the following results in a comparative study of the effects of the electric bath and the Turkish bath upon surface and internal temperature.

Electric light bath: temperature of bath, 34.5 degrees C. (94 degrees F.). Internal temperature of subject before the bath, 36.6 degrees C. (98 degrees F.). Surface temperature 35 degrees C. (95.44 degrees F.). Patient began to perspire after one minute. At the end of five and a half minutes he was removed from the bath. The temperature was taken at once and the internal temperature was found to be 37.5 degrees C. (99.6 degrees F.); the surface temperature, 37.9 degrees C. (100.2 degrees F.). Ten minutes after the bath the mouth temperature was 37 degrees C. (98.5 degrees F.); and the axillary temperature was 36.6 degrees C. (98 degrees F.).

Turkish bath: temperature of bath, 70.5 degrees C. (159 degrees F.). Temperature of the subject before the bath 36.4 degrees C. (97.4 degrees F.); axillary temperature 96 degrees F. Perspiration began in five and a half minutes. Immediately after the bath, the mouth temperature was found to be 37 degrees C. (98.7 degrees F.); axillary temperature, 37.2 degrees C. (99 degrees F.). Ten minutes later the mouth temperature was 37 degrees C. (98.8 degrees F.); axillary temperature, 36.6 degrees C. (98 degrees F.).

From these statements it appears that the incandescent electric light bath is far more effective than the Turkish bath in raising both surface and internal temperature, which clearly indicates the penetrative power of the intense heat rays of the electric light.

5. *The Blood*.—The effects of the incandescent electric light bath upon the blood were determined by a careful count of the corpuscles by Gower's instruments and a determination of the hemoglobin by the hematoscope of Henoek. The figures obtained showed no very marked increase in either blood corpuscles or hemoglobin, although in one case the number of corpuscles was increased nearly 200,000 per cubic mm.

The physiologic effects of the electric light bath are chiefly those of heat, and do not differ very essentially from the effects obtained from other sources of heat, except that the electric light bath is a much more efficient and convenient method of administering heat than any other which has been devised, with the exception of water, which doubtless has a wider range of use.

The purposes for which heat is applied are usually two:



FIG. 1.—Electric Light Foot and Leg Bath, and Spine Bath.

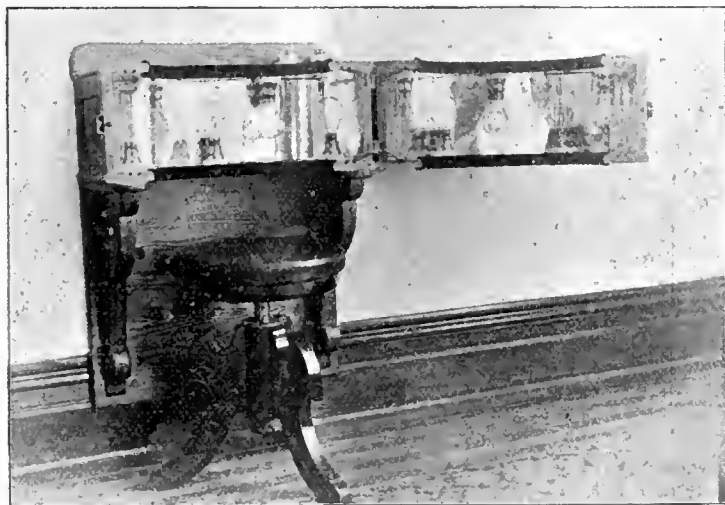


FIG. 2.—Electric Light Trunk Bath.

The diminished amount of urea, total chlorids and total solids present in the urine during the twenty-four hours to which the subject was subjected to the electric light bath was evidently the result of increased elimination by the skin, showing that the electric light bath is much more powerful than either the Turkish or Russian bath as a means of stimulating vicarious eliminative work upon the part of the skin.

The amount of perspiration induced by the incandescent electric light bath was fully double that induced by the Turkish bath in the same length of time.

The amount of perspiration induced by the Russian bath was even less than that induced by the electric light and the Turkish bath.

## 1. The induction of perspiration.

2. The stimulation of protoplasmic activity, and thus increasing tissue metamorphosis. As before remarked, Bouchard has shown that a rise of temperature of .40 degrees C. (.17 degrees F.) is sufficient to induce perspiration. This rise of temperature may be produced either by artificial heat, by the retention of bodily heat, through diminished heat elimination, or by increased production of heat through exercise or other means.

In the Turkish bath a high temperature of the surrounding atmosphere and a considerable amount of time is required for the induction of perspiration, for the reason that the heat of the air is slowly communicated to the body and the heating of the skin and, through it, the transmission of heat to the blood is directly antagonized by the rapid evaporation produced by exposure to a dry atmosphere whereby the skin is rapidly cooled. This cooling may take place so rapidly, indeed, that a temperature of 500 or 600 degrees F. may be tolerated for a short period without injury, as was illustrated by the Fire King who used to enter an oven with a piece of raw beef and remain until it was roasted.

In the incandescent electric light bath the heat enters the body directly as a radiant force, instead of by the slow method of convection and conduction, thus more rapidly raising the temperature of the blood, and hence quickly inducing perspiration. That heat stimulates vital activity is a fact with which every one who has ever studied the amoeba or white blood corpuscle upon the warming stage is well acquainted. The effect of poultices and fomentations in producing pigmentation of the skin, as well as the effects of

atmosphere, and hence is easily and instantly controllable.

The instant the lamp is turned off, the heat which it has previously emitted is withdrawn from operation. If additional heat is required, the desired number of lamps may be turned on and become instantly operative.

Another reason for the more universal application of the incandescent electric light bath is the fact that when properly applied, its effects are highly tonic in character. A short application of the bath at full force for a time just sufficient to induce powerful stimulation of the skin without provoking perspiration is one of the most effective means of peripheral stimulation with which I am acquainted. The tonic effects of such an application may be still further intensified by instantly following the bath with a cold spray or other cold application, thus producing a revulsive effect of the most agreeable and effective character. The excessive heating of the skin prepares the way for the cold application, without at the same time so overheating and relaxing the blood vessels as to render recovery of the tone of the cutaneous tissues so tardy as to involve the risk of exhausting the patient too greatly or exposing him to the liability of taking cold.

The advantages of the incandescent electric light over the



FIG. 3.—Electric Light Trunk Bath, in use.

intense heat, either from the sun or other incandescent sources upon the complexion, afford further evidences of this important physiologic effect of the heat. Entering the body directly instead of slowly working its way through the poor conductors which are found in the successive layers of tissues which compose the covering of the body, the radiant heat of the incandescent electric light, stimulates and vitalizes the tissues to a high degree.

*Therapeutic Uses.*—I have found the electric light bath of far greater value in the treatment of a great variety of maladies than any other means of applying heat except water, and find that it may be much more generally employed than the ordinary Turkish, Russian, vapor, or hot air baths. One reason of this is the convenience and rapidity with which the degree of heat employed may be graduated by turning on or off one or more groups of lamps, by which means the amount of heat is rendered absolutely and instantly controllable. The source of heat relied upon is the incandescent filaments of the lamps rather than a heated



FIG. 4.—Upright Cabinet Electric Light Bath.

arc light for therapeutic applications are:

1. Its superior convenience in application and distribution in the bath.

2. Freedom from the deleterious effects which several observers have noted as due to the arc light when in too close proximity to plants, or when nearer than 2 meters. These effects were found to be not due to the gases given off by the lamp, but to some effect from the light itself. It can not be doubted that similar deleterious effects might follow the use of the arc light when applied for therapeutic purposes if placed nearer to the patient than six feet, a fact which must render its use inconvenient, if not dangerous, to say nothing of the impossibility of securing a uniform distribution in its application.

Still another especial advantage of the incandescent electric light bath over other sources of heat is the facility with which it can be localized. In this respect it is far superior to fomentations or any other local applications. By means of suitable appliances, the heat can be focused upon a small



point if desired, and affects not only the surface, but the deeper tissues. I am sure that the radiant energies of the electric light penetrate these tissues to a depth of several inches. This I proved by actual observation, as before intimated. For deep-seated pain, as well as for the relief of hyperesthesias of the skin, I know of no remedy more valuable. Many applications of this sort have been made by myself and my colleague, more than a thousand in all, and I have constant reason to be grateful for the acquisition of this therapeutic measure, as it has afforded relief to many cases which have stubbornly resisted all other therapeutic means which I have been able to employ.

I append to this paper a report of a number of cases treated by myself and my colleagues at the Battle Creek Sanitarium by means of the incandescent electric light bath and local applications of light, which are simply illustrative of hundreds of similar character which might be given.

*Rationale of the Effects of the Incandescent Electric Light Bath.*  
—The peculiar value of the electric light bath I consider due to its efficiency as a source of radiant energy. In the Turkish bath, heat is communicated to the body chiefly by the

ing the hand between an electric light and the eye, with the fingers in close contact; the hand being placed near enough to the light, the whole finger will be seen to be illuminated by the light, and not simply the soft parts.

It may thus be said that heat from the electric light penetrates the body just as it would penetrate any other transparent or semi-transparent medium, while the heat of the Turkish, vapor or Russian bath is communicated to the body by convection and slowly works its way into the body by heating the successive layers of living tissue which, although like glass, transparent to radiant energy, also possess to a greater or less degree the non-conducting powers of glass and allied substances. It is true that non-luminous as well as luminous heat waves are thrown off by heated bodies. The whole gamut of radiant energy in the form of heat being stated to consist of fully four octaves, more than two of which are below the red, while a whole octave is above the violet, the luminous range occupying a space only a trifle greater than what would correspond to the chord of the sixth in music. But the lower octaves of these heat waves seem to be far less active than those included within the luminous area and above it. I do not consider that there is any specific effect obtainable from the electric light which would not be derived from any equally efficient source of radiant heat, and on this account I have preferred the term, the *radiant heat bath* rather than *electric light bath*, as the former term leaves room for the employment of any other luminous source of heat, which must possess properties identical with those of the electric light.

One of the great advantages of radiant heat or incandescent electric light bath of the Turkish Russian, vapor, or similar form of bath, is the fact that the body can be subjected to the most intense heat desired without confining the patient, and without overheating the atmosphere surrounding him. This is due to the well-known fact that rays of heat pass through such transparent media as the air without heating them. This accounts for the intense cold experienced by balloonists, and by those who ascend high mountains, even in the tropics. The wood-chopper in the logging camp roasts his back before a big log fire on a cold winter's day, while Jack Frost is taking sharp nips at his nose on the other side. So the man in the incandescent light bath, while perspiring freely, may be surrounded by an atmosphere considerably below the temperature of the body, as shown in my experiments and in the daily application of the bath.

The question of priority in the use of the electric light bath is one in which I am not especially interested, but so far as I know, an empiric in Cincinnati was the first to make use of the arc light for therapeutic purposes. His use of the bath, however, was in connection with the "blue glass" fanaticism which spread so extensively over the country a few years ago, the electric light being substituted for sunlight, a very uncertain quantity at some seasons of the year. His use of the bath was, however, not founded on a scientific basis, and I have always regarded it as unworthy of thought or attention. About four years ago one of my colleagues, Dr. Kate Lindsay, called my attention to the personal benefit derived from the use of the heat of the electric light obtained by the application of a lamp in contact with the body and covered in such a way as to collect and retain the heat derived from it. I learned from several other persons of similar effects obtained in the same way and had constructed a variety of devices for applying heat at once to the different parts of the body, and also had constructed means for general application.

The first bath for general application consisted of a bank of lights, between thirty and forty in number, arranged upon a frame which was hinged upon the wall in such a way that it could be raised and folded back against the wall while the patient was placed upon a suitable couch beneath it. The patient being in readiness, the frame was lowered to a position about six inches above the body of the patient, and the space about the patient inclosed by means of curtains which dropped from the edge of the frame carrying the lights.

The second form of bath which I had constructed soon after, consisted of a cabinet about eight feet in height, (Figs. 4 and 5) upon the inside of which were placed between fifty and sixty incandescent lights arranged in rows, the spaces between the rows of lights being filled with silvered glass so as to multiply the number of lights to an infinite number by reflection. The cabinet is so arranged that the whole body of the patient, including the head, can be exposed to the influence of the light, or the head can be excluded, as in the ordinary vapor bath. The cabinet is freely ventilated, and by means

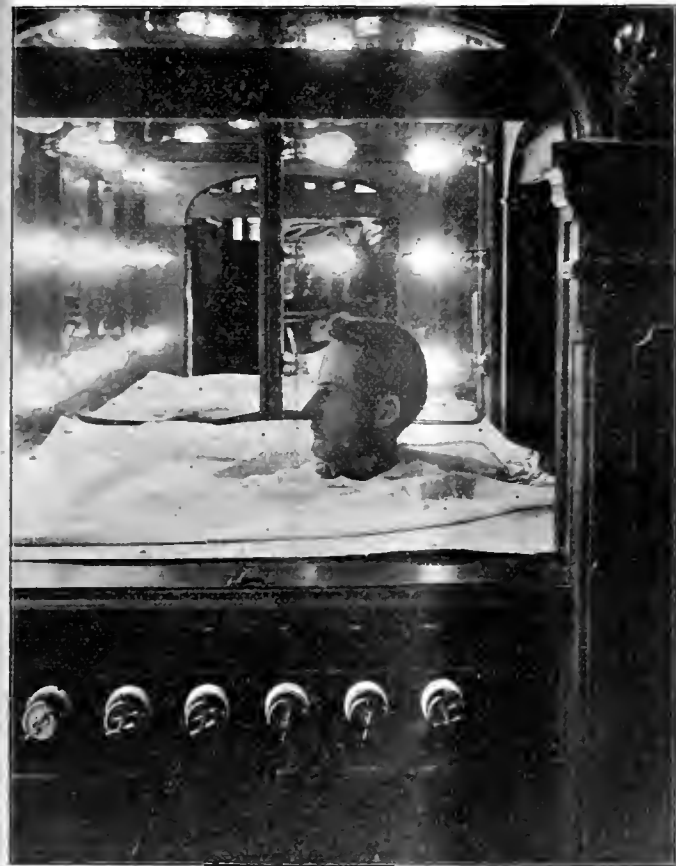


FIG. 5.—Cabinet Electric Light Bath, in use, head excluded.

convection of heat and air. Air being a very poor conductor, communicates heat to the body very slowly. Absorption of heat is further hindered by the skin, an excellent non-conductor, and by the rapid evaporation of moisture upon the skin, whereby it is cooled so rapidly that it is impossible for a man to enter and remain for a considerable time in an atmosphere far above the boiling point. I have several times been in a Turkish bath at 300 degrees and suffered no inconvenience. The heat is derived from the electric light, however, by radiation, and not by convection. The skin, as well as the air, is to a large extent transparent to radiant heat, and the same is true of all the living tissues. This is evidenced by the phenomenon of transillumination. By a speculum placed in the vagina or rectum and a suitably arranged electric light of 16 or 32 candle placed over the abdomen, it will be seen that the whole interior of the trunk is illuminated and made to glow with a bright red light, the red color being due to the reflection from the red corpuscles of the blood. Even the bones are transparent to light when in a living state. This is clearly shown by plac-

of switches and a proper grouping of the lamps in wiring, the number of lights in use can be instantly and perfectly controlled. This bath, which I have had in use for more than three years, is somewhat imperfectly shown in a photograph that I herewith present. A description of this bath was published in a German medical journal by Dr. Gebhardt, who visited the Sanitarium and personally tested the bath something more than a year ago.

The third form of bath for general application of the incandescent light, which I have had constructed more recently, consists of a cabinet lined with mirrors (Fig. 6) and containing some sixty incandescent lights, so arranged that the patient lies in a horizontal position, the lights being placed on three sides. The patient lies upon a suitable couch with rollers, which is pushed entirely within the cabinet, or only so far as to expose such portions of the body as it is desired to bring under the influence of the radiant light and heat. By this plan the influence of the light can be confined to the feet and legs, or any other portion of the body up to the neck. It is only necessary to protect, by a sheet and a piece of mackintosh, any portion of the body which it is desired to exclude from the action of the bath.

I have also had constructed and have in use special appliances by means of which applications may be conveniently made to the spine, the trunk, the feet, and other parts of the body.

enced the effect of one of these electric light baths. In his own case, it was difficult with drugs to produce diaphoresis. He had been warned that the electric light bath produced diaphoresis at a lower temperature than a Turkish or a Russian bath, and he had only been in the bath for a very short time before he realized the truth of this statement. The sensation was decidedly pleasurable and very restful. The head of the person was not exposed directly to the full light. He was thoroughly convinced by this experience that the electric light did really produce diaphoresis at a lower temperature than the other baths.

DR. MORTON said he was very glad that Dr. Kellogg had brought this subject before the Association. We should all follow it up more carefully than heretofore. He wished to congratulate the author on his methods of study—his physiologic experiments—as it was in just this way in the study of the ashes of the human machine that we could get the information which we so greatly desired. He had himself used the electric light as a local bath for a number of years—that is, a single portable incandescent lamp wrapped in a wet towel and used as a poultice. He had found it a very useful means of applying moist heat to patients in our mod-



FIG. 6.—Horizontal Cabinet Electric Light Bath.

After nearly four years' use of the electric light bath in a great variety of ailments, I esteem it as of greater utility than any other means of applying heat to the body, with the exception of water, the universal applicability of which gives it paramount value over all other therapeutic agents which can be employed for this purpose.

In conclusion, I wish to acknowledge my indebtedness to Professor Gomberg, of the University of Michigan, who kindly consented to devote a part of his vacation to the tedious chemic work required by this investigation, and to my assistants, Drs. Rand and Paulsen, who assisted in the chemic work, and carried out the details of the experiments with great painstaking, and to Dr. Burleigh for careful studies of the blood in connection with the experiments.

#### DISCUSSION.

THE PRESIDENT said he was satisfied that in the therapeutics of light we are going to have very rich results.

DR. MASSEY asked what the effect had been when the application had been made to the whole body.

DR. KELLOGG answered that he had found that when applied locally, with a powerful light, it tanned the skin.

DR. DICKSON said that after the last meeting he had visited Dr. Kellogg's Sanitarium, and had personally experi-

ern hotels. He had hoped to hear that there were effects from the electric light apart from the heating effects.

DR. GOELET asked what the effect of the light was upon the eyes.

DR. KELLOGG replied that the patient either closed the eyes or they were protected by a screen. The differences in the electric light bath from the Turkish and Russian baths might be attributed to the light, if one so desired. His statement on this point was purely theoretical, and it was quite possible that the very marked difference in the effect of the electric light bath might be due to the light and not to the heat. The quantity of perspiration was increased to double that by the Turkish bath for the same time. It was also noticeable that the surface temperature was higher than in the Turkish bath. The heating effects of the spectrum were included in a whole gamut of four octaves, whereas the light effects were in a comparatively small area. The blue and red rays were very active, as were also those above the visible end of the spectrum. The non-luminous rays below the red and above the violet were capable of producing photographs; and hence the therapeutic effects appeared to be due, not to the light but to the heat—at any rate, heat was a larger term and included light.

The Association adjourned at 6:15 P.M.

(To be continued.)

THE  
Journal of the American Medical Association  
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE . . . . . \$5.00  
SINGLE COPIES . . . . . 10 CENTS.

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SATURDAY, JUNE 22, 1895.

SEWAGE DISPOSAL ALONG THE GREAT LAKES.

In the report of the Chicago Health Department for 1894, recently issued, appears a tabulation of the claimed populations, reported deaths, and annual death rates per thousand, based thereon, of the sixteen cities of the United States having more than 200,000 inhabitants each. These embrace, in the order of lowest death rates per thousand of population, the following cities: Chicago, 15.24; Detroit, 15.49; Milwaukee, 15.71; Cleveland, 15.86; St. Louis, 16.13; Buffalo, 16.76; Pittsburg, 18.17; Philadelphia, 18.28; Cincinnati, 18.29; San Francisco, 18.85; Baltimore, 19.11; Brooklyn, 20.14; Washington, 20.23; New York, 21.03; Boston, 22.99; and New Orleans, 24.88.

The striking feature of this table is the group of cities lying on the shores of the Great Lakes—Chicago, Milwaukee, Detroit, Cleveland and Buffalo. The aggregate claimed population of the total sixteen cities is 9,934,058 and the aggregate of reported deaths is 185,632—an average mortality of 18.68 per thousand of population. But the five Great Lakes cities enumerated, with an aggregate population of 2,752,727, or nearly 28 per cent. of the total, reported only 42,830 deaths in 1894, which would give a mortality rate of 15.56 per thousand. This is nearly 22 per cent. less than the death rate of the remaining eleven cities, which is 19.88 per thousand. Without discussing at this time the credibility of these figures, it may be noted in passing that their compiler obviously anticipates that they will be challenged, and so says:

"An urban death rate and especially a Chicago death rate of less than 18 per thousand has been pro-

nounced incredible by the highest statistical authority in the country, and it remains to be seen what the reply will now be to what Virchow would call the 'brute force' of these aggregate figures. The only recourse seems to be to charge the five Lake cities with a conspiracy of mingled suppression of death returns and exaggeration of population figures."

The point of present interest, however, lies in the fact that the cities with highest death rates from all causes, as shown by the table, have lower death rates from typhoid fever and the diarrheal diseases than has this wonderful group of Lake cities. Thus, the mortality from typhoid fever per 10,000 population for the past five years has averaged for New Orleans—with a general death rate of 24.88 per thousand in 1894—only 2.14 per 10,000 from typhoid fever; Boston—general death rate 22.99—3.26 from typhoid; New York—general death rate, 21.03—2.04 from typhoid; Brooklyn—general death rate, 20.14—1.9 from typhoid; Philadelphia—general death rate, 18.28—4.8 from typhoid fever. Or, comparing the aggregates of the two groups of cities, it appears that while the five Lake cities had an average annual death rate from all causes of only 15.56 per thousand as against a similar average for the five cities last above enumerated of 20.62 per thousand, they had 4.76 deaths per 10,000 from typhoid fever, as against only 2.83 typhoid-fever deaths per 10,000 in the five contrasted cities. In other words, while the general death rate was 24.5 per cent. less in the Lake cities, it was 40 per cent. higher from typhoid fever.

These figures, which—whatever their individual inaccuracies—are sufficiently large to generalize from, lend pertinence to the recent comments of a sanitary engineer on the discharge of sewage into the waters of the Great Lakes and into tide water.<sup>1</sup> In perhaps no other respect, says this writer, has the progress of sanitary engineering run more directly counter to the original popular notions in regard to sewage disposal than in the matter of the discharge of sewage and garbage into either tide water or the waters of the Great Lakes. "In the early days of the discussion of the sewage question in general, it was thought that any system by which sewers could be emptied into either of those classes of waters was, if not perfection, at least so near it that the difference was practically nothing. Tide water, especially along the seashore, was generally considered to be the ideal receptacle for cities and towns, the large body of water affected being so great that the degree of dilution was deemed sufficient to render the effects of contamination practically nil; and essentially the same assumption was employed to justify the use of the waters of the Great Lakes for the same purpose by the cities located along their shores."

Practical experience has demonstrated what science had already predicated upon the known laws of

<sup>1</sup> The Engineering Record, June 8, 1895.

diffusion, sedimentation and purification of polluted waters. The disposal of sewage in a water supply is a sanitary atrocity which future generations will refuse to condone. Sooner or later, if communities will not protect themselves from such a revolting violation of sanitary common sense, the general government must intervene and positively prohibit the discharge of untreated sewage or other pollution into any stream or body of water whatsoever. The figures herein cited are of themselves a sufficient argument for such intervention at once, but they lack the force they would have if promulgated by some authoritative body.

*Let us have a Department of Public Health!*

#### SOME PATHOLOGIC RELATIONS OF LUSCHKA'S TONSIL.

Mouth-breathing, imperfect development of the chest, anoxemia, general mal-nutrition and impaired intelligence are generally acknowledged, since the researches of W. MEYER, a quarter of a century ago, to be among the direct consequences of hypertrophy of the adenoid structure in the upper portion of the naso-pharynx, just as truly as deafness and catarrh of the upper respiratory tract are also symptomatic of this condition. HARRISON ALLEN, in a short communication to the Pennsylvania State Medical Society (read May 22), has still further elucidated this subject by contributing the results of his recent pathologic and clinical observations. In addition to the classical form of obstructive disorder having its site in the pharyngeal tonsil, ALLEN recognizes two others, each of which have interesting clinical relations which are well worth attention and investigation. The three forms of adenoid disease of the pharynx, in accordance with this classification, therefore, will be:

1. Hypertrophy, with mechanical obstruction to respiration.

2. Deformity of the bony walls of the naso-pharynx, causing the normal adenoid mass to obstruct nasal respiration; and

3. A non-obstructing growth in a capacious naso-pharynx, which acts, in some unknown manner, so as to seriously disturb the general health of the patient.

The first class is sufficiently familiar to clinical observers, and need not be dilated upon. In the second class, the interest lies not so much with the adenoid structure as with the abnormal conformation of the skull, which causes a small adenoid mass to obstruct a narrow, acutely-angulated naso-pharynx. The subjects of this are often micro-cephalic and cretinoid, and are frequently met with in institutions for the feeble-minded, although occasionally such patients are also seen in private practice. The con-

dition is obvious upon inspection or digital exploration; the diagnosis is promptly made and the treatment is identical with the first class, avulsion of the greater part of the mass, and applications of astringents and detergents. E. FLETCHER INGALS, in an analysis of one hundred cases presenting hypertrophy of the pharyngeal or Luschka's tonsil,<sup>1</sup> expressed the opinion that in at least 90 per cent. of these cases the disease occurred in infancy or very early childhood, and he doubted very much whether the disease is ever developed after puberty. Some are probably congenital in origin and, in at least 10 per cent., it appears to be hereditary, several cases occurring in the same family. Improvement in intelligence and nutrition is very evident after operation, the patient often gaining 30 per cent. in weight within six months.

The third group deserves special consideration. It constitutes what ALLEN terms a veritable "adenoid disease." Here there are no symptoms of obstruction complained of, the vault of the pharynx is capacious and, after careful examination, no material increase of adenoid tissue can be discovered. The size of the mass, in truth, appears to be relatively unimportant; the fact that the mass itself is mischievous is of great importance in this class of patients. In view of the evident impairment of health in these cases,—and the gravity of the disorder is greatest in children on account of the lowering of vitality and defective development, amounting often to a veritable cachexia—ALLEN proposes the name of "adenoid disease" for this group. Indeed, such cases could scarcely, with propriety be called adenoid hypertrophy, because there is no hypertrophy, or, if it be present the moderate increase in size of the adenoid mass is relatively insignificant, existing as it usually does in a roomy naso-pharynx. In class second this peculiar condition may also exist, however, and, in a word, adenoid disease may or may not be associated with mechanical obstruction to breathing.

The novel and original suggestion of ALLEN, which makes this a decidedly valuable contribution to the pathology of new growths in the pharynx, is that there is a possible clinical relation existing between the pituitary body and the glandular mass lying immediately beneath it in the vault of the pharynx. In early life there is a canal through the base of the skull, which is a direct channel of communication between these two anatomic structures which, moreover, have many histologic features in common. It was suggested many years ago by OWEN that this canal and the pituitary body are a part of the remains of a primitive esophagus. The lower half of the pituitary body is largely composed of the same character of glandular and epithelial elements as

<sup>1</sup> The JOURNAL, Sept. 29, 1894.



constitute the mass of adenoid tissue to which reference has been made.

Recent investigations into akromegaly, giant growth, and various profound nutritive disorders, have shown them to be associated with increased growth of the pituitary body. Analogy would suggest that similar nutritive disturbances might follow adenoid disease of the naso-pharynx. In point of fact, ALLEN has reported several cases of this kind in which unexpected amelioration followed extirpation of the adenoid mass. The thought is suggested that even in typical cases of akromegaly, this simple operation might produce some change with possible improvement in the condition. For this application ALLEN is not to be held responsible, however, but the suggestion seems germane and especially noteworthy on account of the paucity of our therapeutic resources in this strange affection.

It is to be observed, on the other hand, that general treatment is often necessary. HOLBROOK CURTIS, of New York, last year reported a case of myxedema to the Section on Laryngology, in which it was noted that there was atrophy of the glandular tissues of the pharyngeal vault. Striking improvement in the mental condition and the general health of this patient followed the administration of a preparation of thyroid extract.<sup>2</sup>

In order to establish the pathologic and clinical relations of adenoid disease, it will be necessary, as opportunity offers, to make careful post-mortem observations of the brain and naso-pharynx. ALLEN suggests that in such examinations, the base of the skull embracing the membrane and outgrowth from the pharyngeal vault, the pituitary fossa and pituitary body, be removed as in a single piece, and this be prepared in the usual manner for microscopic examination. Together with this, the pineal gland should be preserved and examined. Such studies of the morbid anatomy of these cases may throw a flood of light upon the etiology of certain disorders apparently having their origin in this part of the body. Adenoid disease is allied to disease of other parts of the great lymph systems of the human organism and their special differentiations. It is necessary, therefore, to study it, as suggested by ALLEN, in the same careful manner as akromegaly, myxedema and allied affections have been investigated.

#### CONSERVATIVE GYNECOLOGY.

The late meeting of the American Gynecological Society had one very pleasant feature. Most gynecologic meetings of late years are so apt to be assemblages where exhibition of gory tumors and statistics of radical operations are made the subject of the leading discussions, that it does one good to re-

port that the article which created the most enthusiasm was one read by DR. FERNAND HENROTIN, of Chicago, on a conservative method of treating inflammatory pelvic affections in their incipiency by a minor surgical procedure. This consists in making an incision behind the cervix as soon as the diagnosis is established, and penetrating the inflammatory focus with the finger, an iodoform gauze drain being inserted and left in place. Even after an illness of only six or seven days, the Doctor asserted, a pus cavity is usually found, and in twenty-seven cases so treated, no bad symptoms followed, and the patients recovered, all of them apparently cured, before the establishment of any of the destructive processes that generally lead to chronic invalidism and require laparotomy. While HENROTIN does not claim originality for making use of vaginal incisions, he pertinently points out the simplicity of his technique and particularly insists upon this procedure for the treatment of these diseases in their very beginning, that women may be treated and cured by simple and rational surgery before mutilating measures are necessary. He also reflects upon the value of this digital exploration of the inflamed organs in settling mooted questions in these troubles, the same as has been done in regard to appendicitis, chronic pelvic ailments, and many other diseases.

Time and experience will teach us whether these sanguine views are correct and reliable, but it is a hopeful sign to see our best gynecologists receive such conservative papers with pleasure and encouragement.

Regarding the treatment of chronic diseases by radical measures, it is doubtful if any advance, further than perfecting details will ever be made in the gynecology of the future, but in reviewing the field we must acknowledge that little has been done toward curing the poor woman who has just reached her couch of suffering with her first attack. The hot poultice, or the douche, or the drug does not seem to have materially lessened the number of our unfortunate sufferers, so that in retracing their footsteps back to the methods of the elder SIMPSON, and bending their energies to the development of conservative and prophylactic work, gynecologists are putting themselves in line with co-workers in other specialties and showing commendable scientific courage.

The specialist who will show us how to cure the pelvic sufferer without mutilation will, indeed, have reared a noble monument.

#### A SO-CALLED "AMERICAN QUACK" IN DUBLIN.

The *Medical Press and Circular*, June 5, pays editorial attention to a MRS. POTTS, Mrs. DR. LONGSHORE POTTS, in fact, as a well-known "American quack." It appears that this lady has before now proffered her medical talents to the Irish sick, and on neither

<sup>2</sup> The JOURNAL, VOL. XXIII, page 486.

occasion has she reaped any great harvest. She belongs to the lecturing fraternity whose specialty is the reproductive organs. This lady also sells a "trumpet pessary" and bloweth her own horn in a fluent and rotund manner; she is a "brazen speaker," says the *Press*. "Lecturers there are who hail from America, and who seek to make their living by orating on public platforms about matters which modest people would avoid mentioning, are always confident and are certain to fetch a number of impressible women. Our object in noticing this particular quack is to say that the idea that she holds any medical qualifications recognizable in this country is entirely erroneous, and it is well that the public should be informed with some exactness as to the status of American colleges, lest other persons may gain credit in this country for qualifications which they do not possess. In the States there are no less than one hundred and fourteen medical colleges; some of them, such as Harvard, Yale, and the University of Pennsylvania, are of the highest repute, others mere disreputable diploma shops. Every one of these colleges can grant diplomas, but no person can practice on such qualification until he shall have also passed an examination held by the authorities of the State in which the diploma is granted by examiners appointed by the Executive. If he passes this State examination he can be registered, and may practice within the boundaries of that State, but he becomes an unqualified practitioner the moment he moves into another State, and must pass the examining authority which has jurisdiction in his new domicile.

As a sort of informal guarantee for the educational status of certain of these one hundred and fourteen colleges, an 'American Medical College Association' has been formed by the more reputable of them, and no college or university is admitted to membership of this Association unless both its courses of study and its examinations are up to standard. There are thirty colleges in this Association, of which the Female Medical College of Philadelphia, of which MRS. LONGSHORE POTTS says that she is an M.D., is *not* one. It is, in fact, a small proprietary diploma shop which few have ever heard of, and fewer still, even in America, take any notice of. From the report of the United States Commission on Education we find that the course which this college professes to require extends over three years, but only twenty-two weeks in each year, while the more reputable colleges require thirty-five or forty weeks. Its educational course would not pass muster in the very humblest qualifying body in the United Kingdom and, as for its examinations, 'the least said soonest mended.' What of that? It is not the first time that a quack succeeded in gathering in a few gulls and a certain number of fees. What is truly astonishing is that beside a number of ladies and ministers of reli-

gion, who do not count, PROFESSOR DOWDEN, DR. CHETWODE CRAWLEY, the LORD MAYORS of Dublin, Liverpool and Glasgow, and SIR HENRY IRVING are advertised as having appended their names to MRS. POTTS' manifesto. It is true that these gentlemen, who ought to have known better, testified to nothing more than the genuineness, of which they could have no personal knowledge, of certain testimonials of American gushers, and they expressed no opinion whatsoever as to the attainments of the lady or the propriety of her proceedings; but they must have known that their authority would be used as a guarantee for everything this quack said or did."

Bearing in mind that the above is written by a Londoner, it is about as correct as would be expected. The chief unfairness of the article was in the caption reading: "The Status of American Diplomates in this Country (England)," because it gives the impression that the cattle of the POTTS variety are of the class of diplomate type referred to. But let not that weary us—let us next send to the non-appreciative shores of Albion some of our surplusage of mind-healers, Christian scientists, bone-setters, cancer doctors, *et id omne genus*. Albion scarcely yet knows what America can do for her.

#### KENTUCKY STATE MEDICAL SOCIETY.

It is eminently fitting that the fortieth annual meeting of the Kentucky State Medical Society should have been held in the historic town of Harrodsburg—the oldest in the State. One of the largest meetings in its history was held there on the 12th, 13th and 14th of June, under the Presidency of DR. J. B. MARVIN, of Louisville. Within a few miles of there, in 1809, was born McDOWELL, the father of ovariectomy. Harrodsburg, itself, is the birthplace of three of the society's honored members: DRs. JOHN G. CECIL, AP. MORGAN VANCE, and L. S. McMURTRY.

DR. HENRY MILLER, now deceased, for many years an active and esteemed practitioner of Louisville, was born there, struggling in his early practice to make a success in his native town, afterward of national renown, and a President of the AMERICAN MEDICAL ASSOCIATION.

The society was welcomed on behalf of the citizens, by MR. BEN LEE HARDIN, in one of his characteristic speeches.

The reports of the officers showed the society to be in a most prosperous condition. Under the admirable rulings of the President, the papers were dispatched with much celerity, and the participants in the discussions held to their prescribed limit. A discussion upon diphtheria occupied the first of the first day's session. It was the sense of those participating in this discussion that the serum treatment of diphtheria was a valuable agent, and should not be withheld in the treatment of any case.

The second day, hernia was the special order for discussion, participated in by papers from Drs. Wm. L. Rodman, J. M. Foster, Geo. S. Davis, H. J. Cowan, W. C. Dugan, Ap. Morgan Vance and H. H. Grant.

The special order for the third day was obstetrics, with papers by Drs. A. D. Price, John G. Cecil, and David Barrow, to be discussed by Drs. J. M. Harwood, B. Logan Holmes, and H. Brown. Among the special subjects discussed was intestinal anastomosis, by Dr. Aug. Schachner and H. H. Grant. Dr. Grant exhibited a special clamp devised by him for lateral anastomosis and which had been used successfully in sixteen cases on the dog, and in one case on the human. Drs. Ray, Cowan and Dabney contributed articles upon the eye. Dr. Henry E. Tuley upon the newborn, and other valuable articles were read.

The State Board of Health met in regular session June 13, and during their session refused certificates to three men making application for license to practice in the State, holding diplomas from the Atlanta Medical College. These men had attended one unofficial spring course at another college, and upon promises from the Atlanta College the same year, attended a regular course there, and were duly graduated the next spring. The college had been notified twice to appear before the Board, but had failed to do so. The applicants had the sympathy of the Board, as they attended the school believing they could legally graduate in this time, but under the Kentucky laws the certificates had to be refused.

The society, by its president, appointed a committee of five members on public policy to coöperate with the State Board of Health in securing the passage of necessary laws looking to the public health. This is an important step, for all innovations by scientific bodies are looked upon with suspicion by the majority of laymen, and the indorsement of the State Board by this committee will increase its usefulness.

Another important act of the society was the resolution requesting the secretary to communicate with the American Medical Association, conveying the indorsement by the State Society of the efforts to obtain the appointment of a member of the Cabinet to look after the national health. It is believed that by the concerted indorsement of all State societies that such an appointment will be made.

During the session, the President of the American Public Health Association, Dr. William Bailey, on behalf of the Association, invited the State Society to be present at the meeting of the Association in Denver, October 1, 2 and 3.

Not the least entertaining of the whole session was the reception and banquet given the visiting physicians by the Mercer County Medical Society at the residence of Dr. A. D. Price, where they were the recipients of true Kentucky hospitality.

The morning of the last day, the nominating committee announced the selection of the following as officers for the ensuing year:

President, Dr. John Lewis, of Georgetown; Vice-President, Dr. H. H. Grant, of Louisville; Secretary, Dr. Steele Bailey, of Stanford.

Lebanon was chosen for the next place of meeting.

The JOURNAL will publish an abstract of the proceedings next week.

#### DOCTOR MEDICINÆ CIVITATIS.

It is with pleasure that we note in the Annual Announcement of Rush Medical College of Chicago, the first step taken in this country to establish the post-graduate degree of Doctor Medicinæ Civitatis.

The degree of Doctor in State Medicine is not intended to be conferred as an empty honor or perfunctory gradus, but as an evidence of merit in study and acquirements.

The following is the portion of the announcement that mentions the matter:

##### DEGREE IN STATE MEDICINE.

1. The candidate must be a Doctor in Medicine, of not less than one year's standing.
  2. The name of the candidate must have been on the matriculation book at least eight months before the examinations.<sup>1</sup>
  3. The candidate must have completed, subsequent to registration, six months' practical instruction in a laboratory approved by the faculty, and also have studied, practically, outdoor sanitary work for four months, under an approved Officer of Health.
- The examination (which will be rigid) to be passed by the candidate is prescribed as follows:

##### EXAMINATION FOR DIPLOMA IN STATE MEDICINE.

*State Medicine and Hygiene.*—Examination by paper. Time two hours. Causation and prevention of disease. Contagion in different Diseases; incubation period in each. Congenital Diseases and Malformations. Diseases of Animals in relation to the Health of Man. Diseases of the Vegetable Kingdom. Failure of Crops in relation to the Health of Man. Famine diseases. Injurious effects of unsuitable Food, bad Air, unwholesome Dwellings, unhealthy Trades. Causes of Origin and Spread of Epidemics. Effects of Climate on Health. Principles of Bacteriology. Character and Life History of the more important Pathogenic Microorganisms. Quarantine, Disinfection, etc.

*Chemistry.*—Examination by paper and in laboratory. Time one and one-half hours. Air, Water and Articles of Food and Drink, including their Chemie and Microscopic Examination and Analysis. Chemico-geologic considerations affecting Water Supply. The Processes of Respiration and Combustion. Disinfectants and allied materials used for Deodorizing and the Treatment of Sewage. The Detection of Common Poisons and recognition of Injurious Pigments.

*Physics and Meteorology.*—Examination viva voce. Theory, Use and Exposure of Meteorologic Instruments; Measurements of Air Pressure; Draughts.

*Engineering.*—Examination by paper. Time one and one-half hours. Water Supply; Appliances for the Purification and Distribution of Water. House Drainage; Drains and Sewers; Ventilation and Flushing; Connections, Traps and Tests, Apparatus connected with the construction, fitting and use of Water Closets; Disposal of Sewage. Ventilation and Heating.

*Morbid Anatomy.*—Examination viva voce. Examination based on the method of conducting Post-mortem Examinations and the recognition of characteristic Pathologic Specimens.

*Vital Statistics.*—Examination by paper. Time one and one-half hours. Statistics of Births and Deaths; Birth rates and Death rates; their relation to Age, Sex, Occupation and

<sup>1</sup> This condition does not apply to those registered in 1895.

Density of Population; their value as measures of the Health of Communities. Population; Causes of Increase and Decrease of Population; Estimates of Population, and their relation to Births, Deaths and Migration. Construction of Tables of Vital Statistics.

*Medical Jurisprudence.*—Examination viva voce. Personal identity; Age, Sex. Medico-legal relations of Pregnancy and Parturition. Signs of Death; Wounds and other injuries; detection of Blood. The Commoner Poisons (not including their detection by Chemic Analysis).

*Law.*—Examination by paper. Time one and one-half hours. Greenleaf on Evidence. Public Health Acts of the United States, and of the State where candidate lives. Practice of Medicine Acts in the State where the candidate lives.

Candidates are requested to send in their names to the Registrar at least a week before the first day of examination. The examinations will begin February 1.

Other colleges will doubtless follow the example thus set, and there is little question but in a short time there will be educated Health Officers to supply all demands. The time has come when State Medicine must be recognized as a special department of medicine.

## CORRESPONDENCE.

### A New Evacuator.

DEXTER, IOWA, June 9, 1895.

*To the Editor:*—Having had occasion a few months since to use Bigelow's evacuator in doing the operation of litholapaxy, I discovered the instrument was sadly defective in the manner of the connection between the rubber bulb and the glass bulb for receiving the *débris*; it being made by securing the rim of the glass bulb to a metallic ring by means of plaster-of-Paris; this metallic ring being in turn adjusted to the metal connection of the lower end of the rubber bulb by means of a bayonet joint on one side only. After evacuating about half of the crushed stone from the bladder, I found that there was a large leak from the plaster-of-Paris joint, as well as a smaller one from the bayonet joint above. The leak increased so rapidly that in a few moments more the instrument became practically useless and I was compelled to leave the operation in this unfinished state. In looking the matter up, I found that other operators had met with a similar experience, an experience about as trying as could well be imagined.



I concluded that it was desirable to have an evacuator with this connection made of other material than plaster-of-Paris, which is excellent as long as the instrument is kept out of the water, but rapidly becomes loosened when in actual use. I, therefore, devised the connection below described and illustrated, which on subsequent actual use, I found to remain perfectly water- and air-tight, regardless of the amount of pressure put upon it in manipulating the rubber bulb. The improvement consists: 1, in having two bayonet joints, instead of one, for making the connection with the ring on the rubber bulb; 2, and this is most essential—making a section of the metal ring for receiving the

glass bulb, and arranging for the closing of this section by means of a screw running parallel with the upper surface of the ring. Finally, in cutting on the lower inner surface of this ring, a deep groove to receive the flange of the glass bulb. Insert the glass bulb, remove the screw with a screw-driver, or similar instrument, spread the ring sufficiently to allow the flange to be received within the groove, adjust a soft rubber washer between the glass flange and the lower side of the groove, close the ring by means of the screw, and we have a perfectly tight joint that will not be affected by water. A second soft rubber washer is used between the metal ring of the rubber bulb, and the upper surface of the flange or glass bulb. The device was nicely made for me by Chas. Truax, Greene & Co., of Chicago.

M. G. SLOAN, M.D.

### More than Fifty Years.

FULTON, N. Y., May 8, 1895.

*To the Editor:*—Referring to the letter of Dr. Colvin, of Clyde, N. Y., in the JOURNAL of May 4, I have to say that I have practiced fifty-four years—fifty-two years of married life—fifty years' residence in the same house.

I became a member of the Oswego County Medical Society in 1842. Attended fifty of its annual meetings in succession; a member of the New York State Medical Society in 1858, and a member of the AMERICAN MEDICAL ASSOCIATION ever since its second meeting in Philadelphia.

CHAS. G. BACON, M.D.

## PUBLIC HEALTH.

**Bacteria of Graveyard Soil.**—Dr. E. H. Wilson, Bacteriologist of the Brooklyn City Board of Health, has submitted a report of his investigations on fragments of coffins sent him from some of the Brooklyn suburban cemeteries. He says, in substance, that while these fragments contain, as might be expected, a large variety of bacteria, no pathogenic varieties have been found; that the popular idea that all bacteria are dangerous is a totally erroneous one. The bacteria which are engaged in the process of destructive decomposition of the body are doing a beneficent work in returning to the soil the elements of which the body is composed, in a condition to be readily assimilated by the higher plants. Investigation has shown that the soil of graveyards contain no more bacteria in proportion than the soil of other places, especially below a certain depth. "In conclusion, I would say that while the presence of coffin fragments several years old is not to be commended from a bacteriologic point of view they are comparatively harmless, and only remind us more forcibly of the fact that it is the living and not the dead from whom we may expect harm in this matter."

**To the Rescue of the Oyster.**—After all the recent abuse of that "child of the rock and of the hoary sea," the oyster, as an infection-carrier and as a "scavenger of the sea" it will be consoling next September to recall the good words spoken for the bivalve at a recent séance of the Paris Academy of Medicine. M. Chatin stated that for some time he had pointed out the richness of oysters in bromin, iodine and fluorin. He wished now to make known the great quantity of phosphorus which oysters contain in an organic and, consequently, assimilable combination. The Portuguese oysters are the richest of all in phosphorus. Each of them contains very nearly one-twelfth of a grain of phosphorus; ordinary oysters have about one-third of this amount. These mollusks are equally rich in iron, their brown color being due to diatoms. A great number of infusoria on which the oysters feed are filled with these diatoms which are so rich in iron that the ash from burning them is of a deep red



color. M. Gautier remarked that all sea food is very rich in phosphorus in the organic state; thus cod-liver oil contains phospho-glyceric acid besides its alkaloid. M. Le Roy de Mericourt stated that he had a long time ago indicated the service rendered by oysters in the alimentation of persons attacked with chronic diarrhea in tropical countries.<sup>1</sup>

**Septic Vaccine.**—Dr. Gustav Fütterer, Professor of Physical Diagnosis in the Chicago Policlinic, communicates some rather alarming information concerning the vaccine points of commerce. With all necessary aseptic precautions on his own part, he finds on bacteriologic investigation at least one kind of microorganism present on every point examined. Some of these, it is true, are of little importance, but it will throw considerable light on the frequent untoward sequelæ of vaccination to learn that out of seventy-five points obtained from different sources and submitted to detailed examination fifty-five—or 73 per cent.—revealed the presence of pathogenic microorganisms, the streptococcus aureus, etc., and ten—or 13 per cent.—were infected with the streptococci of erysipelas and phlegmon. Dr. Fütterer announces<sup>2</sup> that he is at present, by experiment and practice, trying to answer the following questions: 1, which is the best way to disinfect these points and how may they be kept in an aseptic condition? 2, how should aseptic vaccine be kept and carried around for practical use? 3, how can septic vaccine be made aseptic and kept without impairing its properties as an effective vaccine medium? The last point must be well considered, since a vaccine that has been found to be aseptic once may not always be so and even if it is it can easily be contaminated by opening the bottle for use. It would certainly be safer if a disinfecting agent was added that would not only destroy the germs already contained in the vaccine fluid, but also those entering later.

**A Board of Health Circular on Tuberculosis.**—The Health Commissioner of Brooklyn, N. Y., Dr. Z. T. Emery, has drawn up the following circular for the guidance of the laity in respect of the questions of household sanitation that are constantly arising in every large city:

#### THE PREVENTION OF CONSUMPTION.

Consumption is a dangerous, infectious, communicable disease and can be prevented by simple and easy means of cleanliness on the part of those affected and those having the care of them. It is transmitted, in the vast majority of cases, from the sick to the healthy by means of the sputum or expectoration of those afflicted with the disease. *It should be remembered that the dangerous element is the expectoration of consumptives, and that if this is destroyed before it becomes dry, little danger is to be feared.* The expectoration should be received if the patient is confined to the house, into cups containing carbolic acid (1 part of the acid to 20 of water), or if the patient is up and about, on pieces of cloth which should be saved and burned at the first opportunity. This precaution is as necessary for the consumptive as for those about him, as many cases would get well if they would avoid re-infecting themselves. Consumptives should not spit on the sidewalks, or in public conveyances or in places of public congregation. Cases of consumption should be reported to the Health Department, not with a view of quarantining or otherwise interfering with them, but that the department may place in their hands simple instructions to prevent their communicating the disease to those around them and to assist in their own recovery. Apartments which have been occupied by consumptives should not be occupied by others until they have been renovated. They should be cleaned, scrubbed, whitewashed, painted or papered, as the case may be, before they are again occupied. Bedding, clothing, carpets, rugs, etc., used by consumptives should be disinfected, preferably by the Health Department.

**A Russian Test of Vaccination.**—The St. Petersburg correspondent of the London *Lancet* furnishes an abstract of a dissertation on smallpox and vaccination, presented to the

St. Petersburg Academy of Medicine last year, which is interesting as much from the results set forth as from the rarity of Russian statistics on these subjects. The author, Dr. A. N. Sotin, was led to collect his statistics in the following manner: the *volost*, or subdistrict, of which he was in charge, lay in the western corner of the Mologa *uyezd* or district, in the government of Yaroslavl. Observing that an epidemic of smallpox was approaching from the East, Dr. Sotin personally examined every child under 14 years of age in his district before the disease arrived. The total number of children examined was 1,564, distributed among 665 families and in 30 villages. He found that 1,055 had been vaccinated and had visible scars; 75 children formed a second group of doubtful cases, which were said to have been vaccinated, but on which no scars were visible; and 434 had never been vaccinated. The smallpox arrived and a widespread, though not very fatal, epidemic resulted. It was then found that of the 1,055 "vaccinated" children only 16, or 1.3 per cent. had contracted the disease; of the 75 "doubtful" 35, or 46.6 per cent. suffered; while of the 434 "unvaccinated" children as many as 244, or 58.6 per cent., caught the disease. In other words, the unvaccinated suffered to an extent forty-five times as great as the vaccinated. Further, it was observed that in 189 families all the children were unvaccinated, and in these families if one child sickened with the smallpox the disease spread, with only seventeen exceptions, to every other child in the house. On the other hand, in houses where some children were vaccinated and others not, the disease always attacked the last and the first escaped. Dr. Sotin believes that there is no danger from vaccination performed during a smallpox epidemic, but that general vaccination will with certainty cut short an epidemic, and that the immunity following vaccination does not last more than eight years, at the end of which time re-vaccination is necessary.

**Health Reports.**—The following health reports have been received by the Supervising Surgeon-General M.-H. S.:

#### SMALLPOX—FOREIGN.

Argentina Republic: Buenos Ayres, March 1 to 31, 12 deaths.  
Austria: Buda-Pesth, May 17 to 27, 7 cases, 1 death.  
Belgium: Antwerp, May 13 to 18, 3 deaths; Brussels, May 18 to 25, 1 death.  
Bohemia: Prague, May 18 to 25, 3 cases.  
Brazil: Rio de Janeiro, May 4 to 18, 6 deaths.  
Cuba: Havana, May 31 to June 6, 5 deaths.  
Egypt: Cairo, May 6 to 13, 5 deaths.  
England: Liverpool, May 25 to June 1, 2 cases.  
Greece: Athens, January 15 to May 28, 147 cases, 23 deaths; Piræus, January 15 to May 28, 189 cases, 46 deaths.  
India: Calcutta, April 27 to May 4, 98 deaths.  
Ireland: Dublin, May 25 to June 1, 10 cases, 1 death.  
Mexico: Nogales, June 1 to 8, 1 case.  
Russia: Batoum, May 21 to 28, 17 cases, 1 death; Odessa, May 18 to 25, 6 cases, 1 death; Warsaw, April 18 to 25, 1 death.  
Turkey: Constantinople, April 1 to 30, 62 deaths.  
Uruguay: Montevideo, May 4 to 11, 1 case.

#### SMALLPOX—UNITED STATES.

Colorado: Pueblo, June 1 to 8, 1 case.  
Illinois: Chicago, January 1 to April 30, 126 deaths.  
Indiana: Evansville, June 14, 2 cases.  
Louisiana: New Orleans, May 11 to 18, 8 deaths.  
Michigan: Detroit, Battle Creek, Olivet, smallpox reported present June 1 to 8.  
Missouri: St. Louis, May 1 to 31, 26 cases, 7 deaths; June 1 to 8, 3 cases, 1 death.  
Pennsylvania: Philadelphia, June 1 to 8, 8 cases.  
Ohio: Cincinnati, June 7 to 14, 4 cases.  
Virginia: Lexington, June 14, 9 cases (none since May 26); Buena Vista, June 14, 8 cases (none since April 29); Lowmoor, June 14, smallpox cases reported: Staunton, April 28 to June 12, 105 cases, 5 deaths.  
Wisconsin: Milwaukee, May 1 to 31, 19 cases, 1 death.  
West Virginia: Wheeling, March 18 to June 15, 29 cases, 3 deaths.

#### CHOLERA.

Brazil: Rio de Janeiro, May 11 to 18, 1 death.  
India: Calcutta, April 27 to May 4, 71 deaths.  
Turkey: Constantinople, April 1 to 30, 24 deaths.

<sup>1</sup> Le Bulletin Medical, May 22, 1895.

<sup>2</sup> Chicago Medical Recorder, June, 1895.

## YELLOW FEVER.

Brazil: Rio de Janeiro, May 4 to 18, 62 deaths; Santos, April 26 to May 3, 105 cases, 96 deaths.

Cuba: Havana, May 31 to June 6, 5 cases; Santiago de Cuba, June 1 to 8, 16 cases, 8 deaths.

Mexico: Mazatlan, May 20, yellow fever reported to be present; Vera Cruz, May 31 to June 6, 5 deaths.

## CONSULATE OF THE UNITED STATES.

ATHENS, May 28, 1895.

I have the honor to report that since the appearance of smallpox in Athens and the Piræus, about the middle of January, there have been in all 336 cases; 189 in the Piræus, 147 in Athens. Of these, 249 had been recently vaccinated, and 37 in childhood. Sixty-nine deaths occurred, 23 in Athens and 46 in the Piræus. A large percentage of the deaths was of young children, or people of evil habits of life.

There are now 26 patients in the hospital at Piræus; 69 in that of Gondé near Athens. Only one or two cases have been heard of in the last two or three days. Much credit is due to the authorities for their thorough and scientific handling of the epidemic. I am, sir, your obedient servant,  
GEORGE HORTON, United States Consul.

## CONSULATE OF THE UNITED STATES.

NOGALES, SONORA, MEXICO, May 20, 1895.

I have the honor to inform you that reports are current in this vicinity, as well as in other portions of this State of Sonora, that at Mazatlan, a seaport city on the western side of Mexico (in the State of Sinaloa), yellow fever is now prevailing to a considerable extent, and that in some instances the disease has terminated fatally. It is also reported that there have recently been two cases of the disease at the city of Guaymas, another Mexican seaport (by rail, some two hundred and sixty miles south of Nogales). I have been unable to verify the reports in either instance, but I am apprehensive that they are not without some foundation. I am, Sir, your obedient servant,  
FRANK W. ROBERTS,  
United States Consul.

RIO DE JANEIRO, May 21, 1895.

I have the honor to inclose report for the week ending May 18, 1895. There were 12 deaths from *accessio pernicioso*, an increase of 3; 30 from yellow fever, a decrease of 2; 4 from beriberi, a decrease of 3; 3 from enteric fever, a decrease of 1; 1 from measles, the same as in the foregoing week; 1 from cholera and 1 from cholera, none in the previous week; 7 from choleraform diarrhea, an increase of 6; 1 from choleraform enteritis, and 1 from whooping cough, none in the previous week; 53 from consumption, an increase of 20. There were 358 deaths from all causes during the week, which is an increase of 32.

While there is really no disease reigning considered here as epidemic, yet great caution is needed where there are so many different kinds of contagious affections, though in very small numbers for the population.

Cholera. I am a little surprised that a case of cholera, or as they call it here, cholera morbus, should be reported, as the disease appears to be finished in the places of its first appearance, and it is almost unheard of here now, but as you will see, by the report choleraic diseases still occur. The sanitary measures adopted for the ways of communication with the interior have been suspended as no longer necessary, but vigilance is still kept up.

Yellow fever. There is more of this disease here now than during the summer months, but the cases are scattered and it is now declining.

Plate River. Cholera has been officially declared extinct in Buenos Ayres, though cases appear in Montevideo. The authorities in those towns have declared the Brazilian ports—except Santos—free from suspected disease, but they still disinfect ships arriving from Brazil.

Respectfully yours,

R. CLEARY, M.D.  
Sanitary Inspector M.-H. S.

## CONSULATE OF THE UNITED STATES.

FOOCHOW, CHINA, April 30, 1895.

I have the honor to inform you that the disease known as the "Hong Kong Plague" has made its appearance in Foochow, and is already established as an epidemic. It is confined to the city of Foochow proper, most of the deaths from the disease occurring within the city walls near the eastern and western gates, respectively; but it is stated that several cases have occurred among the natives of a village situated on the Island of Nantai in the vicinity of the foreign settlement, though I am unable to say that the Nantai cases are real cases of the plague.

There is no question or doubt about the epidemic in the city being identical with that which last year caused such mortality in Hong Kong, and in Canton and other southern Chinese ports. The symptoms attending its appearance and progress unmistakably stamp it as the plague; and in the infected districts within the city the rats are dying in great numbers, just as has been the invariable rule wherever the plague has shown itself in the past.

The health of the port, in general, as respects natives and foreigners has been exceptionally bad this year. Some sporadic cases of cholera have already occurred; and it is possible that there will be suffering from an epidemic of cholera along with that caused by the plague.

In a city like Foochow it is impossible to institute any sort of sanitary measures to prevent the spread of contagious diseases, or to even mitigate the suffering of the victims. So, unless the present epidemic die out of its own accord, there is every prospect that misery and death will come to thousands of the one and a half millions of people living in the city proper and its immediate suburbs.

At an early date I shall report more fully upon the situation.

I have the honor to be, Sir,

Your obedient servant,

J. COURTNEY HIXSON, Consul.

## NECROLOGY.

FRANK LYMAN FORSYTH, M.D., of Providence, R. I., May 11, 1895. He was the son of Dr. Francis Flint Forsyth, an eminent physician in Massachusetts, who was for many years one of the counsellors of the Massachusetts Medical Society. Both father and son were members of this society, the son being also a member of the Rhode Island Medical Society and the AMERICAN MEDICAL ASSOCIATION. He was born at Hampton, N. H., Feb. 13, 1854, and received his degree from the Harvard Medical College in 1877, after preparatory study at the Boston Latin School and the High School at Weymouth, Mass. An appointment was soon obtained at the Rhode Island Hospital where he remained one year. He supplemented his education at Harvard by a post-graduate course in 1891. His practice was large and successful and extended over a period of seventeen years, but his health began to fail nearly a year ago, and although the winter was spent in the South he passed away in eighteen days after his return. He was interested in several fraternities, was a member of the I. O. O. F., a past chief patriarch of Narragansett Encampment, and in 1887-88 was grand chancellor of the Grand Lodge of K. of P. of Rhode Island. He was a Mason in Nestell Lodge, No. 37, A. F. and A. M., and a member of Providence R. A. Chapter, Providence Council, R. and S. M., and St. John's Commandery, No. 1, K. T. From 1886 until 1890 he was grand secretary of the Grand Clan of Rhode Island, O. S. C., and in 1890 he was elected grand chieftain of that body. His widow survives him.

CALVIN TRUESDALE, M.D., of Rock Island, Ill., died June 9. Dr. Truesdale was born in Northern Ohio in October, 1822, and was consequently 73 years old. He graduated from the Western Reserve Medical College in 1845. After practicing some years in Ohio, he came to Rock Island in 1854, and continued in the practice of medicine there from that time till his last illness, a period of forty-one years, years which brought to him success in his profession and a competency, beside the respect of the community and public and professional honors. He was surgeon of the Rock Island division of the C., B. & Q. Railway, and one of the stockholders of the Rock Island Plow Company, beside being actively interested in the general welfare of the city of Rock Island. During his residence there he was twice elected mayor of Rock Island, and in 1872 was a candidate for Congress. He was spoken of a number of times later for like candidacy, being a man of acknowledged intellect and influence, and one whose loss will be mourned by many. He was married in Ohio in 1851, and

# The Journal of the American Medical Association

VOL. XXIV.

CHICAGO, JUNE 29, 1895.

No. 26.

## ADDRESS.

### ADDRESS ON THE FOUNDING OF THE ILLINOIS HOSPITAL.

Delivered in Central Music Hall, June 12, 1895.

BY SETH SCOTT BISHOP, M.D.

CHICAGO.

The purpose of this pleasant meeting, held under the auspices of the gallant Columbian Knights, is not a mercenary but a merciful one. There are some good people who entertain the idea that doctors are like ministers—in one respect—that they are always asking and receiving. These are the excellent citizens who pay their bills. There is another large class who realize that doctors are persistent askers but poor getters. These are the beneficiaries of our good-natured Esculapians, but they would have their doctors work for nothing, board themselves and go to the Chicago River to drink. Medical men have learned, perforce, that it is more blessed to give than to receive, and we are not here to ask more than we are willing to give.

Every prosperous citizen owes a certain obligation to the community to which he is indebted for his prosperity. There may be poetry but there is no romance or fiction in my remark that doctors work for nothing. I speak from experience. During the past fifteen years I have served on the staffs of more than half a dozen of our charity hospitals and dispensaries, and, like all the other attending physicians, have never been paid a dollar by any one of them. But once in a while the sweet, strange melody of "thank you" tickles the auditory nerve. I am often asked: "Why do you work without pay?" I will tell you our secrets. First of all, we love our work. No other citizen endures more trying ordeals, or subjects himself to greater personal sacrifices for the pure love of his labor than the conscientious charity physician. By this means, also, he becomes perfected in his art and known for his skill. There is a satisfaction, a fascination about the medical and surgical treatment of large numbers of our fellow beings that words can not portray. Who would not be a valiant knight, the general of an army, or even a colonel—if he could? Who would not risk his ease and comfort to save a man or helpless horse from death?

Do we need another hospital? If you have tried to secure the admission of poor patients to our hospitals since the World's Fair you will answer this question in the affirmative. It is difficult for influential physicians to open the hospital doors to their own patients, and next to impossible for you to find an empty cot for your sick or injured friend. The city has outgrown its hospital facilities. The county institution is over-full. There ought to be a district hospital in every populous ward. Much suffering and many lives could thus be saved. The chances

of the sick, and of the wounded who are subject to shock and bleeding, are imperiled by long jaunts in ambulances over jolting pavements to far-distant hospitals.

The 16th and 17th wards have no hospitals. In the 17th ward alone we have 30,000 people, enough to constitute a city of importance. Over one-half are foreign-born, mostly Scandinavians, and more than one-third are under 21 years—our rising generation. And here, young ladies, is a pointer for you: there are 3,200 more males than females. An army of stalwart young men is encamped in the boarding houses in the eastern half of this ward.

The 17th ward is about a mile and a quarter square, bounded on the north and east by the river, on the south by Lake Street and on the west by May and Carpenter Streets. It contains eighty-five factories, half a dozen railroads, an elevated road and numerous street car lines with their many accidents. Our young Illinois Hospital is situated in the heart of this district on the six corners of Milwaukee and Austin Avenues and North Union Street. A cable car line passes the door and three other car lines are within a square. There is no other hospital nearer the center of this busy little world than two miles distant. The people are poor and need our help. The strong should lend a hand to the weak. It is good political economy to give aid to the ailing in time to restore their health, save their injured limbs and restore them to their vocations in the capacity of producers, rather than to allow them, through neglect, to become perpetual paupers, beggars or criminals. To a business man this is a proposition that appeals to good sense if not to sentiment. It is a paying investment for citizens to combine their efforts with the doctors' work in such humanitarian institutions. Physicians contribute their time, their talent and their strength, and as much money as they can afford. Is it just to ask them to go farther and bear the entire burden of these charities for the community whose duty it is to provide housing, board and nursing for their sick poor?

We have made a discovery in the 17th ward. We happened upon a determined little band of noble souls who had imposed upon themselves the duty of living in the midst of this colony for educational purposes. They are there as brothers and sisters to help those who need help, to teach those who want to learn, to promote cleanliness, purity and peace—in a word, to make intelligent, patriotic American citizens. Without sect or sectionalism they cultivate the spirit of universal brotherhood and practical Christianity. The founding of a dispensary and hospital in this neglected spot is due to the open arms that welcomed us to this self-sacrificing settlement—the Chicago Commons. Long life and success to the Chicago Commons! They need and merit your help. They are our willing allies. Our interests are mutual.

We appeal to the people to rally to our aid. The love of humanity should call forth the generosity of our fortunate few. The memory of Newberry, Cre-rar, Jones and Lewis shall live when their tombstones are no more. The high examples of Rockefeller and Field should not be lost on those who wish to witness the blessings of their benefactions while they live. Who will be our Scoville of great heart, and our Dr. Pearsons of many noble deeds? Or who will be our Mrs. Pearsons with her \$10,000 gift to Anatolia College, presided over by my classmate?

Great souls are these—products of this century and this civilization—superior to any other! Their memory shall bloom when monuments crumble to dust. Their spirits shall animate the coming generations when their fellow-mortals sleep forgotten. What other benefactor of our race shall rise to bless his fellow-men? Who will sow the seeds of a lasting charity by endowing this refuge—this restorer of the helpless to health and happiness? And what more fitting place to appeal for brotherly love and sympathetic deeds than this platform, hallowed by that poetic preacher who dwelt like sunshine in our midst, consecrated to the cause of humanity and a broad Christianity, whose features, cast in classic mold, smile sweet benedictions on our cause—that moral philosopher and Christian philanthropist, David Swing!

## ORIGINAL ARTICLES.

### HISTORY OF THE CASE OF THE HON. WALTER Q. GRESHAM, LATE SEC- RETARY OF STATE OF THE UNITED STATES.

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Secretary Gresham was taken ill on April 30, the earliest symptoms appearing while he was at a Cabinet meeting; on the following day he was suffering from acute epigastric pain, which was so severe as to require the use of morphia hypodermatically. On May 3 the pain changed its location to the right infra-axillary region. By reference to the thermometric chart it will be seen that during these days he had fever. At this time he was under the care of another physician.

Early on the morning of May 4, I received a note asking me to call and see Secretary Gresham at the Arlington. I was requested by him to take charge of his case. The chief symptoms which were presented to me, at my first visit, were fever, embarrassed breathing, his voice being broken during conversation, and his facial expression indicating suffering; the pulse was 100 and not very strong and his respirations were 36 to the minute. He had slept several hours during the night, but sleep had been much disturbed by the dyspnea and by acute pain in the right side.

Physical examination of the chest showed the presence of a considerable amount of fluid in the right pleural cavity, dullness on percussion and aegophony reaching as high as the lower edge of the scapula. There was diminished expansion and entire absence of vocal fremitus over the same region.

The diagnosis was made of acute pleurisy with effusion on the right side; this opinion was based

upon the symptoms and physical signs described; there was no symptom, noted by me at the time, which could not be explained by this lesion, and there was no symptom which indicated any lesion of any of the abdominal viscera. Neither then nor at any subsequent period was there any icterus or abdominal tenderness, or unusual tympanitic distension.

A cantharidal plaster, six inches square, was applied over the right infra-scapular region, a liquid diet of koumiss and milk ordered and absolute rest enjoined. A mixture was prescribed containing the liquor ammoniae acetatis and tincture of digitalis. He was already under the care of a trained nurse, another one was secured to assist, and everything was done for his general comfort under the watchful supervision of Mrs. Gresham.

During the day the patient slept at intervals, and there was a good deal of discomfort in breathing; he was unable to lie on either side, but his symptoms did not change for the worse. The blister had vesicated well; this was dressed and the right side covered with cotton and oiled silk.

May 5. After 1 A.M. the night was comfortable; his temperature continued to drop until it reached 99.2 degrees at 6 A.M. At 9 A.M. an attempt to turn over, brought on a violent paroxysm of pain in the right side of the chest; for a time he breathed with difficulty, but as soon as the pain passed off, he was in no sense any worse than before. A water enema was followed by a large normal movement. At the morning visit the line of dullness on percussion showed the fluid was greater in amount, the respiration had increased to 40 and the pulse to 118 per minute, these being the maxima reached during this period of the illness; during the latter part of the day he was more comfortable, and slept three hours at intervals. Milk, koumiss and chicken broth were taken alternately and the ammonia and digitalis mixture was given, but not regularly.

May 6. During the night the patient slept in short naps; at 7 A.M. there was profuse perspiration; the temperature then being 98.2 degrees and he was nervous and restless. Later in the morning he felt better than before; a water enema gave him a small normal action and in the afternoon he slept three hours. The pleural effusion reached its maximum to-day, the dullness extending nearly to the spine of the scapula, but the breathing was not over 30 to the minute, the pulse 98; the greater ease in breathing seemed to be due to the relief from the constant and aggravated paroxysmal pains in the pleura which had been present up to this day, and which after this did not recur.

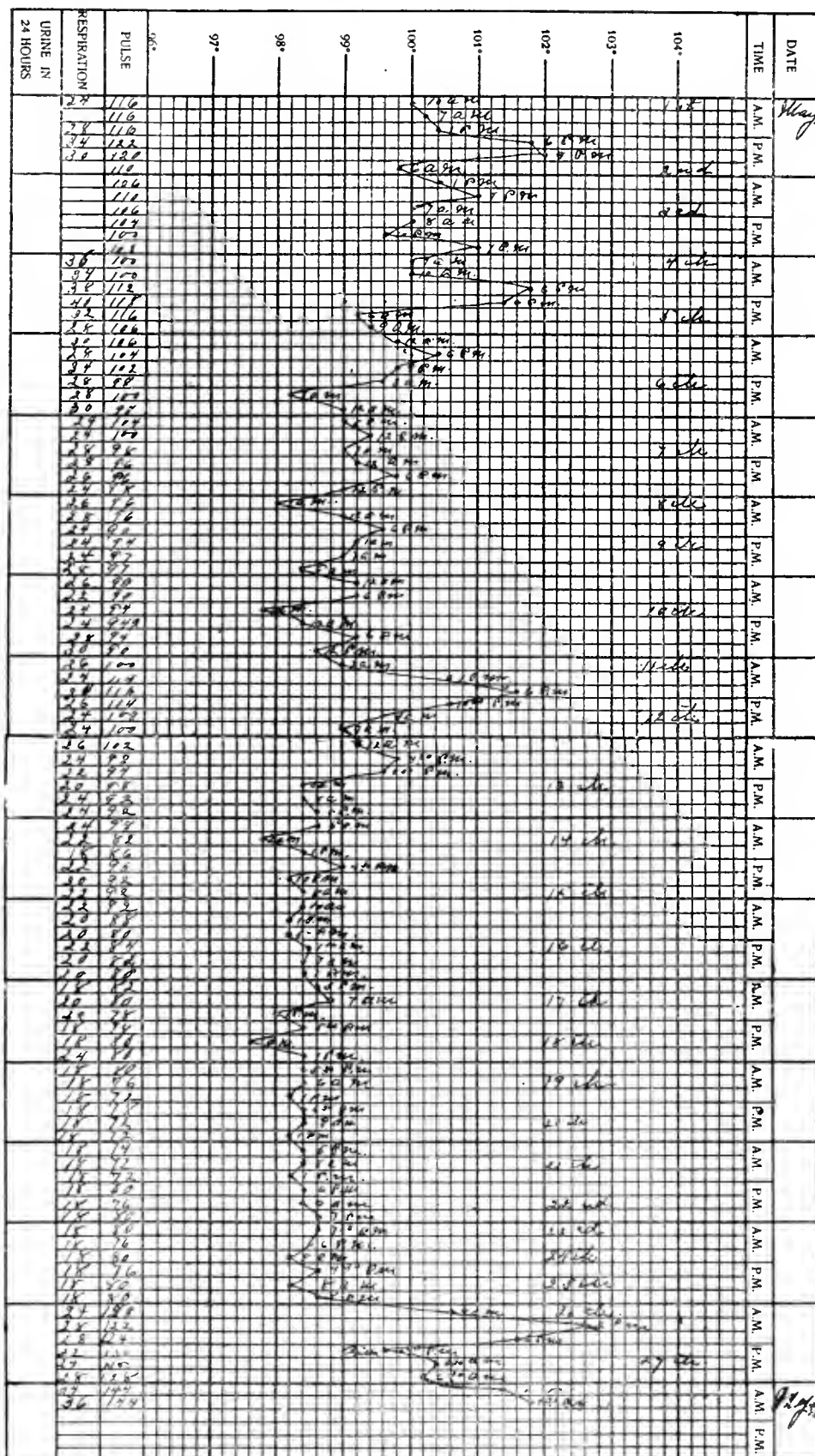
May 7. The patient slept moderately well during the night; in the early morning he was restless.

Mr. Gresham frequently, and generally in the morning, complained that he was suffering from indigestion, but there never was any objective evidence of this; his tongue was slightly coated and dry, and there were occasional eructations of gas, but as a rule digestion of the fluid food given was as well performed as it usually is in acute illness. During the day he had several short naps and seemed very comfortable, although he was at times anxious and nervous.

May 8. The patient slept between six and seven hours during the night, at times lying on his left side and breathing with no difficulty. He awoke



## RECORD OF TEMPERATURE, PULSE AND RESPIRATION, CASE OF SECRETARY GRESHAM.



much brighter than on any previous morning; his temperature was 98 degrees lower than at any previous time, his respirations were 26 and pulse 96. Three ounces of Hunyadi Janos water were given; as this had no effect, a water enema was administered later in the day and a small normal movement followed. The afternoon was comfortable but without sleep. The same diet was continued, but as he objected to the mixture and as he was doing so well this was discontinued.

There was no perceptible diminution of the fluid in the pleura, but no increase, and the general improvement and feeling of ease in breathing gave every encouragement of rapid absorption. The question of paracentesis was not considered, as no symptom called for operative interference.

May 9. The night was less comfortable than usual; he did not sleep well until between 2 and 7 in the morning. As he complained of indigestion, a powder of bismuth and bicarbonate of soda was given and later a water enema caused a small action. During the afternoon he slept at intervals; the nourishment of buttermilk or broth was taken regularly during the day.

May 10. The patient slept moderately well, but was disturbed by having two loose actions in the early morning. The morning and afternoon were passed comfortably; his food was relished more than at any previous times. As he complained of occasional and slight pain at the edge of the ribs on the right side, a small blister was applied to the right inframammary region and left until it caused vesication. To-day there was a perceptible beginning to the absorption of the effusion. All the symptoms were favorable, and beyond an occasional complaint of indigestion he spoke of nothing being wrong.

May 11. The daily decline in the temperature and the improvement in other symptoms had been uninterrupted up to this date. At 7 A.M. the temperature was higher than at any previous day at the same hour since May 5; it continued to rise during the day, reaching 101.6 degrees at 6 P.M.; from this hour it continued to drop until it reached 99 degrees at 7 A.M. on the next day. There was no apparent reason for this accidental interruption to the daily decline of the fever curve.

Dr. D. W. Prentiss met me in consultation and agreed with me as to the diagnosis and as to the favorable progress of the case; the pulse, respiration and temperature indicating a decline in the inflammation, and giving promise of early absorption of the fluid. A capsule of squills, digitalis and calomel was directed to be taken every four hours, and buttermilk, milk and Mellin's food or bouillon were given every two hours.

May 12. The night was very comfortable; there were several hours of sleep in the morning; as he wanted more food, tea and toast were given and, later, oyster broth. The temperature had fallen and he seemed to have recovered from the sudden rise of yesterday. Beyond an occasional sharp touch of pain on deep respiration there was no complaint to-day; the bowels were freely moved, and he was composed and cheerful. Although asking for the privilege of attending to business, he readily consented to give up everything that might delay his recovery.

May 13. From this date until May 25, there was a steady progress toward recovery from day to day. The fluid in the pleura rapidly diminished, the tem-

perature was normal and the pulse and respiration reached 76 and 18 respectively. The tongue became almost entirely clean, and there was a demand for solid food to satisfy the increase in appetite. The diet consisted of milk, buttermilk, ragout, toast and breakfast hominy. On May 16, a small bird was taken with relish, and from this day on he was allowed solid food once daily, and semi-solids and liquids at other hours. Now and then he complained of indigestion, but his appetite and desire for food was not at any time lost; the condition of the tongue, the character of the fecal discharges and the usually quiet sleep at night gave every evidence that digestion was being well performed. As his improvement was so marked Dr. Prentiss discontinued his consultation visits on May 18. No medicine was given during this time except a capsule containing quinia and nux vomica three times daily. Two or three times the elixir of chloralamid was tried when he complained of sleeplessness at night.

May 24. The night was passed most comfortably; he enjoyed his breakfast of a tender piece of steak with toast, and his dinner of a bird and toast, milk and bread and buttermilk being given at other hours. The nurse's record states that "the day was most comfortable," and he slept during the afternoon. A solution of dilute hydrochloric acid with pepsin was given after food.

No privileges were allowed the patient beyond the permission to look at an illustrated periodical for a few moments at a time; occasionally he sat in a semi-erect position supported with pillows; the same precautions were continued in every other respect as during the earlier part of his illness. Except for one visit from his private secretary he saw no one except members of his immediate family, and he did not attempt to attend to any matters of business. His manner was that of quiet content and satisfaction with his improvement.

May 25. The patient slept well; the record says he had a very good night. The examination of the chest showed the presence of a very small amount of fluid in the lower part of the pleural cavity; aegophony had almost entirely disappeared, the line of dullness was much lowered and there was a distinct return of expansion and normal vocal fremitus.

The gain had been so marked in the past few days that the expectation was held out to Mr. Gresham that he might be able to sit up by the side of his bed for a few minutes within three or four days. On the evening of this day, however, a sudden change in his condition destroyed all these well-founded hopes, and the overwhelming illness began which ended fatally on May 28. The first indication of this change appeared at 7:30 P.M.; he seemed uncomfortable and restless, and complained of epigastric uneasiness which very soon became a decided pain. About 11 P.M. he vomited a little greenish fluid and a few coagula of milk which he had taken about three hours before; there was no other undigested food in the matters vomited. The temperature began to rise at the same time and the pulse and respirations increased in frequency.

May 26. At 1 A.M. the pain was of so intense a character that it was found necessary to give him one-eighth of a grain of morphia hypodermatically. Mustard was applied to the epigastrium and liquid food was given in small quantities only. The night was restless, sleep being interrupted, but toward

morning there was some improvement in the symptoms. He again vomited in the afternoon. The pulse was frequent, not very strong and occasionally irregular. Milk with whisky and beef juice were given. One other dose of morphia was administered at 6:40 P.M. to relieve a very intense attack of pain, but after this it was not again required.

During the night the pain passed to the left side of the chest wall, and it was thought the attack would prove to be one of pleurisy on that side; a small blister was applied over the left infra-mammary region. The increase in the respirations and pulse and the continuance of fever gave grounds for believing that there was some new inflammatory process beginning in the chest. The pain and vomiting were thought to be reflex symptoms due to this cause and the subsequent progress of the case and its termination confirmed this opinion.

May 27. During the night the pulse had much less force, and food and stimulation were continued. There was no vomiting until 10:30 A.M. when a considerable amount of greenish fluid was thrown off.

Dr. Prentiss met me in consultation and on examining the chest we discovered solidification in the recently expanded lung on the right side. There was a decided area of dullness, where the percussion had been almost normal two days before, and there was some bronchial breathing with bronchophony over the same area. The conclusion reached was that there had been an extension of the inflammatory process to the pulmonary tissue and that the symptoms present were due to pneumonia suddenly developed in the right lung.

The care which had been taken and the avoidance of any imprudence or exposure precluded the idea that this attack was the result of "catching cold;" the nature and course of the illness showed that it was not primarily connected with digestion and, therefore, not due to the indigestion of the food taken.

The alarming symptom was the weakness of the heart's action. During the morning the pulse ranged from 128 to 135; nitro-glycerin and digitalis were administered but with little effect in giving strength to the heart. Up to 6 o'clock in the afternoon there was no alarm felt as to any immediate danger; at this time the pulse became more frequent and feeble and the dyspnea was more marked. Strychnia and nitro-glycerin were given hypodermatically at regular intervals and stimulating enemata employed. At 9 P.M. there was such a marked collapse that death seemed imminent; transfusion with a sterilized saline solution was made into the median-cephalic vein of the right arm; three pints were introduced with the effect of bringing back warmth to the extremities and some color to the face, the pulse also became fuller and stronger; but this effect was temporary only and by 11 o'clock the same symptoms of collapse returned. From this time the change was rapid. Consciousness was not altered until within a short time of the last moment. Death occurred at 1:15 A.M., May 28.

**Bellevue Hospital, New York.**—The Commissioners of Charities and Correction of New York City have determined to introduce the novelty of Turkish and Russian baths into that institution. Bids thereon are to be opened June 27, and the work will be pushed.

## NOTES OF A CASE OF ACUTE SUPPURATIVE PANCREATITIS WITH REPORT OF NECROPSY.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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Acute suppurative inflammation of the pancreas is so rarely recognized during the lifetime of the patient, that I have thought that the details of the following case, in which it was possible to make a correct diagnosis while the patient was yet alive, would prove sufficiently interesting to engage your attention for a few moments.

I was called to see, on Dec. 2, 1894, Mrs. S., the mother of two children, one 12 years, the other six months old. She was 35 years of age, with dark hair and eyes, tall and unusually stout, though it was thought she had lost nearly forty pounds during her illness. She had enjoyed excellent health until fifteen months previously when she was seized with a severe attack of what her physician told her was hepatic colic, and which was followed by intense jaundice within two days. The attack lasted three weeks, with the usual symptoms. No gall stone was recovered from the feces, though looked for. The pain was almost constant, though of unequal severity. After a very severe paroxysm it disappeared abruptly and the patient soon regained her health. She became pregnant almost immediately after, nearly eleven years after her first and only other pregnancy. She was safely delivered last June, did not nurse her baby and made a good convalescence. In August she was thrown over the dashboard of a dog-cart but was apparently unhurt. During the summer, for a month or more, was affected with slight diarrhea. Upon the last day of September she was suddenly seized with an attack which she recognized as identical in character with her former attack of hepatic colic. After two days, her urine became dark, her stools colorless, and jaundice supervened. Her pain was almost incessant though she did not take to her bed. After a while the intervals between the paroxysms of pain became longer, but no positive relief in its intensity was obtained, though the jaundice diminished and her feces became colored again. She continued to lose weight, her appetite and strength failed and she finally took to her bed, about four weeks previous to my first visit. The various remedies employed under medical advice gave only temporary and partial relief. Since taking to bed, she had had no sharp paroxysms of colicky pains, but had had frequently recurring milder pain, with persistent, though slight jaundice, and frequent vomiting, the ejected matter occasionally being streaked with blood.

At the date of my first visit, sixty-two days after the beginning of the attack, she was in bed, slightly jaundiced; her body was still well nourished. Her tongue was coated with a thin yellowish fur. She had no sore throat. The heart and lungs gave no abnormal sign. There was no expectoration and no cough. She was vomiting several times daily, almost without nausea, a greenish fluid, sometimes slightly bloody. The vomiting appeared to have no relation to the ingesta. The bowels were moved several times daily. The actions were semi-solid, grayish, and

contained lumps of mucus. This mild diarrhea and vomiting were said to have been present for several weeks. Hiccough had latterly been very troublesome. There was no splenic enlargement. Liver dullness began in the mammary line at the first rib, but did not extend beyond the costal arch. The body was somewhat distended with gas. In the epigastric region, extending into the left hypochondrium and reaching to within an inch and a half of the navel, was an induration, not modifying the outline of the abdominal wall, irregular in contour, not fluctuating, not movable, and but slightly tender to pressure; its diameter in the median line was about three inches and four and a half inches laterally, reaching to left mammary line. The percussion note over this tumor was relatively dull, not tympanitic. The lower abdomen showed no abnormality. The urine was abundant, darkened by bile pigment and faintly albuminous and with Fehling's solution gave a slight but positive sugar reaction. It was acid and of sp. gr. 1020. Though almost no pain was elicited by palpation, the patient complained of severe lancinating paroxysmal pain radiating from the epigastric region, with its point of greatest intensity under the xyphoid cartilage. She also suffered similar pain in the back, between the shoulders. The abdominal muscles remained almost motionless during respiration, which was almost purely costal and rapid, significantly so when considered with reference to the pulse rate and in the absence of signs of pulmonary disorder. Fever was said to have been present for many weeks, though recorded observations were not made until November 27. During the entire period of illness there had been no chill. Several weeks previously there had been a sensation of chilliness, but this had never recurred. Neither had there been sweating, except to a small extent about the head. She had at no time had symptoms of intestinal obstruction; on the contrary, there had been a notable tendency toward diarrhea almost constantly from the first. She was unable to lie upon either side and was most comfortable in a semi-recumbent, dorsal position. Exhaustion was great and sleep very insufficient and disturbed. An hour after my examination she vomited some fresh blood.

A consideration of all the symptoms and history seemed to justify the following diagnosis: hepatic colic at the outset of symptoms on September 30; impaction of the calculus at the common orifices of biliary and pancreatic ducts in the duodenum with incomplete obstruction. Inflammatory hyperemia with gradual formation of suppurative pancreatitis and peri-pancreatitis. The case progressed with varying but increasingly graver symptoms. The tumor gradually extended downward to the level of the navel. Diarrhea became very unmanageable, the stool assuming a thin grayish or greenish-gray, or yellowish, occasionally dark character. Free fat was never detected in them, though sought for diligently. Vomiting was also extremely distressing and constant, though often performed without nausea. Microscopic examination of vomited matters gave no information as relating to the nature of the essential trouble. They were largely made up of greenish mucus, often containing blood, or were often composed almost entirely of ingesta. Treatment, both of diarrhea and vomiting produced only temporary effect. There was complete anorexia. In spite of supporting and anodyne treatment the physical con-

dition steadily deteriorated, and on December 12 Professor Tiffany was called in consultation with a view to operative interference. While agreeing in the main with the diagnosis as given, Professor Tiffany in view of the general condition did not feel justified in operating. Diarrhea, vomiting and paroxysmal pain now became very distressing and the patient was kept constantly mildly under the influence of morphin, hypodermically administered. The tumor remained hard, irregular, and gave no sign of fluctuation. Tympanitis had noticeably increased on the 14th, and upon that date a noticeable fall of evening temperature was observed, but there was no increase of abdominal tenderness, though paroxysms of pain were frequent and severe whenever the effects of the morphin became weakened. On the 16th, cough developed and crepitation was heard at the base of the right lung. On the 18th at 8:45 o'clock she became very weak, the face, feet and hands cold, the respiration slow. She rallied slightly after a while and during the day had four dark green stools. On the 19th, at 9:45 o'clock A. M. she passed a copious stool consisting entirely of bloody pus. During the day she had several similar stools. At the same time the tumor became indistinct and noticeably smaller. She sank rapidly and died in collapse at 5 P. M. The course of the pulse, temperature and respiration and the extent of diarrhea are shown in the accompanying chart, which, however, dates only from the fifty-eighth day of the disease.

Post-mortem examination, by Dr. K. B. Batchelor, twenty hours after death. (Examination of abdomen only.) Abdomen distended and tympanitic. On opening abdominal cavity a large quantity of foul-smelling gas escaped with something of an explosion. Gas continued to escape for some seconds. Greater omentum contained a quantity of fat. There are multiple fresh adhesions between omentum and parietal peritoneum in superior portion of abdominal cavity, and there is also, here, very slight congestion in peritoneum. No fluid in peritoneal cavity. The adhesions (fine fibrous bands) are easily broken down and separated in right superior portion of omentum and peritoneal cavity. Toward the left side they gradually increase in number and size, but are easily separated everywhere.

Areas of fat necrosis are found in great numbers in left upper side of omentum, over the abscess cavity. None are found on right side. The inferior portion of omentum is free from adhesions or fat necrosis. The posterior surface of the omentum and the transverse meso-colon are much congested and covered with recent fibrous adhesions. The intestines in superior portion of abdominal cavity are tied together by numerous fresh adhesions. They are easily separated.

Stomach shows nothing abnormal. The head of the pancreas is almost entirely obliterated, the part remaining forming a portion of the posterior wall of the pus cavity. This cavity occupies the position usually occupied by the pancreas, together with the whole of the lesser omental cavity. Its walls are shreddy and have a spongy, worm-eaten appearance. The cavity extends upward behind the stomach to the vault of the diaphragm, the inferior surface of the diaphragm being covered, to a less extent, with the shreddy and spongy lining of the pus cavity. Situated about the center of the lower portion of this cavity is a small remaining part of the pancreas. It





has, heretofore, been wellnigh impossible, it may be hoped reasonably, that the more definite knowledge of their clinical history and symptomatology that we now possess will insure its very much more frequent recognition. The case that I have the honor to report presented characteristics that rendered an accurate diagnosis fairly easy to any one reasonably familiar with recent literature upon the subject. More exact acquaintance with acute pancreatitis, however, will probably reveal frequent inter-relations of all three varieties mentioned. My own case, for example, presented indisputable proofs of an antecedent hemorrhagic condition, as shown in the presence of blood cells and coloring matter in the contents and walls of the abscess cavity.

### STRABISMUS AS A SYMPTOM, ITS CAUSES AND ITS PRACTICAL MANAGEMENT.

Read before the Michigan State Medical Society, June 7, 1895.

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Landolt in his classical work says: "A strabismus operation, when undertaken without an exact knowledge of the optical and muscular functions of the eye, is but a rude and dangerous experiment." The reason for this statement springs from the fact that strabismus is merely a symptom of numerous pathologic and congenital defects, and its rational management calls for the study and removal, or correction of these, so far as is practicable. The story of strabismus well illustrates the persistency by which the profession traces a symptom to its origin, in order that its cause may be removed and the symptom cured. Failure of squint operations has led to such study as revealed the reasons for the past defects and the methods for future success.

At present we know that some cases of squint are readily curable, that some are incurable, and others doubtful, calling for additional study ere they can be classed either as curable or incurable. Diefenbach operated first for convergent squint in 1839, by dividing the belly of the internal rectus muscle. His operation was based upon the analogy of operations upon contracted muscles in other portions of the body. He reasoned, that since division of contracted muscles or tendons elsewhere, restored muscular equilibrium, it should do so in the ocular muscles. He neglected to note that the problem of contracted ocular muscles differed radically from that presented elsewhere, in that opposing recti and their associated elastic tissues constantly tended to separate their divided ends. Hence the results obtained by himself and others were so frequently disappointing and actually disastrous that, except for the radical change introduced by Bohm, the operation must have passed into merited oblivion. This transferred the site of the operation from the belly of the muscle to its tendinous insertion, thus leaving the capsule of Tenon mainly undisturbed. The technique of the operation was so perfected by von Graefe as to render it easy and safe of performance; especially useful was his method for either increasing the effects of a tenotomy or diminishing the same.

The ophthalmoscope enabled us to see that some cases of squint were due to diseases of the refractive portions of the eye, distorting the passage of the rays of light in their course to and from the retina, or, as in case of disease of the optic nerve, cutting off

the power of transmitting the impression made by the rays of light upon the retina, to the brain.

Not a few cases were traced to corneal opacities. Eyes entirely blind were found to often squint. Thus the symptom squint was traced to a variety of pathologic conditions, having one common feature, viz., they rendered the vision of the two eyes unequal and so deprived them of the "guiding sensation." With these facts in mind it is clear that a squint operation, without previous careful ophthalmoscopic examination, must be "a rude and dangerous experiment."

Donders' studies of refraction and accommodation traced this symptom to other and more common sources. Thus he showed that three-fourths of the cases of convergent squint were hyperopic, and an equal proportion of the cases of divergent squint were myopic. He also pointed out the intimate relationship between convergence and accommodation, a physiologic fact which anatomic researches have supported, by demonstrating the close relation of their centers in the floor of the fourth ventricle. When the eyes accommodate for near objects by the contraction of the ciliary muscle, they also converge by the contraction of the internal recti. The bearing of this fact upon the causation of squint is apparent, when it is remembered that the hyperope is compelled to accommodate at all distances, and so the ciliary muscles are in a state of constant tension, and with them the internal recti. The flattened eyeball of the hyperope has broken the harmony which should exist between convergence and accommodation. Thus, if the hyperope accommodate for twelve inches, as in reading, the convergence will be at a point less than twelve inches if the muscles are of normal power. The result is a diffusion of impressions upon the retina, to escape which the squinting hyperope turns one eye in and fixes the other at twelve inches, ignoring the impression of the squinting eye. A repetition of such acts forms a squint habit, which, while at first alternating, at last usually becomes fixed. The habitual suppression of the image in the squinting eye is followed by a loss of the power of perception—a loss which can be repaired if the retina be normal at the first. Thus we have convergent squint due to eyes defective in the length of their antero-posterior axes. To the query, Why all hyperopes do not squint, it is replied that in those who do not squint, the normal balance between the power of the internal and external recti is so changed that, instead of being 4 to 1 it is less, only 2 to 1 or even 1 to 1. Hence in the non-squinting hyperopes, the excessive convergence required for distinct vision is balanced by the weak interni, so that the eyes remain straight. If the externi be much in excess of the interni, we have a hyperope with divergent squint. In support of this view of the causation of squint, advanced by Valk, I have habitually found all hyperopes to have weakened interni, as measured by the standard of 4 to 1.

Donders found that myopes needed little or no accommodation, because the eyeballs were already too long; hence the convergence in near seeing would be *nil*, and so if the strength of the recti was normal, the eyes would turn outward and give a divergent squint. But if the externi were weak the eyes might remain straight, or if very weak they might turn in and give a convergent squint. Aside from muscular action in causing divergent squint in myopes, we

have the elongated antero-posterior shape of the eyeball; the greater distance between the temples of myopes; variations of the orbital fat, and of the attachments of the ocular muscles to the bony walls.

These studies in refraction, accommodation and action of the external muscles of the eyes have led to far reaching consequences in the management of the symptom of squint. Thus it has shown that some cases of convergent squint can be permanently cured by the wearing of such convex glasses as fully correct the abnormal flatness of the eyeballs; that some cases of divergent squint can be cured by the wearing of concave glasses, which reduce the refractive power of the eyes to their normal standard. The symptom disappears when we have restored the lost equilibrium between the refraction, ciliary and recti muscles.

As the nature of mydriatics became understood, it was found that their use in paralyzing the accommodation, permitted the recti to assume their normal functions, and so facilitated a cure of cases in which the squint persisted after the defects of refraction had been corrected by appropriate glasses.

Statistics on a large scale, show that while tenotomies and advancements cured many cases of squint, the intelligent correction of refractive defects and the use of mydriatics cured many additional cases, added to the number of those who secured binocular vision and diminished the number of divergent squints following tenotomies. Thus by distinct lines of evidence we have traced the symptom squint, in many cases to defects of refraction, and abnormal ocular muscles. This result is still further confirmed by recent studies of those similar disturbances of muscular equilibrium known as insufficiencies or heterophorias. These studies have encouraged surgeons to seek binocular vision in the management of squint, rather than rest content with the straightening of the eyes, because they have given us finer and more precise methods of operating and more suitable instruments, both for determining the muscular disability and for doing the operations; in short, they have furnished us with a micrometer adjustment for the doing of squint operations, and so raised them to a higher perfection.

Finally, squint has been traced to a defective structure of the retinal percipient elements, congenital in its origin, unchangeable in character, and causing an inability to see other than large objects. Upon these eyes, neither glasses, atropin, or tenotomies have other than a cosmetic effect; only operative procedures avail aught in their management.

Having collected all existing knowledge respecting squint, we see still vast fields, uncultivated fields adequate for the surplus energies of more than a generation of physicians. Thus we want a comparative study of the origins and insertions and other relations of the ocular muscles; the modifications of their activities by the varied shapes and sizes of the eyeballs, by the individual peculiarities of the capsule of Tenon, by the quantity and quality of the orbital fat or the fibrous stroma which holds it in place. We want a comparative study of the orbital walls, as bearing upon their contents, and the functional activities of the eyes. We have still much to learn of the nervous apparatus of the eye and its muscles, of its visual and motor centers, and of the complex relationship of this apparatus to other organs; in fact, time fails us to even enumerate the

fields awaiting investigation, in their relation to the causation and management of squint. However, our present knowledge enables us to attain very satisfactory results in an increasing number of cases. It is a marked advance in that we aim, not only to straighten eyes, but to have the patient possess binocular vision. This is attained by supplementing the operations for squint with gymnastic exercises, innervation treatment or partial tenotomies, until we have enabled the eyes to fix upon any point within the visual field. This necessitates a cordial coöperation of physician and patient during an extended period, varying with individual cases.

For convenience, the management of squint may be divided into operative and non-operative. The operative measures are tenotomies of the stronger muscles or advancement of the weaker ones; both of which may be needed in the same case.

The non-operative means are:

1. Careful attention to the patient's constitutional condition.

2. The correction of all defects of refraction, so far as these affect the squint unfavorably—the correction to be made from data obtained while the eyes are fully under the influence of atropin.

3. The continued use of mydriatics.

4. The use of gymnastic exercises, or the innervation treatment of Gould, to increase the power of the weaker muscles, or to bring them into coöperation with the stronger.

In each case the surgeon is met with the question, Is this an operable one? To aid in answering this, I give brief extracts of four typical cases, whose condition I was able to record many years after the treatment—affording the final results of the management of convergent squint:

*Case 1.*—Boy aged 5, strong, with marked convergent squint of the left eye, noticed when six months old. An examination with the ophthalmoscope showed a healthy ocular media; vision of right eye was 20-20; of the left 20-200. Under a mydriatic the ophthalmoscope showed a hyperopia of a dioptric and a half. The full correction of this was prescribed, and the ciliary muscles kept fully under the influence of atropin, but at the end of six months the result was negative. The internal rectus tendon was now divided and the other treatment continued, with the final result of leaving the eyes perfectly straight, but with no improvement of vision even fifteen years after the tenotomy. This was clearly an operable case, as nothing but the tenotomy changed the squint, and even it failed to improve the vision. Such cases are defective in the percipient elements of the retina of the squinting eye, or its optic nerve relations.

*Case 2.*—A healthy girl aged 9; convergent squint of right eye since 1 year old, at first alternating but finally fixing; the ophthalmoscope showed perfectly healthy media, in both eyes, and a hyperopia of two dioptics in the right eye and one and a half in the left; vision of right eye was 20-200; of left eye 20-40. Full mydriasis and correction of hyperopia failed to benefit the squint, so that a tenotomy of the right internal rectus tendon was done. This failing, a month later the left internal rectus tendon was divided, with the result of making the eyes practically straight and after many months bringing the vision of each eye to 20-20. These two cases were alike in both requiring ocular tenotomy, but unlike in that the vision of the first was unimproved, while that of the second became normal, though the same methods were employed. The first represents a class of cases, congenitally defective in the percipient elements of one eye and so incapable of development; the second stands for a class in which vision is lost by non-use, but can be restored if the eye can be placed in such relations as will admit of the normal exercise of the retinal elements.

*Case 3.*—Boy aged 5; squint noticed when 2 years old; alternating then and at examination; vision of each eye 20-40; hyperopia two dioptics, the correction of which gave a vision of 20-20, and rendered the eyes perfectly straight.

Atropin was used six months and the correcting glasses worn constantly, with the result that ten years later the eyes were straight and the vision binocular and normal.

*Case 4.*—Boy aged 8; convergent squint of the left eye, noticed when year and a half old as alternating but now fully fixed; ophthalmoscope revealed perfectly clear media, and a hyperopia in the right eye of two dioptics, and in the left of two and a half; vision of right eye 20-30; of the left 20-100. Glasses correcting the hyperopia, both straightened the eyes and substantially improved the vision of the fixed eye. This improvement continued till vision of the squinting eye was equal to that of the other, and nine years later the vision continued normal and the eyes perfectly straight.

The last two cases were clearly non-operable. True, a tenotomy would have rendered the eyes straight, but later they would have diverged.

To avoid complexity, simple hyperopic cases are selected, but cases of hyperopic astigmatism, simple or complicated with hyperopia obey the same laws.

It follows that in every case of uncomplicated squint, the question arises, Does it belong to the class of congenital amblyopias or no? If the answer be affirmative, the case can be operated upon at once for cosmetic effect—there being no hope of improving vision. If the answer be negative, we must separate the operable from the other cases. The following has been found a safe method of procedure:

1. Eliminate all cases of paralysis.
2. With the ophthalmoscope, detect all squints due to opacities in the refracting media and treat them by operations, as in congenital amblyopias, for cosmetic effect merely:
3. Determine the vision of each eye, and the kind and degree of ametropia under mydriasis.
4. Correct the full amount of ametropia, and if this renders the eyes nearly or quite straight, an operation is inadmissible and the cases will probably go on to full recovery, under the use of glasses and atropia.
5. If glasses and atropin produce no perceptible effect upon the squint, then a tenotomy of one or both recti is indicated, followed by the use of glasses to relieve the eye strain and retain the eyes in the position resulting from the operation. The securing of binocular vision in this class of cases is materially aided by gymnastic training of the weaker muscles, and the coöperation of all.
6. The time for operating upon convergent squint depends entirely upon the ability of the surgeon to separate the operable from the non-operable cases. An operable case is best treated as early as the coöperation of the patient can be assured—usually at about 6 years.
7. If glasses correcting the full ametropia be worn at an early date, the normal relations of convergence and accommodation are soon established, better developed during child growth, and the ultimate vision more perfect.
8. To secure the best results, calls for much attention to the management of these cases, during a period extending over months or even years.
9. As to the final balance of the internal to the external recti, a proportion of 4 to 1 has given the greatest comfort to patients, and the best vision under all circumstances.

#### CONCLUSIONS.

1. Strabismus is always a symptom of some morbid or congenital defect.
2. Success in its relief, has increased in direct proportion to our knowledge of these conditions and defects.

3. Strabismus due to opacities of the refracting media or to congenital amblyopia, can only be treated by operations, and solely for cosmetic effect.

4. Strabismus due to the combined action of hyperopia and normal recti, is treated by tenotomy or advancement, atropin mydriasis, suitable glasses and gymnastic or innervation exercises.

5. Binocular vision is to be sought for in all cases other than those due to opacities of the refracting media, congenital amblyopia or organic disease of the retina or optic nerve. With sufficient perseverance, it is attainable in a fair proportion of cases.

6. Recent studies of heterophorias afford substantial aid in the better management of squint, by the new standards of both operative and gymnastic work, by the more convenient and reliable instruments for examination, and finer ones for operation.

7. There yet remain a number of cases of squint not explicable by our present knowledge, or amenable to treatment by accepted methods. To bring these under definite law, both as to cause and management, remains for the student of ophthalmology.

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#### CONSERVATIVE BRAIN SURGERY.

BY S. V. CLEVENGER, M.D.

CHICAGO.

In "Lectures on Intracranial Surgery," published in this JOURNAL, June 8, 1895, by Dr. Emory Lanphear, certain statements are made that are not warranted by pathologic and alienistic knowledge, certain operations are recorded as having been performed that are not justified by the literature or experience of those most competent to judge; and the results of the operations being unfavorable, and in some instances causing death, the conclusions of the paper alluded to are improper, and if recklessly absorbed and acted upon by others may be productive of further discreditable surgical interferences, and revolt of the laity against "butchery," as many unsuccessful operations are styled, even when these are judiciously and justifiably done.

That Dr. Lanphear is a "brilliant operator" is well known, but when this ability is unassociated with other requisites it is like pyrotechnics near a powder magazine. He speaks of "insanity from softening of the brain." He can not find such an expression in any work on insanity worthy of the name. At this date, to speak of "softening of the brain" as any kind of insanity, would place the physician who used the term upon the level of the public, untrained in any kind of medical information. "Softening" is not an initial lesion, but merely a consequence, and where found associated with cerebral defects, mental, motor or sensory, it is subsequent to hemorrhage, compression, contusion, plugging of arteries or veins that originated such defects. Extensive softening may exist without insanity, and often, when found in the brains of the insane, is not related to the insanity in the remotest degree.

Trephining to relieve compression of a cortical, or even to reach a reasonably accessible subcortical neoplasm, either of meningeal or neuroglial origin, or to raise a depressed piece of bone, or remove an exostosis, or to evacuate an abscess that can be reached without running the risk of murder, no one should find fault with, but when it is proposed to open the brain for an embolism situated usually near the cerebral base, most often in some Sylvian artery branch,



an embolism that may be resorbed if nothing whatever is done, is surgery worthy of the Middle Ages.

Dr. Lanphear is surprised that he "can find no published reports of operations for epileptic insanity," and supplies the void by telling of two cases operated upon by Dr. A. B. Shaw, both of which availed nothing. This operation for "insanity from softening of the brain—complete relief," describes an aphasic who had a few symptoms of traumatic insanity and who consented to the operation. "He was discharged in excellent condition, mentally and physically." It is too bad that no statement of his *present* condition three years after the operation is afforded us. It is safe to assert that, if living, the patient is worse than before the interference, not necessarily from the operation, but from the natural unrelieved course of such derangements.

The Doctor quotes an author whose reputation is quasi-scientific and popular—Maudsley, on the "Pathology of General Paresis" (paretic dementia): "Morbid adhesions of inflammatory origin, slowly spreading between the cortex and its investing membranes," and says: "If, then, by surgical means, we can arrest the spread of the trouble while it still involves that part of the brain which presides over," etc., etc. Ten years ago Spitzka, in his "Manual of Insanity" elaborated the pathologic anatomy of paretic dementia, and such conditions as Dr. Lanphear quotes from Maudsley are not mentioned, but other things are, such as intense degenerative processes in the brain and cord, pial adhesions to the cortex, cystic degeneration of the cortex, sclerosed and obliterated blood vessels, granular change in the ventricle endyma, the nerve cell degeneration and formation of the "spider-shaped cells of Meynert," the most constant and intense changes being in the *pons* and *medulla oblongata*, sclerosis of the cortical vessels, kinked, distorted, aneurysmal, plugged vascular channels, and, in short, "there is scarcely a ganglion or fiber tract that may not be affected." (Spitzka p. 228). Or, take the older English work of Mickle, "General Paralysis of the Insane," with the specified individual autopsies showing extensive general brain alterations, and the quotation from Maudsley becomes insignificant as a pathologic suggestion for cerebral surgery; as well attempt the diversion of Niagara River by opening a faucet.

Remember, also, that remissions of weeks or months and, in extremely rare cases, of years, have occurred in paretic dementia histories, and the temporary improvements after operations in a few cases may be accounted for. The reduction of one case to dementia proper by trephining can scarcely be called a success, for such an interpretation we can place upon Rey's case, which "afterward remained calm and quiet." . . . "The subsequent history is unknown." One can be "quieted" with a brick. In another, "there was great improvement but the patient died in six weeks." In this case there was *cerebral atrophy*. How could trephining be expected to relieve atrophy of the brain?

As for syphilitic insanity, common sense would suggest a fair trial of K. I. before operating to relieve gummatous membranes. He says: "Manifestly, some of them can be readily removed by the knife." But how about those which can not?

Under the head of "syphilitic insanity," the Doctor narrates an epileptic insanity case, not considering that both these psychoses have separate and dis-

tinct clinical peculiarities. The operation "was characterized as a gross outrage" by the asylum physician; the patient died nine months afterward. "Had an operation been performed upon the right side of the head, subsequent to the one upon the left, the probabilities are that cure might have resulted." By what reasoning does Dr. Lanphear arrive at this conclusion? If removal of the "greater portion of the left parietal bone" was not sufficient, why, in the absence of any focal indications should the right also be removed, any more than the frontal and occipital? Unchecked, unchallenged, our "brilliant operators" will be removing the temporals and sphenoids next.

The quotation from Horsley is misapplied. Remove an affected area by all means, if well made out by focal or other definite symptoms to be in an accessible part, but for diffuse syphilis of the brain, or idiopathic epilepsy, in most cases, it is little short of homicide to attempt cerebral surgery where the operation becomes but an aggravation of inflammatory or allied states, beyond reach, as multiple gummata are likely to be.

Burkhardt's six cases of paranoia are cited. A fanciful psychology of the association paths of the brain was invented to warrant the cutting. "Ideogenic areas" are familiarly mentioned as though definitely localized. "A portion of the frontal and parietal lobes before and behind the ascending convolutions were removed with very satisfactory results in one case." What the "very satisfactory results" were, are not mentioned. "The other died from convulsions on the sixth day." "Satisfactory results" were obtained in three other cases. In one, "recovery from the paranoia was perfect."

The imperfect record in most of these cases, the ambiguity as to the effects of the operations, the neglect of detailed accounts of the condition of the patients for any period, short or long, after the surgery, and the general "altogetherness" the *tout ensemble*, reminds one of "Alice in Wonderland" narratives, written to startle and entertain, rather than to contribute seriously to science.

The Doctor's twelve rules seem to have been hastily written. The importance of the errors in them make it necessary to call attention to the dangers of following such blind leadership.

#### "RULES FOR TREPHINING FOR INSANITY."

"1. Every depressed fracture of the skull should be subjected to operation at the time of the accident, regardless of the amount of depression and irrespective of pressure symptoms."

This rule might apply to any case of obvious fracture. Insanity is rarely demonstrable immediately after a fracture of the skull.

"2. Every case of prolonged unconsciousness following a blow in the frontal region should be trephined for exploratory purposes; upon both sides, if necessary."

How long is "prolonged?" Ordinary cerebral concussion may be attended with prolonged unconsciousness and the occipital region may be injured by a frontal blow. It might be brilliant to trephine over *contre-coup* locations. The removal of the entire skull would be thoroughly exploratory.

"3. The skull should be opened in all cases of insanity dependent upon trauma, at the earliest possible moment after development of the mental symptoms."

Symptoms usually develop in such cases many years after the injury. Should the mental part of the brain be opened up, and if so where is it? When insanity supervenes from trauma the brain, in the vast majority of cases, has undergone permanent change without definite localization. What good would opening the skull do, aside from making a fee?

"4. Operation is justifiable in every case of serious suspicion of tumor, abscess, or softening of the frontal (or any other accessible) region."

*Set*, with the exception of the word "every," which is too sweeping.

5. "Operation is advisable in every insanity following cerebral or meningeal hemorrhage in which localization is possible, the clot accessible and the mental trouble of recent development."

Such combinations are extremely rare, and there is nothing in medical or surgical literature to cause enthusiasm over trephining cases of cerebral hemorrhage. The suspicion attaches that death has been precipitated by many such operations, while expectant treatment has been rewarded by a fair number of recoveries, and a large number of partial recoveries. Sometimes the operation has restarted a deep-seated hemorrhage and the usual inability to differentiate cortical from basilar or subcortical and inaccessible recent ruptures of vessels make the operation exploratory, which, of itself, is adding to a trouble without reasonable certainty or assurance of benefit. The chances for aggravation by trephining outweigh the possibilities of relieving.

"6. Every case of insanity developing in the history of otitis media suppurativa deserves immediate exposure of the favorite site of cerebral abscess."

In fact, the simple operation of taking away the temporal bone or a large part of it. Exploration of the middle ear, the mastoid cells and a careful study of the case had better precede opening the temporal region. The bones may be found carious, an abscess may be evacuated in that neighborhood, but the chances are that an extensive meningo-encephalitis is the pathologic condition, in which case less harsh measures would be of more avail, and decidedly less dangerous.

"7. Trephining for the purpose of breaking up adhesions of an old meningitis has been successfully practiced though it is not to be strongly advised."

Particularly, if the meningitis is basilar or universal or even covering a large brain area. The mere matter of tearing off a few inches of cortex with the adhesions might have some attention. Certainty of a very circumscribed, easily accessible and small pachymeningitis offers chances for operating, but more study should previously be accorded the case than the rash operator indulges.

"8. Establishment of permanent drainage beneath the scalp is permissible in the beginning of a terminal dementia succeeding chronic hydrocephalus."

What earthly benefit can accrue from interfering with the brain, or even the scalp, of a terminal dementia, when the hydrocephalus is compensatory, the cerebral lobes shrunken, *atrophied*, *sclerosed*, every vestige of hope of return of reason vanished as though the head were cut off? The fluid merely fills the space between the shrunken brain and the meninges.

"9. Operation for epileptic insanity is advisable whenever there are symptoms pointing to a focal lesion."

This could apply to any Jacksonian epilepsy of cortical origin. Such instances are one in a thousand among the insane and the brain disorganization is too advanced to make it a warrantable operation. Observe the extravasations, the leucocytic exudates that have organized at the brain base, the universal heavy dense membranes and adhesions found in epileptic insane autopsies, and then, even with a focal lesion, which is not the only brain trouble, what hope is there from an operation?

"10. Experimental trephining in the early stage of general paralysis of the insane is considered worthy of further trial."

Every such experiment has been a wretched failure, beside too many cases of general paralysis of the insane (paretic dementia) have been improperly diagnosed as such. An alienist would feel like throttling an operator who cut into the skull of a maniac, whose chances of recovery are excellent, through mistaking his case for one of paretic dementia, which has been repeatedly done.

"11. Operation should be done for even a suspicion of the existence of a gummy deposit in the bone or meninges."

If gummata are in one area they are probably in another; a favorite site is about the pons and in the course of the sixth pair of nerves. The removal of a single gumma or group of gummas from one part does not check the disease. A vigorous saturation with K. I. would be all that is primarily warranted and particularly where only a "suspicion" of a gumma existed.

"12. The formation of fenestræ in the skull is permissible whenever there is evidence of intracranial pressure, even of unknown origin. "Sometimes cerebral pressure is from constipation. We have such articles as cathartics, ergot, iodid of potassium, and a neurologist might hit upon some other means of relieving intracranial pressure, if the term intracranial is meant in the sense in which we use the word intrauterine. In another intracranial meaning an exostosis, or what is sometimes improperly called an endostosis, may produce brain pressure and the fenestra might help, or it might afford an opportunity for hernia cerebri, which is scarcely desirable."

There is something in Lannelongue's craniotomy (not craniectomy) in cases of primary synostosis to allow the brain room to expand, and if surgeons would allow the alienist to select cases of idiocy and imbecility suitable for operation, instead of rushing into craniotomy with the average surgical unfamiliarity with the insanity, the percentage of successful results would undoubtedly rise. Where the brain has undergone permanent retrogradation, and of this the alienist is the best judge, there can be no hope from any treatment.

Imagine the resentment of the surgeon were some neurologist to venture advice in a case of intestinal resection, but the alienist has as good a right to feel insulted when a surgeon, who has but the most superficial ideas of psychiatry, promptly takes up his knife and trephine and proceeds to "cure" incurable demented, imbeciles, and other comparatively brainless unfortunates, without seeking advice from those who make such matters a life study. There are vast experimental fields left over from the last century in clitoridectomy, circumcision, rectus muscle snipping for insanity, in spite of the failure of the great Chicago "officialist" with his sphincter cut-

ting for mental and all other troubles, including baldness and corns, and notwithstanding the controversy between the State Board of Charities and another "officialist" who castrated a lunatic now in the Elgin Hospital for the Insane.

Castration, oöphorectomy, sphincter, and ocular rectus muscle cutting, clitoridectomy and other reflex pleasantries, can earn fees at less risk to the patient, just as well as brain surgery with inferior knowledge of psychiatry and cerebral pathology, even when performed by a "brilliant operator."

70 State Street.

## THE AURAL MASSEUR IN THE MANHATTAN EYE AND EAR HOSPITAL.

BY CHEVALIER JACKSON, M.D.

PITTSBURG, PA.

The aural masseur described by me in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of May 11, 1895, had given me such good results in the treatment of defective hearing and tinnitus aurium, in cases of otitis media catarrhalis chronica, that I sent an instrument like my own, some six months ago to Dr. D. B. St. John Roosa for a thorough trial and opinion on its merits. He placed the instrument in the Manhattan Eye and Ear Hospital, where it was tested thoroughly in charge of Dr. Bretano Clemens who has sent me the following report:

I submit to you some results of my observations of the use of your electro-pneumatic masseur in cases of tinnitus aurium. Of late years so many instruments have been brought to the notice of the profession for the relief of this distressing affliction, and the advantages of each have been so strongly maintained by their various supporters, that I undertook the task of ascertaining the special field of usefulness of your masseur with some prejudice against it. The relief obtained in a number of cases in which other known methods and remedies had failed, however, has convinced me of the merits of the instrument, and of the correctness of the principle upon which it is founded. My tests of it have been made in all classes of cases of non-suppurative ear disease associated with tinnitus aurium, viz., otitis media catarrhalis chronica, including, the hypertrophic and the atrophic forms; disease of the auditory nerve, and in the mixed form where the sound-conducting and sound-perceiving apparatus are simultaneously involved. It will be seen from the details hereafter given, that some cases were more promptly benefited than others, and that in a few, the tinnitus was so much intensified that further use of the method was out of the question.

In applying the instrument, I was particularly cautious not to depend upon a patient's statement that the machine was "working," but by substituting the pneumatic speculum of Sieglé for the ear tip you sent with the masseur, I could distinctly observe the movements of the membrana tympani and malleus to my entire satisfaction.

The usual hyperemic conditions observed after using the Delstanche masseur, I have never witnessed after an application of your instrument.

Premising, that upon the whole, the use of your instrument has demonstrated its value to my mind, the following are the details of a few cases which I

have been able to observe, and which will serve to facilitate the further study of its application:

*Case 1.*—Male, physician, aged 55. Applied for relief of tinnitus on Feb. 5, 1895. History: distressingly loud tinnitus, like escaping steam, and distressed for past ten years; occasional attacks of vertigo which are slight; plethoric, and unsteady in walking. Objective examination: both membranes very opaque, some retraction and hyperemia along the malleus handle.

Tests: watch R., 0-60; L. 0-60; whispered voice R. 0. L. 0; no improvement after inflation. Absolutely no bone conduction for forks C1, C2, C3 and C4. C fork was perceived only for an instant. Slight aerial conduction of low tones only.

This patient had been treated by many famous otologists of this country, but derived no benefit from their efforts. Removal of the ossicles was advised several times, but absolutely refused. The masseur was used with no effect for several weeks, applications being made tri-weekly, but on March 15 he reported with much glee that the noise had suddenly left him the night before for the first time in many years, and remained away for twenty-four hours. He is much improved; the noises though present, are not distressingly loud. This treatment was continued for several weeks longer, and he then departed for Augustine, Fla., much better and freer from tinnitus than ever before.

Six cases similar to the one quoted have been much benefited, the tinnitus becoming intermittent or remaining continuous with less intensity.

*Case 2.*—O. M. C. C. Female, aged 22, general housework, applied for relief of tinnitus aurium and deafness on Feb. 28, 1895. History: deafness principally in left ear, for past two years and rapidly growing worse. Tinnitus constant, and of pulsating variety, intensified by recumbent position. Deafness right ear for past two months—tinnitus ringing, not constant. Hears better in quiet place. Objective examination: right ear, membrana tympani cloudy, dull, and slightly retracted. Left ear, membrana tympani very much retracted, so that the malleus handle is nearly horizontal; cloudy, slightly hyperemic. Sieglé shows malleus to be rigid. Nose: rhinitis hypertrophica chronica. Luschka tonsil slightly enlarged. Eustachian tubes closed.

Tests: watch R., 5-60 after catheterization 12-60; L., c-60, after catheterization, 3-60. Right ear, C, 23-21; C1, 18-10; C2, 28-20; C3, 18-10; C4, 25-12. Left ear, C, 8-25; C1, 8-12; C2, 15-25; C3, 13-10; C4, 15-10.

Treatment; Eustachian catheter and menthol vapor. The pneumatic masseur was used, but each application increased the intensity of the tinnitus in the left ear, to such an extent that further use of it had to be discontinued.

In another case, exactly similar to the one first quoted, the result was equally unfavorable after using the masseur. Therefore, in twenty-two cases of otitis media catarrhalis chronica, associated with tinnitus aurium and treated with your masseur, two cases were unfavorably influenced, and twenty more or less benefited.

The following brief report will show how quickly relief follows the application of the masseur in some cases of O. M. C. C.:

*Case 3.*—Female, aged 35, servant; came to the hospital on Jan. 15, 1895 for treatment. History: deafness followed an attack of scarlet fever fifteen years ago, and is gradually growing worse. Tinnitus aurium in right ear. Hears better in noisy place. Objective examination: right membrana tympani moderately retracted, cloudy. In left ear the local appearances are similar.

Watch R., 12-60; L. c-60. No improvement after inflation. Whispered voice, right, three inches; left whispered voice, six inches. Forks: right C, 0-33; C1, 5-11; C2, 14-23; C3, 8-12; C4, 10-8. Left C, 15-33; C1, 7-12; C2, 16-21; C3, 12-12; C4, 15-8. Vertex test heard better in left ear.

Treatment: the electro-pneumatic masseur relieved the tinnitus at once. After three applications the noises disappeared, and have not returned up to the present time. The deafness remained uninfluenced.

## MIXED CASES.

*Case 1.*—Female, aged 46; first came to hospital April 19, 1894, for treatment. History: deafness for past fifteen years, gradually increasing; hears better in a quiet place; considerable tinnitus aurium in both ears, which is always much increased during an attack of acute rhinitis. Objective examination: both membranes much thickened, slightly hyperemic and moderately retracted.

Watch R, 0-60, slight increase after catheterization. Left 0-60, after politization, 0-60. Whispered voice R. E., three inches. Whispered voice L. E., two inches. Vertex test (Weber) heard better in right ear. Forks: right, C, 14-11; C1, 10-4; C2, 26-0; C3, 8-0; C4, 6-0. Left, C, 13-8; C1, 7-4; C2, 25-0; C3, 7-0; C4, 8-0.

Nose: rhinitis hypertrophica chronica. Tubes closed.

Treatment: the Eustachian catheter, menthol vapor, and an occasional passage of an Eustachian bougie, with the use of the Delstanché masseur, which was employed for six or seven months, with but indifferent results.

Three months' use of your pneumatic masseur gave only transient relief from the noises. On March 21, 1895, the tinnitus was louder than ever before since being under treatment. She had taken fresh cold. On April 4, 1895, she reported considerable improvement, and on the 13th, that the tinnitus disappeared from right ear entirely, it remaining in the left, but very feebly. Tuning fork tests were made on April 13 with following result:

Right, C, 7-10; C2, 10-0; C4, 8-0; Left, C, 8-11; C2, 0-0; C4, 8-0. Watch, right, 1-60. Left, 0-60. Right, whispered voice, eight inches; left, ten inches. The masseur treatment will be continued.

*Case 2.*—Female, aged 40, housekeeper, first came to hospital for treatment Jan. 22, 1895. History: afflicted with deafness and tinnitus for many (?) years. Three weeks ago took a heavy cold, and has been growing rapidly worse. Tinnitus principally left, constant and whistling. Objective examination: membrana retracted and very cloudy. Sieglé demonstrated no ankylosis of hammer. Chronic follicular pharyngitis, tubes closed.

Tests: left ear, watch 0-60, after catheterization 0-60. Whispered voice two feet, after catheterization two feet. Vertex test (Weber) heard equally well in both ears. Fork test: left C, 12-15; C1, 10-5; C2, 10-3; C3, 8-4; C4, 12-4. Treatment: electro-pneumatic masseur and Eustachian catheter. Two days later reports that the tinnitus is exactly the same; the masseur only gave relief for eight or ten hours. Four days later, much improved, the tinnitus remaining away for a longer period after each application.

This case gradually improved and finally ceased attending the clinic. Ten cases corresponding to those quoted were treated with varying results. Some were promptly benefited, while others only experienced amelioration from the existing tinnitus.

A. The electro-pneumatic masseur affords relief to many patients suffering with tinnitus aurium. How permanent this relief may be, must be determined by more extended observation.

B. The use of the instrument is apparently contraindicated in cases where the existing retraction of the membrana tympani and malleus causes an increased intra-labyrinthine pressure.

## CIVIL SERVICE REFORM IN STATE INSTITUTIONS—REORGANIZATION OF THE MEDICAL STAFF.

BY BOERNE BETTMAN, M.D.

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All measures toward reform in the treatment of the insane will prove an utter failure until the manner of appointing the medical staff is radically changed.

The superintendent and head of the institution must possess not only the requisite medical skill to fit him for the care and supervision of the patients

intrusted to him, but he must also be endowed with executive abilities to maintain a business-like organization and to exact well-disciplined service from a large *personnel*. Burdened as he is by multitudinous duties, he naturally is obliged to delegate the treatment to the medical assistants. To them is intrusted the diagnosis of the mental complaint and its subsequent treatment. Upon them rest great responsibilities.

Medical assistants are ordinarily appointed through political or other influences. The superintendent is often not consulted in the matter, but is forced to submit to the dictates of others, whose only concern it is to obtain a job for some influential friend. Persons absolutely unfit, both by education and character, are thus thrust upon the institution, to the detriment of its insane inmates.

The number of physicians in our State asylums is inadequate; one for every four or five hundred patients. It is commonly acknowledged that one medical man should take care of no more than two hundred. Routine and careless treatment is thus avoided. The individuality of each case can be more readily studied. The now over-burdened physician has but little time at his disposal for further improvement and recreation.

The isolated position of the asylums is another source of danger to the medical mind. Far distant from medical centers, cut off from associations with scientific men, deprived in this matter of the stimulus necessary to further improvement and original research, his ardor is either allowed to lie dormant or absolutely to die out for want of encouragement.

A laboratory well equipped exists in but one of our State asylums. Its value can not be over-estimated. It is a necessary adjunct. The practical results obtained in medicine are the outcome of the applications of scientific research and investigations. The latest improvements in surgery were only possible after the untiring labors of a Pasteur and Koch. The cure for diphtheria and hydrophobia depended upon the cultivation of bacteriology. Practitioners have neither the time nor the special qualifications to devote to strictly scientific pursuits. A specialist is necessary. A pathologist well trained and endowed with the proper zeal is needed for this work. His presence will also have a stimulative effect on the medical staff. If ambitious, he will imbue others with such a spirit for earnest and conscientious work that enthusiasm will be awakened. No individual can perform labor creditably unless he is devoted to his vocation. This is especially true in the calling of a physician. Constant and untiring research is an especial feature of his life. Science is ever making such rapid strides that to keep abreast of the times requires uninterrupted study.

To remain at a standstill means stagnation, deterioration. The introduction of staff meetings, for the purposes of consultation and discussion of medical themes and analysis of cases, will also call into life, taste for more thorough examinations of and conscientious devotion to the patients. These various reasons induced the State Board of Charities to issue a circular letter to the trustees of the four State asylums requesting them, in order to improve upon the present methods, to appoint for each hospital a pathologist and a number of internes.

General hospitals the world over, have for years given recent graduates of medicine an opportunity to



get a practical knowledge of their profession by employing them as assistants to the medical staff. Residing as they do in the hospital, and being called upon to perform certain services to the sick, under the supervision of the physician in charge, they obtain ample opportunities of acquiring useful knowledge and of profiting by the experience of their older and better informed superiors. The patients, on the other hand, have constantly at hand well educated assistants who are intelligently carrying out whatever orders may be given by the attending surgeons. This system of internes is doubly beneficial. Again, a certain amount of routine clerical work, as writing up the history of the patients, keeping daily record of their condition, etc., is performed by the interne, and relieves the attending physician of useless and unimportant labor, giving him time for more important work and self-improvement.

The appointment of internes must be absolutely free from prejudice and preferment of all kinds. The ablest only are worthy of these positions, for they alone are capable of profiting by the advantages allotted to them. They only possess the qualifications which will insure earnest effort and arouse a desire for progress. These competitive examinations should be free to all senior medical students of medical schools in the State of Illinois and to all Illinois practitioners of not more than five years' standing. Those senior students who succeed in obtaining sufficiently high marks to become internes should only then be accepted as such, after having received their doctor degree from their respective colleges. The closing of the college year varies in different institutions. To induce a sufficiently large number of students to compete, before returning to their homes, the examinations should be held before May, and the successful candidates be assigned to their duties a few months later, after the final college examinations have taken place. All efforts should be made to place the examinations on a strictly impartial footing. The internes should receive beside their board and lodgings, a small monthly salary. They should be expected to serve at least one year, and be permitted to fill vacancies occurring in the staff of assistants. This system, if rigidly enforced, will be one step toward the introduction of a system of civil service reform in the medical corps of our institutions, which can only be associated with the highest benefit to all parties concerned. It will secure for the State a perfect medical service, and for the ambitious student untold opportunities for acquiring scientific and practical attainments.

A year ago the State Board of Charities sent a circular letter embodying the above views to the trustees of the four State lunatic asylums, and requested also a conference of the superintendents and the President of the State Board. At this meeting, the subject was thoroughly discussed and the result was the appointment of a board of examiners to conduct a competitive examination on a truly impartial basis. This board consisted of the following gentlemen, who were to prepare questions in their respective branches:

Dr. R. Dewey—Mental Diseases.

Dr. J. H. Etheridge—Gynecology.

Dr. Adolph Meyer—Anatomy and Physiology of the Nervous System.

Dr. Louis McArthur—Surgery.

Dr. Hugh Patrick—Nervous Diseases.

Dr. William E. Quine—Medicine.

This board appointed at its first meeting,

Dr. Boerne Bettman—President.

Dr. Hugh Patrick—Secretary.

The board prepared the following circular letter, a copy of which was sent to every medical college in the State in good standing with the State Board of Health:

CHICAGO, April 5, 1895.

Notice is hereby given that a competitive examination will be held at Cook County Hospital, April 15, 1895, from 9 to 4 o'clock, for the appointment of internes to serve for a term of one year in the State Hospitals of the Insane, to be appointed as follows:

Northern Illinois Hospital for Insane, three internes (Elgin).

Eastern Illinois Hospital for Insane, four internes (Kankakee).

Central Illinois Hospital for Insane, three internes (Jacksonville).

Southern Hospital for Insane, two internes (Anna).

All senior students of, and all practitioners graduated within five years, from medical colleges recognized by the Illinois State Board of Health shall be eligible for this examination.

Candidates shall be examined in the following branches, viz.: practice of medicine, surgery, gynecology, mental diseases, nervous diseases, anatomy and physiology of the nervous system.

Each interne before entering upon his duties shall have complied with the legal requirements governing the practice of medicine in the State of Illinois.

Beside board and lodging, internes shall receive a monetary compensation not to exceed \$20 per month.

Applicants will oblige the Board by immediately sending their names to Dr. Hugh T. Patrick, 34 Washington Street, Chicago.

By order of the Board of Examiners.

BOERNE BETTMAN, M.D., President,

HUGH T. PATRICK, M.D., Secretary.

Owing to unfortunate obstacles placed in the way of the Examining Board, the above announcement was not made until a late date, less than a week before the date of examination. Notwithstanding the short preparatory notice, nineteen applicants reported to the Secretary. Seven of these withdrew at the last moment, partly on account of a rumor which crept into the newspapers that internes were to be utilized as nurses. Six of the twelve aspirants obtained an average of 75 per cent. or more. One of these succeeded in obtaining a position in the Cook County Hospital. The remaining five drew lots, which resulted in two being assigned to Kankakee, one to Elgin, one to Jacksonville and one to Anna.

The seventh and eighth highest in rank having obtained an average of 70 per cent. were appointed first and second alternates. The examination was absolutely fair; the identity of the applicants was lost, by withholding from their papers, names and any sign or symbol which might disclose them. A card bearing the name and given number of each candidate was placed in a sealed envelope, which was only opened after the papers were examined and the winning number had been decided upon. This examination marks an epoch in the history of State medicine. Although the City of Chicago has but recently adopted at the polls, by an overwhelming majority, civil service reform, to the medical fraternity belongs the credit of having first conceived the plan and carried it into execution. The fundamental principle of all good government should be, "to the worthy belong the deserts," in contra-distinction to the war cry of political parties, "to the victor belongs the spoils."

As our superintendents are medical men, they

naturally will do all in their power to protect from harm the seed which has been planted, so it may sprout and develop into a sturdy plant, which will bear rich and bountiful fruit.

## SOCIETY PROCEEDINGS.

### Association of American Medical Colleges.

*Sixth Annual Meeting, held at the Club House of the Hotel Rennert, Baltimore.*

DR. E. FLETCHER INGALS, President, in the chair.

The minutes of the last meeting were read and approved, upon amendment, changing the records to indicate the presence of the representatives of the University of California and the Western Pennsylvania Medical College of Pittsburgh, Pa.

DR. MICHAEL raised a point denying the legality or regularity of any action taken at San Francisco at the last meeting, as only twenty-three colleges were represented out of a total enrollment of forty-one colleges. The point was discussed by Drs. Millard, Cole, Street, King, White, Roberts, Thomas and Graham. The chair ruled this point as not well taken and that a legal meeting was held.

Roll call indicated the following named colleges represented by delegate, and were reported to the Secretary as being the official list of the present membership as called for under the amended Constitution and By-Laws. [To be published later.]

The Secretary submitted his annual report, which was adopted.

DR. N. S. DAVIS presided during the reading of the President's Address. [To be published later.]

Upon motion of DR. COLE, the address was adopted and ordered printed and also ordered circulated to all teachers of medicine in the country.

Upon motion of Dr. Millard, the President appointed a committee consisting of Drs. Osler, Baker and Graham to submit the names of distinguished teachers for honorary membership. The committee reported the following named persons: H. P. Bowditch, Harvard; Geo. H. Sternberg, Surg.-Gen. U. S. Army; J. M. DaCosta, University of Pennsylvania; N. S. Davis, Chicago Medical College; Levi Cooper Lane, Cooper Medical; Hunter McGuire, University Medical College; T. Gaillard Thomas, Columbia College. The report was adopted and the names reported elected to honorary membership.

The Secretary submitted the report of the committee on syllabus, and minimum of requirements, and upon request of the committee the sub-committee, consisting of Drs. Millard, H. A. Kelly and Bayard Holmes, were directed to make the necessary amendments and to print the same in the proceedings of the fiscal year.

The Constitution was by a unanimous vote amended, to provide that the annual meetings begin Monday, A.M., of the week in which is held the meeting of the AMERICAN MEDICAL ASSOCIATION.

DR. HOLMES presented a paper upon Libraries for Medical Schools, which was read and ordered printed.

The following notice of amendment to the Constitution was previously submitted by the Dean of the College of Physicians and Surgeons of Baltimore, to-wit: that Sec. 4, of Art. III of the Constitution be amended to read as follows: "Candidates for the degree of Doctor of Medicine in 1904 and thereafter, shall have pursued the study of medicine for a period of four years, and attended at least four courses of lectures of not less than six months' duration each," was read and discussed by Drs. Michaels, Holmes, Millard, Cramer of Omaha, Friedenwald, Culbertson, Davis and Cole. Upon vote, the amendment was defeated by a vote of 30 nays to 5 ayes.

Upon motion, the action taken at California relating to the curriculum of study was confirmed.

The Judicial Council through its Chairman, Dr. Dudley S. Reynolds, reported as follows: in the matter of complaints against the College of Physicians and Surgeons of St. Louis the Council reported the methods, as disclosed, in bad taste and not in accord with the rules of the College Association. In the matter of the reference of the Ft. Wayne Medical College, regarding the matriculation of students, the action of the school was sustained.

In the matter of the communication of Dr. J. A. Larrabee of the Hospital Medical College, relating to the action of

the Association in expelling the Kentucky School of Medicine from membership in this body, the Council reported that it had no opinion to express.

In the matter of the communication of Thos. H. Hoover, Regent of the Starling Medical College, the Council reported lack of definite information.

The rules submitted by the Judicial Council were adopted.

Upon motion of Dr. Larrabee, the colleges connected with the Southern Association of Medical Colleges were invited to make application for membership in this body.

In the matter of the application of the College of Physicians and Surgeons of Boston, and the Woman's Medical College of the Presbyterian Church of Cincinnati, the question of admission to membership was referred to the Judicial Council with power to act.

DR. J. A. LARRABEE moved that the disability of the Kentucky School of Medicine be removed, and it be permitted to apply for membership. The motion was seconded by the Secretary and adopted.

In response to a unanimous expression of the Association, the following named colleges were elected to renewed membership: the University of Louisville, the Louisville Medical College, the Kentucky School of Medicine.

The following officers were elected for the ensuing year: President, Wm. Osler; First Vice-President, J. M. Bodine; Second Vice-President, W. Graham; Secretary and Treasurer, Bayard Holmes. Judicial Council, Reynolds, Pancoast and Vaughan.

DR. COLE of the University of Colorado, submitted the following notice of proposed amendment to the Constitution and By-Laws, to wit: that Sec. 4, Art. III, be amended to read: "That the preliminary examination provided for, shall be conducted by a Board of Examiners in no wise connected with a teaching body of a medical college."

Upon motion, adjourned.

PERRY H. MILLARD, Secretary.

### PRELIMINARY REPORT OF THE COMMITTEE OF THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES ON SYLLABUS OF A FOUR YEARS' COURSE OF MEDICAL INSTRUCTION.

In presenting this preliminary report your committee appointed at Baltimore, May 5, finds itself facing a problem requiring much time and study, and an emergency in the evolution of medical education calling for great promptness. Many schools are passing from a three year, and largely ungraded course, to a four year graded course. The traditions of the past must be violated and no authority or precedent for the new order is at hand.

Your committee wishes, therefore, to place before the colleges all the information in its possession, taking a very broad and liberal view of its duties. The reports of the sub-committees are given almost always in full. In a few cases it has been necessary to cut them down. The committee is unable to coördinate and simplify the syllabi, and recommend a complete syllabus of the full course at this time. It is possible that such a syllabus might be looked upon as interfering in a measure with the freedom of the teachers, even though it would be advisory only.

It is far from the intention of the Association to interfere in any way with the complete liberty of schools or teachers in the presentation of medical teaching, or crystallize upon them a course of study which would prevent or delay further progress.

So many teachers and so many colleges are calling for help in re-organizing their courses of study, that this incomplete report is offered with the hope that at the next annual meeting of the Association a complete and final syllabus may be handed in. Criticism and correspondence is solicited.

Before making a syllabus of the minimum required course of study for the guidance of members of this Association, it seems necessary to establish some unit of measure. The most common unit now in use among educators is, perhaps, the sixty recitation hour unit; or a recitation of one hour each day, five days in the week for twelve weeks, that is for three months. This unit of sixty recitation hours will be used in this report.

The following questions naturally present themselves and the discussion shows the present opinions of the committee:

1. How much work should be required of the student each year?

The student can reasonably be expected to work ten hours a day. Every recitation or lecture hour should require one and one-half hours of preparation. Four recitation hours would make the student's working day ten hours long. In medical schools the students are old enough and mature enough to stand this amount of work. Four recitation hours

would be equal to  $9\frac{1}{2}$  units of 60 recitations each for the minimum year of seven months. The four years would give a total of  $37\frac{1}{2}$  such units.

#### 2. How can laboratory work and clinics be measured?

Much of the work in the medical colleges is either laboratory or clinical work. Neither of these requires much time for preparation, outside the time consumed in the laboratory or clinical amphitheater. Laboratory or clinical work may be reasonably counted as half time. Two laboratory hours or two clinic hours equal one recitation hour.

#### 3. What should be the proportion of lectures or recitations, of laboratory work and of clinical work?

The committee is of opinion that the proportion of lectures or recitations is now in most American institutions much too large. For the present, we recommend that the work of the four years be nearly equally divided into three portions: one-third being given by means of lectures and recitations, one-third by laboratory methods and one-third as clinical teaching.

#### 4. Shall all of this minimum of $37\frac{1}{2}$ units be required, or may some of it be elective?

We believe that the larger portion of this minimum should be definitely laid out and required of every student by his college, but we urge that each college have a group of courses measured the same as other work which students may elect to fill out the full complement of courses required.

#### 5. Is any particular order in the curriculum necessary or desirable?

Certain branches are necessarily primary, others are necessarily final. Anatomy is, for example, a primary study, and with physiology, embryology and bacteriology it should come before pathology. Pathology should be followed by general medicine and surgery, and these by the specialties. While no definite order is necessary, a certain natural sequence should be observed, so that the student may be led from the known to the unknown, from the concrete to the abstract, and from the special to the general. In this connection the sub-committees present many valuable ideas and suggestions.

Signed, HOWARD KELLY,  
BAYARD HOLMES.

DR. N. S. DAVIS JR., gave a report on

#### MINIMUM OF REQUIREMENTS.

*First Year.—Lectures and Recitations—Hours per week.*—Anatomy four, physiology four, histology and embryology two, chemistry three; *laboratory exercises*, physiology two exercises a week, chemistry three exercises a week, histology and embryology three exercises a week, bacteriology three exercises a week. Dissections. [120 hours].

[In a nine months course this would equal about 15 units].

*Second Year.*—Anatomy two, surgical anatomy and operations two lectures and recitations, practical exercises [60 hours], general pathology three lectures and recitations, pathologic laboratory three exercises, physiologic laboratory three exercises, physical diagnosis two lectures and recitations, materia medica two lectures and recitations. Dissections [120 hours].

[In a nine months course this would equal about 11 units].

*Third Year.*—Practice two lectures and recitations, surgery two lectures, obstetrics three lectures, therapeutics three lectures, hygiene one lecture, pedology one lecture, dermatology one lecture.

Clinical instruction: medicine three hours, surgery three hours, gynecology one hour, eye and ear one hour, pedology two hours, dermatology two hours, mental and nervous one hour.

[In a nine months' course this would equal about 10 units.]

*Fourth Year.*—Practice two lectures and recitations, surgery two lectures, orthopedia one lecture, gynecology two lectures, mental and nervous one lecture, eye and ear one lecture, jurisprudence one lecture and recitation half year, laryngology one lecture and recitation half year.

Clinical instruction: medicine three hours, surgery three hours, gynecology one hour, eye and ear one hour, pedology two hours, dermatology one hour, mental and nervous one hour, orthopedics one hour, laryngology one hour.

[In a nine months course this would equal about  $10\frac{1}{2}$  units.]

By laboratory exercises, is meant exercises not to exceed two hours in length. The arrangement by years is capable of deviation. The time allotted to some of the topics may with advantage be increased. The clinical exercises may likewise be extended to advantage. Each student should be furnished an instrument or microscope for laboratory use. In the chemic laboratory each student should have his own

desk and apparatus. Ample equipment of all laboratories should be insisted upon.

#### SCHEDULE OF MINIMUM OF REQUIREMENTS.

This represents the minimum amount of work in each branch entitling colleges to remain in active membership in this Association. See report of 1894.

Represented in hours "D," indicates lectures or recitation exercises. "L," indicates laboratory work.

Histology and embryology, D, 50, L, 700; anatomy, D, 100, freshmen; D, 100, juniors; laboratory, 100; dissection of entire body.

Physiology, D, 100, L, 75; chemistry, D, 125, L, 125; bacteriology, D, 25, L, 150; hygiene, D, 25; medical jurisprudence, D, 12; practice, D, 200, weekly clinical instruction; surgery, D, 200, weekly clinical instruction; surgical anatomy, D, 100, including laboratory work; obstetrics, D, 150, including recitations; ophthalmology and otology, D, 25; mental and nervous, D, 25; materia medica and therapeutics, D, 125; dermatology, D, 25; orthopedia, D, 25; genito-urinary, D, 25; pedology, D, 25; physical diagnosis, D, 75; pathology, D, 50, L, 100; laryngology, D, 25.

DR. BAYARD HOLMES, of Chicago, presented a report on

#### AN IDEAL WORKING FOUR-YEAR MEDICAL COURSE, LEADING TO THE DEGREES A. B. AND M.D.

Prepared for a university having regular and homeopathic medical teaching. A major equals one of the 60 hour units used above.

Admission to this course is granted only to those who have completed the sophomore year at this [any] university and to those who pass an examination on the required work, as laid down in the university calendar.

The University College embraces thirty courses of sixty recitation hours each. This college requires two years of work. When these thirty courses are completed, the student will receive A. B. at the succeeding Commencement. The required courses of the University College are as follows:

- (a). Chemistry, organic, toxicology, 2 majors.
- (b). Medical botany and pharmacognosy, 1 major.
- (c). Pharmacy, 1 major.
- (d). Biology, I, Huxley and Martin, elementary biology. Martin and Mole, I, II, III, 3 majors—2, bacteriology, 1 major.
- (e). Histology of a mammal, histologic technique, 3 majors.
- (f). Embryology, 2 majors.
- (g). German, 2 majors.
- (h). Medical bibliography and methods of research,  $\frac{1}{2}$  major.

(i). Experimental or laboratory physiology, including experimental psychology, 6 majors.

(j). Human anatomy, 4 majors—dissections, 1 major.

Students who already have any part of this course may elect under the direction of the Dean, such accessory branches as are necessary to complete the required amount of work.

The Professional College embraces thirty majors in medicine, with a wide margin of electives. This college requires two years work. The required courses are the following:

- (a). Pathology, 3 majors.
- (b). Medicine, 3 majors.
- (c). Surgery, 3 majors.
- (d). Obstetrics, 2 majors.
- (e). Elementary State Medicine, 2 majors.
- (f). Elective in specialties, 6 majors.

The eleven electives must be taken with the advice and consent of the Dean, and they must be properly proportioned among clinics, lectures, researches, and theses offered every year. The elective work should be laid out as occasion requires. The following is only suggestive:

Ophthalmology, 1 major.

" second, 1 major.

Otology, 1 major.

" second, 1 major.

Laryngology, 1 major.

" second, 1 major.

Male genito-urinary surgery, 1 major.

Homeopathic materia medica, 1 major.

" therapeutics, 1 major.

" practice of medicine, 2 majors.

Dental surgery, 2 majors.

" 3 majors.

Gynecology, 1 major.

" second, 2 majors.

Orthopedic surgery, 1 major.

" second, 1 major.

Medical jurisprudence, 1 major.

Study and research in medical laws of the United States, (thesis work), 1 major.

Vital statistics, 1 major.

Elements in the fluctuation of vital statistic research, (thesis work), 1 major.

Laws relating to hospitals in the United States, research, (thesis work), 1 major.

State Boards of Health, study of results, origin, laws and evolution research, (thesis work) 1 major.

The development of the child to manhood. The normal child. The abnormal factory child, research, (thesis work), 1 major.

Blindness, history, etiology, education of blind in United States, expense, possible reduction of expense, methods. (Thesis work), 1 major.

The defectives of the United States. Origin, cost and possible limitation. (Thesis work), 1 major.

The Health Officer, his duty and privileges. (Lectures), 1 major.

Life insurance examinations. The duties of the physician and the company, 1 major.

The railway and corporation surgeon. His duties, privileges and his emergencies. (Lectures), 1 major.

Child labor. Lectures and class research. Semmarium, 1 major.

These courses may be multiplied, as the resources of the institution increase. The same degree should be given to all medical students, on the same amount of work.

The seminar and theses courses require much original work and are conducted by a teacher with a small class. Two hours, one meeting a week equals five recitation hours, and a major is therefore completed at the end of three months.

The following circular was sent out to guide the sub-committees in their work.

#### THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

##### *Circular of Information to Sub-committees on Syllabus of Studies.*

*Gentlemen:*—At a regular annual meeting of the Association of American Medical Colleges held in San Francisco, Cal., in June, 1894, the Constitution of the Association was changed, providing that hereafter candidates for the degree of M.D. be required to have completed attendance upon at least four courses of lectures before receiving a degree. Beginning with this year, the course of study is therefore extended to four years, with attendance upon at least four courses of lectures, of not less than six months duration, in different years.

The action of the Association upon this most important move was substantially unanimous.

There was likewise appointed at this session, a General Committee on "Minimum of Requirements" and "Syllabus of Lectures." The committee consists of the following named persons, to-wit: Professors P. S. Conner, of Cincinnati, Ohio; C. B. Stemen, of Fort Wayne, Ind.; Victor C. Vaughan, of Ann Arbor, Mich.; Wm. E. Quine, N. S. Davis Jr., and E. Fletcher Ingals, of Chicago, Ill., and Perry H. Millard, of St. Paul, Minn.

It is the purpose of this committee to aid in bringing about greater uniformity in the methods of admission of students to the study of medicine, in the admission of students to advanced standing with credits from other colleges, in the classification of students and in methods of instruction.

The General Committee held its first meeting in Chicago, Nov. 30, 1894. It was deemed advisable to act with deliberation and seek the advice and coöperation of some of the leading educators of the country in the preparation of a syllabus, and to divide the work of its preparation into a number of sub-committees, corresponding in number to the number of different chairs to be represented in the proposed four years' course.

By resolution of the General Committee, the different chairmen are at liberty to enlarge the number of their committee, or to perform their work without assistance. The following named persons were selected to serve as Chairmen of the different sub-committees, to-wit:

History and Embryology, T. Mitchell Pruden, New York.

Anatomy, Thomas Dwight, Boston.

Physiology, Henry P. Bowditch, Boston.

Chemistry, Walter S. Haines, Chicago.

Bacteriology, Roswell Park, Buffalo.

Hygiene, Victor C. Vaughan, Ann Arbor.

Medical Jurisprudence, B. S. Folsom, Boston.

Materia Medica and Therapeutics, H. C. Wood, Philadelphia.

Practice, Wm. Osler, Baltimore.

Gynecology, Howard A. Kelly, Baltimore.

Surgery, P. S. Conner, Cincinnati.

Obstetrics, W. W. Jaggard, Chicago.

Pathology, Wm. Welch, Baltimore.

Mental and Nervous, Daniel R. Brower, Chicago.

Diagnosis of the Chest and Physical Diagnosis, E. Fletcher Ingals, Chicago.

Ophthalmology, E. L. Holmes, Chicago.

Otology, Henry Gradle, Chicago.

Pædology, T. M. Rotch, Boston.

Genito-Urinary, J. H. Dunn, Minneapolis.

Orthopedia, Virgil C. Gibney, New York.

Laryngology, James N. Mackenzie, Baltimore.

History of Medicine, N. S. Davis, Chicago.

The sub-committees are requested to report, covering the following points in particular:

1. In a four years' course of not less than eight months' duration each year, how much time do you suggest be devoted to your branch?

2. Of the whole number of hours recommended, how divide as to didactic, laboratory, recitation and clinical instruction?

3. At what time in a four years' course should the instruction in your branch be afforded?

4. Any suggestions of subjects to precede your branch before permitting the student to enter upon the same?

5. Is it wise to credit work done in other schools, or would you recommend that students be admitted to advanced standing, only after an individual examination in each branch, below the class the student may desire to enter?

6. Suggest a rule for the classification and grading of students suitable to a four years' graded course of instruction.

7. Prepare a detailed syllabus of the topics you deem suitable for instruction in your branch, and their manner of presentation to the student.

It is intended to combine the report of the several committees and issue the same as "A Syllabus for the Use of Teachers and Students of Medicine."

The members of the different committees are requested to submit their reports to the Secretary at St. Paul, Minn., not later than March 1, 1895. A joint meeting of the General and sub-committees will occur before the meeting of the Association, which took place in Baltimore in May of the present year. Respectfully submitted,

PERRY H. MILLARD, M.D.,

Secretary Association American Medical Colleges.

#### REPORT OF SUB-COMMITTEE ON MATERIA MEDICA.

In a four years' course of not less than eight months' duration each year, materia medica and therapeutics should receive attention during three of these years, viz., the second, third and fourth years. Instruction should be given as a graded course.

*First Year. Introductory Work. Botany.*—By beginning the study of materia medica the second year in the course, the student has an opportunity to receive instruction in botany and chemistry during the first year. Botanical knowledge should be insisted upon, and the necessary instruction for the acquirement of such knowledge should consist of at least thirty hours devoted to lectures or recitations with some additional time for laboratory work.

*Second Year. Materia Medica.*—During the second year, two hours weekly should be devoted to the study of materia medica, giving special attention to pharmacognosy and pharmacology. Such instruction should by preference be given in the laboratory and supplemented by recitations.

*Third Year. Therapeutics.*—Two hours weekly for the school year, should be given to therapeutics studied from the drug standpoint. Such instruction may be given by lectures. In this work, drugs may be studied individually, as represented by such writers as Waring and Ringer, or collectively as represented by the works of H. C. Wood, Bartholow, etc.

*Fourth Year. Therapeutics.*—Two hours weekly, for the school year, should be given to the subject of therapeutics studied from the standpoint of disease. Such instruction should be given by didactic and clinical lectures. The character of such work is well represented by Hare's "System of Practical Therapeutics." H. M. BRACKEN, M.D.,

Professor Materia Medica and Therapeutics,  
University of Minnesota.

#### REPORT OF SUB-COMMITTEE ON ANATOMY.

[In conformity with your request of April 19, I make the inclosed suggestions regarding the character and order of



work to be done in anatomy, in a four years' course. This, as you note, does not include any work in histology and embryology. These studies should in most part be synchronous with the lectures in anatomy. The histology coming in the first year and the embryology in the second year. This course, as outlined, is practically what is being done in the college at the present time.—G. A. HENDRICKS.]

The greater portion of the student's work in anatomy is memorizing names and the forms of objects. Lectures do not give him much assistance. The individual must do this himself. He can, however, be materially aided in his work by pursuing it logically under the guidance of an instructor, by the use of the objects to be studied, and by the stimulation of frequent recitations.

Technical terms should be learned, as far as possible, in the first year. The feature of this year's work should be the study of specimens in the laboratory, supplemented by frequent recitations from the object. Lectures are of minor importance, and should be confined more to generalizations than to minute descriptions.

The dissection and study of muscles may be done in the first year, after the study of bones and joints, and following the lectures and demonstrations on myology.

The work of the second year should be so arranged that the description of the viscera should precede the advanced course in histology and embryology, and the lectures on the physiology of these organs.

Dissecting should be done in the second year, and should not begin until the lectures are so far advanced that the student follows the class-room demonstrations. In point, the student should not dissect to understand the lectures, but the lectures should explain and direct him in his practical work.

The instruction of the third year, unless it can be given in the laboratory, must be done by lectures.

#### *Course of Study First Year.*

**Introduction:** Principles of systematic zoölogy. Fundamental characteristics of vertebrates. Classifications of skeletons. Bones—classification. Bones—features, classification of. Typical vertebra, ten hours.

**Etiology:** Lectures and recitations, thirty hours. Laboratory work—sections, each section twenty-one afternoons, each week six hours, eight weeks forty-eight hours. One lecture per week. Two recitations per week.

**Syndismology:** Lectures and recitations twelve hours.

**Myology:** Lectures and recitations thirty hours.

**Laboratory work.** Two afternoons each week, six weeks, thirty-six hours. Two lectures per week. One recitation per week.

Attendance upon second year lectures covering thoracic, abdominal and pelvic viscera.

#### *Second Year.*

**Organs of circulation, respiration, digestion, reproduction, genito-urinary, thirty hours.**

**Abdominal walls, regions, contents.**

**Hernia—inguinal, femoral, perineum.**

**Anatomy of scalp, face, neck. Anatomy of thorax, axilla, arm, forearm, etc. Anatomy of pelvis, thigh, leg, thirty hours.**

**Nervous system, cord, brain and membranes. Cranial nerves, spinal nerves. Sympathetic system, twelve hours.**

#### *Third Year.*

**Regional or surgical anatomy: Landmarks; surface markings. Review of descriptive anatomy by recitation. Surgical regions, demonstration of relations. Location and position of viscera. Advanced anatomy of brain and cord. Advanced anatomy of special sense organs.**

BOSTON, MASS., March 19, 1895.

DR. P. H. MILLARD, *Dear Sir:*—I feel that I owe you an apology for never having answered your letter of two or three months ago. I consulted one of my colleagues as to what course to take. He gave me no opinion, and I forgot all about it. It is out of the question for me to give you, now, an elaborate or formal answer or to call a committee together; but owing to my previous neglect I can not do less than give you my personal and informal opinion.

The question, if I remember right, was as to what is the best arrangement of a course in anatomy in a four years' course?

This must vary with the school. The course here includes two years. In the first, is taught histology, embryology and descriptive anatomy. This, however, is taught more and more topographically from the very beginning.

In the second year, there is advanced anatomy and ap-

plied anatomy. Though it does not do so with us, this should include all surgical and surface anatomy.

Dissecting should certainly be carried on through a part of both years. It is not well to have it begin before the student knows the bones and joints. On the other hand, it should not be finished in the first year, as the student will appreciate it more in the second. Regretting that I can not give you a formal report, I am

Yours very truly,

THOMAS DWIGHT.

Harvard University Medical School.

#### REPORT OF THE SUB-COMMITTEE ON CHEMISTRY.

For various reasons it does not appear advisable, at least for the present, to prescribe any rigid and definite rules for the course of instruction in chemistry in medical colleges. The science is one of such great breadth, and opinions among the best men in the department vary so widely as to exactly what subjects should be selected for study, and as to the best means of imparting instruction regarding them, that it seems better to allow a wide latitude for the individual choice of each teacher, prescribing only in a general way the work that should be required in colleges belonging to this Association. Your sub-committee, therefore, presents below its views regarding the minimum requirements of instruction in chemistry in medical colleges. No institution should give less than this, and it is to be hoped that all will give more. The subjects for instruction and the arrangement of the different courses are given only in brief outline, the details of the course being left to the judgment of the individual teacher.

One of the requirements for admission to the colleges belonging to this Association is a fair knowledge of the elements of physics, and this requirement should be insisted on most strenuously. There is not a department of medicine that does not need this knowledge for its intelligent study. This is especially true of chemistry, and with many colleges it is customary to precede the instruction in this branch by a short course in physics. This seems undesirable, as it takes valuable time from the study of chemistry, and, moreover, it is unnecessary if the requirements for admission are adhered to—physics having already been studied before entrance to the college is granted. If deemed advisable, a separate course of instruction in somewhat advanced physics might advantageously be given during the first year; but it would seem best to have this totally independent of the course in chemistry, so that the time assigned to the latter may not be at all abridged.

The study of chemistry, therefore, should begin with the commencement of the first year's course, and it should be continued during, at least, the first and second of the required four years in the medical college. The first year may be profitably devoted to inorganic chemistry, with perhaps an introduction to organic chemistry. The instruction should consist of lectures, recitations, and laboratory work. To the first and second not less than seventy-five hours should be given, and fully one-half of this time should be devoted to recitations. At least twenty-five laboratory exercises, of not less than two hours each, should be given to every student during this year.

In the second year, organic chemistry may be taken up, or if already begun in the first year, may be continued, and, following this, a course should be given in physiologic chemistry, when especial attention should be devoted to the urine, both in health and disease. During this year, also, instruction may advantageously be given in toxicology, unless that subject is taken up in connection with the different poisons as they are treated in the general course. At least seventy-five hours should be assigned during this year to the didactic consideration of these subjects, and not less than one-half of this time should be given to recitations. Fully twenty-five exercises of not less than two hours each should be devoted to laboratory work.

At fixed intervals during the entire course, written examinations may advantageously be given to test the progress of the class, and final examinations should be given at the end of each of the two years on the subjects taught therein.

The sub-committee would suggest that the subjects to which the most time is given, in both years, be those most intimately connected with medicine. Those elements and compounds should be particularly studied which are of use in the healing art, while those not employed in medicine, or of purely theoretical importance should be either omitted or very briefly discussed. Thus, iodine, mercury, alcohol and strychnin should be dwelt upon at length, while cobalt, zirconium, hexane, and the azo colors may be dismissed with a few words, if mentioned at all. The field of chemistry is so

exceedingly broad that unless some limitation of this kind is practiced, many subjects of the deepest interest in medicine must necessarily be omitted.

While, as before stated, practically all the work in chemistry may be completed in the first two years of the four years' course, yet it would seem highly advantageous to introduce a small amount of instruction in what might be called clinical chemistry into the last year. One exercise a week might be given to the work, chiefly perhaps in the laboratory, when the examination of urine, gastric juice, and other secretions, tests for the more important elements and compounds, and the incompatibility of drugs in prescriptions could be reviewed. This would afford an excellent means of reviving a knowledge of the more important parts of medical chemistry, and the practical value of this department would then be more fully appreciated than before, since the student, having acquired a greater knowledge of disease, would be in a position to appreciate the relation of chemistry to morbid processes, their recognition and their treatment.

Your sub-committee would suggest that students coming from other colleges, belonging to this Association, receive credit for work already done in the other institution, upon presentation of a certificate from the professor of chemistry, or from the dean or secretary of the other college. It would also seem desirable that students who have taken at least two years of didactic and practical chemistry in high grade literary and scientific schools, and graduates of colleges of dentistry and pharmacy should be admitted without examination to the second year of chemistry in the medical college, upon presenting a proper certificate of work from the other institution.

In conclusion, your sub-committee would state its entire agreement with the views presented by Professor Huxley a number of years ago, that the study of general chemistry has no proper place in the curriculum of a medical college; that this should precede the study of medicine, and that medical chemistry alone should be taught in medical schools. It is certainly to be hoped that this opinion may be adopted by this Association, and that, before many years have passed by, a good knowledge of general chemistry will be required for admission to Association colleges. Instruction in chemistry in the medical college, then, could be confined to its legitimate field—medical chemistry; and, with an abundance of time for its study, the subject would quickly assume its rightful place as one of the most interesting, important, and profitable parts of medical learning.

Respectfully submitted,

WALTER S. HAINES, M.D., Rush Medical College.

(To be continued.)

### Kentucky State Medical Society.

*Abstract of the Proceedings of the Fortieth Annual Meeting, held at Harrodsburg, June 12, 13 and 14, 1895.*

#### FIRST DAY—AFTERNOON SESSION.

The Society convened in the court-house and was called to order by the President, Dr. J. B. MARVIN, of Louisville.

Prayer was offered by the Rev. Dr. W. O. GOODLEE.

An eloquent Address of Welcome was delivered by the Hon. BEN. LEE HARDIN.

The Committee of Arrangements then made its report.

The reports of the Permanent Secretary and Treasurer were next read and adopted.

There being no further routine business to be disposed of at this time, the reading of papers was proceeded with.

Dr. WILLIAM BAILEY, of Louisville, read a paper entitled "Sanitation in Connection with Diphtheria," in which he said that in order to intelligently discuss diphtheria we must first take sanitation into consideration. Great credit was due to the work that had been done by bacteriologists. He had no new theory to advance as to the cause of the disease. It is a specific disease, due to a specific cause, which is always present when the disease exists. The consensus of opinion among those prepared to judge was that the Klebs-Löffler bacillus was the specific germ responsible for the production of the disease; hence the work to do in diphtheria was to destroy the germ or to restrict its activity. The isolation of cases should be as complete as in cases of smallpox. The room selected for the sick should, by preference, be at the top of the house and completely cut off from other parts of the house. The room should be denuded of hangings and belongings in order to facilitate the necessary disinfection afterward. Dr. Bailey then briefly referred to the antitoxin treatment in the prevention of diphtheria.

Dr. CARL WEIDNER, of Louisville, read a paper on "Pathology and Bacteriology of Diphtheria." A disease which corresponds to the clinical picture of to-day seems to have existed as far back as we can trace medical history. The disease appeared in the New England States in the eighteenth century. Diphtheria was a specific disease *sui generis*. Our literature in regard to it is becoming more voluminous from year to year; and clinical investigations are following one another in rapid succession. The work of several eminent investigators was mentioned along this line. The author emphasized the importance of knowing the cause of things, and quoted the words of an eminent practitioner: "First to know, then to heal." He next dwelt upon the different micrococci, but more particularly the Klebs-Löffler bacillus. The investigations made from 1887 to 1889 demonstrated conclusively that the true and only cause of diphtheria was the Klebs-Löffler bacillus. Many investigators have since reported cases of suspected diphtheria in which the bacillus found corresponded in every way with that described by Löffler; but all cases in which the bacillus of Löffler is not found are now considered pseudo-diphtheria. From a prognostic standpoint it is important to make a distinction between diphtheria produced by the bacillus of Löffler and pseudo-diphtheria.

Dr. W. McCURE, of Lexington, followed with a paper on

#### CLINICAL DIAGNOSIS AND LOCAL TREATMENT OF DIPHTHERIA.

The author showed that mere clinical diagnosis is extremely unreliable and should never be relied upon where more accurate diagnostic means are at hand. In support of this statement, he cited the fact that in 1893 the New York City Board of Health instituted a series of bacteriologic examinations, and, according to their report, examined 5,611 cases that had been clinically diagnosed diphtheria. Of this number the Klebs-Löffler bacillus was found in 3,255 cases, while in the remaining 1,540 cases no Klebs-Löffler bacilli were found. It will thus be seen that the number of mistaken diagnoses amounted to 32 per cent. The author in his argument proceeded with the assumption, which he thinks has been clearly proved, that there is no true case of diphtheria without the presence of the Klebs-Löffler bacillus, which he regards as the specific agent. In most cases there is a prodromal stage lasting a few days, resembling a catarrhal pharyngitis. There is a slight fever together with painful deglutition, more marked when swallowing liquids than solids, headache and occasional vomiting.

Of the numerous remedies used locally in the treatment of the disease, the ones that are most generally resorted to and have given the greatest satisfaction are chlorate of potassium, nitrate of silver, chromic acid, iodine, corrosive sublimate, methyl blue, tincture of iron, carbolic acid, and peroxid of hydrogen. The tincture of iron is mostly beneficial on account of the free hydrochloric acid it contains. The nitrate of silver is but a superficial caustic, while chromic acid is too heroic in its caustic effects. In peroxid of hydrogen we have a valuable adjunct in the treatment of diphtheria, when judiciously and skillfully used. It is a valuable aid in diagnosis, as by its application to the throat, if there be but a small trace of membrane, it causes it to assume a white color and on this a fine foam to rise, caused by the liberation of oxygen gas.

Dr. THOMAS HUNT STUCKY, of Louisville, presented a paper on "Sequelæ and General Treatment of Diphtheria." The most important sequelæ are paralyses, which may follow mild as well as severe cases. Paralysis occurs in from 15 to 20 per cent. of the usual run of cases. In the more malignant cases paralysis occurs in about 40 per cent. The palate is most usually affected. The organ of special sense most affected is the eye. Speech, like other senses, is not involved. Brachycardia and tachycardia may be observed in the same patient. The Klebs-Löffler bacillus and streptococci have a tendency to produce exudates and pseudo-membranes. The latter are examples of mixed infection. Dr. Stucky then referred to the rapid strides that have been made by the introduction of antitoxins in the prevention of diphtheria. The most noteworthy point about the antitoxin treatment is that we know nothing about its definite composition, and no one has undertaken to give us an analysis. Supportive treatment was next referred to. The treatment may be summed up thus: 1, prophylaxis; 2, hygiene of the sick room; 3, local applications. Local treatment is of little value as a curative measure. When the lesion is once established gargles are useless. The treatment of special symptoms, such as paralysis, call for strychnia or other tonics; massage, or the electric current may be used; also the hypodermic injection of antitoxins; if there is cardiac

weakness, absolute quiet in the recumbent position should be enjoined. The hot pack is especially serviceable when dyspnea or marked nervousness is present. Stimulants and cardiac tonics should be given early in the disease and constantly. Strophanthus, digitalis, strychnia, camphor and alcohol are the remedies most in favor. Citrate of caffeine may be given when the urine is scanty for its diuretic, as well as cardiac effect.

Dr. WILLIAM CHEATHAM, of Louisville, read a paper on "The Serum Treatment of Diphtheria." The author is much in favor of the serum treatment of the disease. The method of administering it was too well known to the members for him to repeat it at this time. Practitioners, however, must practice thorough cleanliness of the parts in connection with its use. The needles should be clean. The author carries his needles in absolute alcohol. Cleanliness of the parts affected must also be carried out. The tearing away of diphtheritic membrane or any kind of rough treatment should be dispensed with and the spray and gargle substituted. The serum treatment of diphtheria is as yet in its infancy, the dose of it not being well understood. Dr. Cheatham said the best report on the antitoxin treatment of diphtheria was that made by Dr. Kinyoun, of Washington, D. C., under the auspices of the United States Marine-Hospital Service. Future possibilities in this direction could not be over-estimated, as we have in it a preventive of diphtheria. The Government of France had conferred high honors upon Roux for his investigations relative to diphtheria.

Dr. JOHN YOUNG BROWN, of Lakeland, read a paper entitled

SOME FURTHER OBSERVATIONS ON PELVIC DISEASE AND ITS RELATION TO INSANITY IN WOMEN, WITH REPORT OF CASES.

The author emphasized the importance of this subject and showed how gynecology and surgical work of every description had been neglected in the asylums of the South. In order to become familiar with this matter he addressed a circular letter to the superintendents of thirteen asylums of Southern cities, including those of Kentucky, requesting them to inform him what per cent. of the female population suffered from pelvic disease, and to what extent operative gynecologic work had been done. In reply, he received seven letters, the majority of which admitted that a large amount of pelvic disease existed among insane patients; others knew nothing about it and had never investigated the matter. A gentleman who has served for a number of years as superintendent of one of the largest Southern asylums, confessed to him that he was prejudiced against operative interference in these cases, he having seen so many of them recover, notwithstanding the existence of marked disease, in which he had expected to do some sort of operation. Dr. Brown then referred to the pioneer work of Dr. Geo. H. Robé in this direction, also that of Dr. Manton, who had urged that this class of patients be given the benefit of surgical interference which heretofore had been denied them. In discussing the relation of pelvic disease to insanity in women and the indications for operation, Dr. Brown wishes it to be distinctly understood that he only recognizes palpable disease as indicative of operative interference. He has very little faith in the theory of reflex neurotic troubles, without a lesion; nor does he believe that pelvic disease *per se* ever results in insanity. Dr. Brown then reported cases upon which he had operated for palpable pelvic disease, the operations being followed by relief of the mental trouble.

Dr. JOHN M. FOSTER, of Richmond, contributed a paper entitled "Diagnosis of the Presentation and Position of the Fetus by External Abdominal Examination." There had come under the author's observation within the last year twenty-seven obstetrical cases, twenty-three of which were in his own practice, the other four in the practice of other physicians. In all of his own cases he saw the patient from one day to one month before confinement and made a careful examination of the abdomen by palpation to determine the position of the child. In only one case was he in doubt as to the diagnosis on account of the great tension caused by the amniotic fluid. In the first nineteen cases he found a normal position and presentation, as was afterward verified at the delivery. But the twentieth case proved to be an occipito-posterior position. The four cases seen in the practice of other physicians had each advanced too far to hope to rectify the abnormal position for they were all abnormal; one case was an occipito-posterior position, delivered with forceps after much difficulty (stillborn fetus). One footling and two breech cases, all very protracted, with a stillborn fetus in all. Having outlined the

method of recognizing the normal position, the author then directed attention to a few of the leading points in the recognition of abnormal positions, saying that this was a subject the obstetrician must study for himself at the bedside in a practical manner. He urged giving obstetrical cases more attention before confinement, for by so doing we would reduce the infant, as well as the maternal mortality.

#### FIAT DAY—EVENING SESSION.

The Society met at the Harrodsburg Opera House, and was called to order at 8 P.M.

The PRESIDENT, Dr. MARVIN, delivered his Address, which was timely and listened to throughout its delivery with marked attention. Among the many things dwelt upon, he urged a more prompt publication of the Transactions.

Regarding the State Board of Health, some people had an idea that its work was simply to drive quacks out of the State. This was only a small part of its work. It has a higher duty to perform, namely, to educate the community in regard to sanitary science in order that "we may have life and have it more abundantly."

He then dwelt briefly on higher medical education and the four-year course, pointing out the great advantages and benefit to accrue from it, to both the profession and the public.

President Marvin also urged that a committee be appointed from the Society on Public Policy to work in conjunction with the State Board of Health in their efforts to protect the health of the people of Kentucky.

Dr. JOSEPH M. MATHEWS, of Louisville, followed with a popular address on "The Public Health." This address was well delivered, and punctuated here and there with applause. Dr. Mathews said in part that indiscriminate spitting in school rooms, hotels, sleeping cars should be regulated by law; that saliva, whether moist or dry, was a vehicle that brought danger and death. He then drew a picture of the consumptive in a sleeper going to the land of flowers for health, and the next day the health seeker for pleasure and recreation occupied the same berth and who, by want of cleanliness and proper hygienic prevention, was subjected to tuberculosis. In the cold northern climates much had been said with reference to transmitting the germ of tuberculosis by means of kissing, and for this reason he believed kissing was abolished in some places; but no Kentuckian had ever reached a point to forego the ecstasy and bliss arising from genuine osculation, and he would never advocate such a distressingly uncomfortable theory, although he was a firm believer in the germ theory of disease.

On motion of Dr. William H. Wathen, a vote of thanks was tendered to Drs. Marvin and Mathews for their able and instructive addresses.

Adjourned till 9 A.M. Thursday.

#### SECOND DAY—MORNING SESSION.

Dr. W. L. RODMAN, of Louisville, read a paper entitled

THE RADICAL CURE OF INGUINAL AND FEMORAL HERNIA.

At the present day, surgeons were more optimistic than they ever had been, and were doing a far greater number of herniotomies than was ever known in the world's history. The limits of the operation therefore are becoming enlarged rather than restricted: 1. operation for the relief of a strangulated hernia should, whenever practicable, be supplemented by a radical cure. 2. irreducible hernia, so-called, generally cause pain and gastro-intestinal symptoms, beside being more likely to be followed by obstruction, inflammation and strangulation, and these cases, as a class, should be subjected to a radical cure. 3. hernia accompanied with reducible hydrocele should be subjected to a radical cure. These cases will usually be found early in childhood, but he recently operated upon such a case in a young man, 22 years of age, living in La Rue County. Trusses and injections had failed to cure both the hernia and the hydrocele. The three classes already mentioned, without there be contra-indications, demand a radical cure.

Dr. Rodman then considered ordinary reducible hernia. Here many things are to be considered; age, occupation, position, general health. Children will be usually treated and successfully so by a suitable truss. He said that, according to high authority, children under 10 years of age are invariably cured by a truss. Recent statistics, however, taken from the largest hernia clinic known, the London Truss Society, show that according to McCreedy more than one-third of such cases are uncured by mechanical means.

The three operations having greatest popularity at the present time are in the order named; Bassini's, Halstead's and Macewan's operations. The Bassini method is by far

the most generally practiced, though it has been somewhat modified by different surgeons. Dawbarn, of New York City, makes quite a material modification of Bassini's operation in transplanting the testicle from the scrotum to a point just inside the internal ring behind the peritoneum. Considering the statistics made during the last five years only, we find an astonishingly small fatality following this operation. Bassini reports 560 successful cases of his operation without a death; Marcy did over 200 with no mortality; Macewan 81 cases without a death, and Coley did 200 operations with one death, and this was due to double pneumonia on the eighth day, the result of ether.

DR. FREDERICK P. HENRY, of Philadelphia, Pa., read a paper entitled "Remarks on Chlorosis and its Treatment." He said the chief predisposing causes of chlorosis are to be found in age, sex and constitution. The principal of these predisposing causes is, he believes, a congenital tendency to anemia. The exciting causes are those of anemia in general, such as insufficient food, light, air, and exercise, overwork, either mental or physical, anxiety, grief, and nervous excitement in general. The anatomic characters were next considered at length. The complications of chlorosis are phthisis, gastric ulcer, chorea, and exophthalmic goitre. As regards the treatment, the remarkable efficacy of iron was referred to when used in the initial stage. Nearly all chlorotics are dyspeptic, and until the digestive disorder is relieved the full benefit of iron can not be obtained. In cases of atonic dyspepsia, the simple bitters, such as gentian or exciters of the smooth muscular fibers, such as strychnia or brucia, may be administered before meals, or if there is gastric dilatation, naphthol, salicylate of bismuth, or chloroform water may be given three or four hours after meals, as recommended by Le Gendre, in order to limit or stop the abnormal fermentation generally present in that condition.

DR. LOUIS FRANK, of Louisville, read a paper on "Treatment of Puerperal Sepsis." The author first dwelt upon the etiology and pathology of this form of sepsis. Pre-existing gonorrhea may cause sepsis, as may any pathologic condition of the genital organs which antedates delivery. The conditions are often not discovered until too late to institute prophylaxis. Notwithstanding the fact that infection is most frequently conveyed by the hands, instruments, and dressings of the obstetrician or nurse, there may also be local conditions in the genital tract below the internal os which play an active part in permitting infection, and without which it would not occur. The treatment he considered under several heads: 1, those cases where the infection is the result not directly but indirectly of tears in the soft parts, there being a localized suppurative at these points; 2, those cases where septic endometritis exists; 3, where pus tubes or sacs in the broad ligaments are found; 4, purulent metritis and parenchymatous metritis; 5, purulent peritonitis; 6, sapremia, septicemia or pyemia.

DR. CURRAN POPE, of Louisville, read a paper on

#### SOME REFLECTIONS ON THE CAUSATION AND THERAPEUTICS OF NERVOUS DISEASES.

The medical mind has been recently directed toward the presence and excess of uric acid in the excretions of persons suffering from various forms of nervous troubles, and some French investigators go so far as to state that nervous diseases and uric acid are one and the same thing. This is based largely upon the investigations and statements of Haig and Bouchard whose experiments are marked by unexcelled brilliancy. Dr. Pope is constrained to believe, however, that the deductions therefrom are erroneous. He believes that the position assumed by Hertor and Horbaczewski is correct, and that uric acid largely derived from nuclein is the detritus of tissue waste and a resultant of nerve functioning; in other words, the presence of uric acid is an indication and a manifestation of nutritive and digestive disturbance. It is the result of nutritive disturbances going on in the body where so many minute, vito-chemic reactions take place.

Considerable experience in the treatment of all forms of nervous disease has taught the author, in many instances, that elimination must precede nutritional treatment, and he had seen few cases that had not been benefited by this line of treatment, strictly individualized in its application to the case in hand. In his opinion, hydrotherapy is by far the most satisfactory, pliable and useful remedy that the medical profession possesses, and after some years of experience with it he does not hesitate to say that he believes this agent, cautiously and carefully applied by a physician thoroughly trained in its application, to be the very best means for the

correction of disordered nerve force, the elimination of waste products, and the toning of the vasomotor system.

#### SECOND DAY—AFTERNOON SESSION.

The first paper read at this session was by DR. H. J. COWAN, of Danville, entitled "A Case of Monocular Albuminuric Retinitis—Recovery."

DR. J. MORRISON RAY, of Louisville, read a paper on "The Blind of Kentucky."

DR. HORACE H. GRANT, of Louisville, read a paper entitled "Comparative Value of Mechanical Devices in Making Intestinal Anastomosis," and DR. AUGUST SCHACHNER, of Louisville, one on "Modern Methods of Intestinal Anastomosis."

These papers considered all known mechanical devices for performing intestinal anastomosis up to date, and the deductions drawn incline to the belief that the day is not far distant when surgeons will return to the old method of suturing the bowel without the aid of mechanical devices.

DR. HENRY E. TULEY, of Louisville, read a paper entitled

#### THE CARE OF THE NEWBORN.

The question of the care and management of the newborn child has so long been relegated to ignorant mothers and nurses, that a consideration of the subject by medical men is opportune. The danger of septicemia threatens every newborn child through the medium of the cord. We know that tetanus, erysipelas and diphtheria occur in the young infant, the infecting organism gaining entrance through the cord. The cord should be tied in two places, about one inch apart, with a strong ligature which has been previously sterilized, extra care being exercised in tying those cords which contain a large amount of Wharton's jelly, as the shrinkage of this may cause the ligature to slip and a dangerous hemorrhage ensue.

Relative to feeding, it is hardly necessary to state that unless some physical condition precludes, all infants should be given nature's food—mother's milk. Immediately after birth the child should be anointed thoroughly with vaselin or olive oil, not with lard, on account of the salt which it contains, then wrapped in a shawl or blanket and laid away for at least twelve hours, before it is bathed and dressed and given to its mother for the first nursing. During the first six hours the cord should be examined frequently for hemorrhage. The child's temperature should be taken twice daily for at least one week after birth. Should the child be getting an insufficient quantity of milk it will have an elevation of temperature from 1 to 4 degrees above normal.

The important precaution to prevent thrush or sprue is the regular cleansing of the child's mouth before and after each nursing, which can be done by means of a cotton swab on the finger wet with a saturated solution of boracic acid. Instructions should be given for the proper care of the buttocks.

DR. M. F. COOMES, of Louisville, read a paper on "Stricture of the Esophagus." Strictures of the esophagus occur mostly in children, and were generally due to traumatism. Cases occur more frequently in the United States than in any other part of the world, for the reason that American housewives made use of lime; whereas in England, Germany and other countries they did not use it. American children got hold of this lime and swallowed it.

DR. GEO. S. DAVIS, of Salvisa, read a paper on the "Treatment of Pneumonia."

DR. J. G. CARPENTER, of Stanford, followed with a paper on "Abdominal Surgery in the Country." He said that Dr. John Craig, of Stanford, operated on a woman 30 years of age for an abdominal tumor in 1850. There was a large sac, containing many smaller ones, all filled with fluid, and the tumor weighed fourteen pounds. The abdomen was opened in the median line, and the tumor was a multilocular ovarian cyst. Similar operations were referred to as having been done in the country in farm-houses by Dr. Craig and his assistants. Dr. Carpenter said the best results in the past had been obtained in the country in farm-houses, out of hospitals, and by country surgeons, as had been claimed both by Price and Tait.

DR. GEO. BEELER, of Clinton, read a paper on "Milk Sickness," in which he reported several interesting cases occurring in the practice of himself and others. From the aggravated character of the disease, its successful treatment requires great discrimination and experience.

DR. S. G. DARNEY, of Louisville, read a paper on "Phlyctenular Ophthalmia."

(To be continued.)

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Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the Editor, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 86 Fifth Avenue, Chicago.

SATURDAY, JUNE 29, 1895.

GOITRE TREATED BY THE DESICCATED THYROIDS.

At the seventeenth annual congress of the American Laryngological Association just held at Rochester, N. Y., Dr. E. FLETCHER INGALS, of Chicago, read a paper on this subject, in which he presented the histories of fifty cases, recently treated by himself and others, with desiccated thyroids. An analysis of these cases and a consideration of the history of the use of the thyroid products in goitre and myxedema served to warrant the following conclusions:

Thyroid products produce marked physiologic effects upon the nervous and circulatory systems as indicated by headache, dizziness, pains in various portions of the body and great weakness; and by flushing of the face and rapidity of the heart's action. Some of these unpleasant symptoms usually occur when a daily dose is reached, corresponding to one and one-half or two entire thyroid glands of the sheep.

If the administration of the remedy in doses that cause such symptoms is continued for a few days, constitutional effects are produced indicating that persistent use of doses of from 6 to 12 grs. of the dried thyroid (equivalent to one or two thyroid glands) three times daily, might produce fatal results.

Desiccated thyroid glands appear quite as active and more stable than the liquid extract.

Internal administration appears quite as effective as hypodermatic medication.

For internal use the adult dose of the desiccated thyroids should not exceed 2 grs. three times daily, at first; but the dose may be gradually increased to two or three times this quantity, providing it does not cause unpleasant symptoms. There is no evi-

dence that moderate doses have an injurious effect.

The remedy in some cases has a pronounced effect on the body weight, but this is very uncertain and varies so greatly in different persons and in the same individual at different times that there is strong reason for suspecting that the loss of weight that sometimes follows this administration may be due entirely to disturbance of the digestive organs.

In the treatment of myxedema, the remedy has undoubted value and appears to benefit quite a large percentage. In these cases it is probable that the best results will be obtained by giving it at intervals for a long time.

In exophthalmic goitre the remedy causes rapid reduction in the size of the gland, but it has but little if any effect upon the exophthalmos, and it apparently aggravates the heart symptoms. In this disease it must be used guardedly, and its effects must be carefully watched.

In many cases of goitre, internal administration of full doses of the products of the thyroid is followed by a most remarkable diminution in the size of the diseased gland. Improvement or cure may confidently be expected in 76 per cent. of the cases, but sufficient time has not yet elapsed to determine what the final results will be. It is probable that cystic growths in the thyroid gland would not be influenced by this remedy.

Clinical experience has not yet demonstrated that this remedy is of value in other diseases, but its effect in diminishing the size even of very firm and hard enlargement of the thyroid gland would certainly justify experimentation in other directions.

QUININ OR ARSENIC IN CHOREA.

DR. PHILIP C. KNAPP writes, in the *Boston Medical and Surgical Journal*, that he has, at the City Hospital, given quinin a trial, not on an extended scale, according to the suggestion of Dr. H. C. Wood made in 1893 before the Association of American Physicians. The results of this trial were not so favorable as appeared to have been obtained by Dr. Wood, but in one case there occurred a complete recovery within a week, and in another within three weeks. But inasmuch as all choreas are not the same, nor from a like etiologic source, it is not unreasonable to suppose that quinin may serve as usefully as arsenic in a proportion of the cases.

DR. KNAPP did not feel sufficiently encouraged by this trial to extend it to his private practice. On this point and on the varieties of the affection he remarks as follows:

"Choreic movements are not uncommon as a result of structural brain disease, but they are rarely, if ever, seen as a symptom of diseases of the cord. In canine chorea, on the other hand, which is not proved to be the same as human chorea, the changes are chiefly in the cord. It is possible that in some

cases, such as those reported to the American Neurological Association in 1890 by WEIR MITCHELL, the morbid process may affect chiefly the cord, but such cases are rare.

"It is furthermore possible that in the future we may differentiate several affections which are now called chorea. HUNTINGTON's chorea and the electric chorea of DUBINI are now fully recognized as distinct diseases, having no connection with the ordinary chorea of childhood—SYDENHAM's chorea. Evidence is accumulating that in most cases of SYDENHAM's chorea we have to do with a disease of microbic origin, and the researches of BERKELEY, DANA and PIANESE have done much to confirm that belief. Other cases, including some of the rather rare cases which are alleged to be due to fright or to irritation, may be of hysterical origin. In chorea of microbic origin the toxin probably exerts its chief influence upon the brain cortex, especially in its motor region.

"The hypothesis on which quinin is recommended for the treatment of chorea seems to me untenable, and the therapeutic results are based thus far on too few cases to warrant us in ascribing greater virtues to this drug than to arsenic. Not having the idea at the time of publishing the results of this very imperfect trial of the drug, the results of one season's trial did not seem to me of sufficient value to lead me to try it in my private practice or in my subsequent terms of service at the hospital, and I went back to my former custom of supplementing the rest and regimen with full doses of arsenic, associated if necessary with iron or other tonics, and, in case of great motor disturbance and restlessness, with sulphonal or other sedatives."

#### OCULAR SYMPTOMS OF THE LITHEMIC STATE.

Lithemia is not latent or suppressed gout, it is a modified form of gout. It is the form which is particularly prone to manifest itself in this country, and has on this account been styled American gout by DA COSTA<sup>1</sup>, who by his writings has contributed largely to our knowledge of this peculiar morbid state. The term, lithemia, is not entirely satisfactory, since the condition intended to be described involves much more than a mere excess of uric or lithic acid in the blood or urine. The blood contains urates in excess and frequently oxalates, also other imperfectly elaborated products of waste, such as xanthin and paraxanthin; possibly it may yet be further poisoned, as suggested by the same authority, by the absorption of ptomaines, or toxalbumins, resulting from imperfect gastric and intestinal digestion. The urine is, as a rule, increased in density and in its content of coloring matter, and is acid in reaction; but spontaneous deposits of urates and of uric acid are seldom observed; small quantities of albumin may sometimes be found and even tube casts, both hyalin and epithelial, but these are only transitory and do not indicate permanent kidney disease. While a deposit of urates in the vicinity of the joints does not occur, and attacks of acute arthritis are rare, there is a painless enlargement of the phalangeal joints with

some impairment of function, especially observed in elderly people. The blood tension may be normal, or moderately increased in lithemia, but it is so to a less degree than in typical gout, and the arteries do not so readily tend to the atheromatous condition; neither do the heart or kidneys present the usual gouty changes. There is no acute exacerbation of joint inflammation in lithemia, as there is in true gout, such attacks, according to TROUSSEAU's teaching, being conservative and therapeutic efforts of nature to relieve the condition, but there are other disturbances which are not entitled to be considered so favorably.

Among the usual symptoms have been enumerated, impaired digestion and a tendency to acid or fermentative dyspepsia, muscular pains, neuralgic attacks, pains in the tendons, malaise and indisposition to exertion, drowsiness during the day, lack of ambition, depression of spirits, frequent and severe attacks of vertigo and migraine, restlessness, insomnia and jerking muscles at night. One consequence of defective oxidation and deficient elimination and of the excess of food supply, is that the functions of the liver are imperfectly performed and there is generally more or less hepatic disorder, with its attendant symptoms.

The ocular affections associated with lithemia have quite recently been reviewed by S. D. RISLEY of Philadelphia, in a paper read at the State Medical Society of Pennsylvania. Very much has been said and written, directing attention to eye abnormalities as the cause of irregularities of function in remote organs, producing symptoms which are liable to be mistaken for cerebral, gastric, hepatic, renal, spinal or nervous disease. Even chorea and epilepsy have been traced to this cause and cases have been effectually relieved by appropriately selected glasses.

It has also been shown *per contra* that general disorders having their principal lesions in the great nerve centers, like locomotor ataxia, or in the blood, as in syphilis and tuberculosis, or remote organs and tissues, as in Bright's disease of the kidneys, or in disordered metabolism, as in gout and rheumatism—may each give rise to characteristic changes in structure and disturbance in function of the organs of vision. Directly in this connection, RISLEY calls attention to the fact that lithemia is both a primary and a modifying factor in many ocular discomforts and even the efficient cause of many serious diseases of the eye. The great liability of gouty subjects to transient vasomotor derangements, to persistent and recurrent inflammations of mucous membranes and fibrous tissues, and to degenerative changes in vascular walls is generally recognized, and in its modified form, as lithemia, something of the same character might be looked for in an organ like the eye, in which these structures are represented in such a highly organized form.

<sup>1</sup> The Pathology of Lithemia, Medical News, March 17, 1895.

In the etiology of iritis, lithemia stands second only to syphilis in the number of the victims, while in obstinacy and tendency to recur it stands first. But there are other forms of ocular disturbance which are less well known than rheumatic iritis, or irido-cyclitis, as it is called, and in the treatment of which the same causative factor should not be overlooked. In such cases, local measures are useless and the patient will not begin to recover until the diet is regulated and the appropriate remedies given. Among these disorders is the conjunctivitis of children which is not infrequently associated with impaired alimentation and imperfect assimilation of food. In adults, also, conjunctivitis may have this origin, while episcleritis is a very common manifestation of lithemia.

Some disorders of refraction, producing weak eyes, and evidences of eye strain, which apparently admit of easy correction are found not to be much benefited by appropriate glasses. Such a patient may go from one clinic to another, until some one recognizes in the sedentary life and badly selected diet the efficient cause of an underlying lithemia, and directs the patient to the path which leads to recovery, both of vision and of health.

RISLEY declares that a large number of patients with habitually weak eyes, who receive glasses of low power for the correction of minor defects of refraction, are victims of this diathesis. They suffer from every attempt to use the eyes at near work, their symptoms being out of all proportion to the amount of abnormality which can be detected. Low grades of muscular anomaly, varying in kind and degree from day to day, may be observed. The ophthalmoscope reveals an injected nerve and choroid, but no gross change, except that if the patient be past middle life and the diathesis of long standing, there may be found well-marked striation of the retinal fiber layer and granular—or it may be, gray—borders to the retinal vessels, together with a cinnabar red and woolly eye ground. The symptoms may entirely disappear if the patients get a few days' outing, and they may then lay their glasses aside, owing to improved metabolism and increased excretion brought about by exercise. This of itself is indicative of the systemic origin of the symptoms, especially if the latter return upon resuming the former sedentary habits of life.

In well-advanced cases with general arterial changes, serious lesions may occur in the eye. Thus innumerable small apoplexies may be observed in hemorrhagic retinitis, even peri-vasculitis, hemorrhagic glaucoma, and the choroidal disease which precedes incipient cataract may be detected; the changes in the circulation in the eye going on progressively in association with those of the general vascular system. The importance of the early recognition of the real character of these changes is obvious,

and the information gained by ophthalmoscopic examination will enable the physician to institute appropriate measures to prevent the further progress of the disease or, at least, to materially delay its development. Some forms of corneal disease—glaucoma, hemorrhagic retinitis, albuminuric retinitis and peri-vasculitis should always lead to a careful analysis of the case, since they may prove to be but one of several groups of symptoms pointing to the general impairment of the vital functions attending the lithemic state. Incidentally, it is to be observed that the results of surgical operation in advanced cases, especially in elderly subjects, are greatly impaired by the presence of lithemia, and in cataract extractions, iridectomies and other operations, in such profoundly diseased eyes, the surgeon, if he is wise, will give a doubtful or a guarded prognosis.

#### GRAPHOLOGY.

PROFESSOR WM. PREYER, whose work in physiology and physiologic psychology is well known and highly valued, has recently published a work on the "Psychology of Handwriting," which is, for three-fourths of its volume at least, a treatise on graphology or the science or pseudo-science of determining personal traits and character from handwriting. Another prominent medical scientist, LOMBROSO, has entered the same field, and it may therefore be considered as not undeserving of notice, the more especially as it is, in the natural order of things, likely to attract popular attention and become more or less a fashionable fad of the day. Its literature is increasing and it has various elements of popularity. Its sanction or support by such eminent medical authorities goes far to render it respectable—in short, it seems to have a future, at least a temporary one.

The pathology of handwriting has an admitted importance and has been ably studied by ERMENEGILDO, GOLDSCHIEDER and others. PROFESSOR PREYER, however, goes farther and holds that its psychology must be studied by the physician, that the neuropathologist must examine the handwriting for character, simulation, emotional condition, etc. That there may be a germ of truth in this may be admitted, but there is a serious prospect of false diagnosis if this method is to be generally adopted and its results accepted according to the dicta of the graphologist. What are we to say of the ataxic, drunken-appearing signature of SHAKESPEARE, for example, to say nothing of many eminent men whose handwriting would indicate mediocrity, not to mention qualities positively vicious, according to the graphologic signs? Such examples can be found abundantly, and do not speak well for the accuracy of the indication.

Moreover, graphologists are not all in agreement as to the value of features, and one sees rectitude

where another might suspect deceit. The possible gross injustice that may thus be done, in individual cases, will be obvious to any one.

The fact is, handwriting is an artificial accomplishment and is affected by so many factors that a perfectly natural and characteristic one is probably more of a rarity than many would suspect. As an indication of character it is a dangerous guide and ought, at best, to be only used by especially skilled observers, who themselves should draw their own conclusions with reserve, and ought to hesitate before laying down formal directions for the guidance of others.

For medical purposes the study has a value, but more from a pathologic than a psychologic point of view, and the recommendation of its use should be limited to the study of its disorders in disease. The germ of truth that exists in the popular graphology of the day, is not enough to give the latter the rank of an accepted science, even with the support of high authorities like PREYER and others.

#### A RIVAL TO PERKINSISM.

"No wretch e'er felt the halter draw  
With good opinion of the law."

The State of "Missouri has a Still," says the *Medical Fortnightly*, "that never rests." It is DR. STILL, the so-called "Osteopath."

One of the down-trodden worms of this Still—JAMES STROTHERS—is located at Roseville, near Monmouth, Illinois. He issued a circular in the *Roseville Times*, May 3, 1895, in which he made the usual tirade of irregulars and miscellaneous rascals, generally, against the Practice of Medicine Act of Illinois, and the State Board of Health, on account of his arrest by that Board. This circular which sets forth the grievance of the "Osteopaths" was reprinted from the *Roseville Times* and distributed to the members of the Illinois Legislature. May 28, MR. HAMER introduced into the State Senate the following:

#### A BILL

For an Act to amend Section ten (10) of an Act entitled, "An Act to regulate the practice of medicine in the State of Illinois," approved June 16, 1887, in force July 1, 1887.

SECTION 1.—Be it enacted by the People of the State of Illinois, represented in the General Assembly, That section ten (10) of an Act entitled, "An Act to regulate the practice of medicine in the State of Illinois," approved June 16, 1887, in force July 1, 1887, be amended to read as follows:

SEC. 10.—Any person shall be regarded as practicing medicine, within the meaning of this Act, who shall treat, operate on, or prescribe for any physical ailment of another.

But nothing in this Act shall be construed to prohibit services in case of emergency, or the domestic administration of family remedies, or the practice of "Osteopathy," or to commissioned surgeons of the United States Army, Navy or Marine-Hospitals service in the discharge of their official duties.

The first three lines attracted no attention on the part of any reader and the affair was managed very quietly and actually passed the Senate, and but for the watchfulness of the Committee on Legislation of the Illinois State Medical Society, and DR. JOHN L.

WHITE, of the House, would have passed both houses without attracting any particular attention.

It seems that the original Osteopath, "DR." STILL, has a "college," the "American School of Osteopathy," located at Kirksville, Mo., from which emanate such hopeful worthies as STROTHERS.

DR. STEELE, of St. Louis, who investigated the matter, read a paper on the subject before the Missouri State Medical Society, of which the *Fortnightly* gives an abstract:

"The question is now often asked, What is osteopathy? It may be said to be a 'school of medicine' of which one STILL, of Kirksville, is the disciple, which has developed to such an extent as to have a 'college' from which numerous 'graduates' are being sent out; which has had a trial for a law of recognition, which bill passed both houses of the recent Legislature, and would have gone upon the statute books had it not been wisely vetoed by GOVERNOR STONE. All thanks to him for having saved the State from disgrace! The 'graduates' of this 'school' do not need any special training in anatomy, physiology or therapeutics, as the whole system is summed up in one proposition: all diseases are due to the displacement of bones and consequent pressure on nerves and other tissues. The summary of treatment is simplicity itself: reduction cures. There are two kinds of disease: 1, one from displaced bones of the extremities, causing deformities, pain, etc.; 2, the other, dislocation of some of the vertebræ, giving rise to trunkal diseases. But the same treatment cures all. The stock of knowledge, therefore, consists in the knack of manipulation, with perhaps an element of hypnotism—certainly a large amount of suggestion. In this, very like Christian science, certainly many cures are effected, the classes benefited being four: 1, old adhesions following sprains, rheumatism, etc., which can be broken up; 2, cases where there is really no pain or tenderness in a joint but the patient has lost its use through fear; 3, hysterical cases; 4, old dislocations, real. The regular profession has been derelict in not recognizing and curing such cases."

Osteopathy as it is practiced, thus appears to be massage, pure and simple, and DR. STEELE has not quite done justice to modern teaching, which recognizes fully the indications for massage and the correct methods of its application. The masseur has come to stay, but we do not like to see him masquerading under the name, osteopath. A masseur of the first order must thoroughly understand the anatomy of the body. Now-a-days when the masseur is as indispensable to the general practitioner and the surgeon, as the trained nurse, he is so much in demand that no excuse can be offered for his adherence to theories such as are propagated by this veriest moonshiner of all the illicit stills in the country. Let the masseur stick to his art.

#### RAILWAY ACCIDENTS AND MORTALITY.

From advance sheets of the "Abstract of Statistics of the Railways of the United States" for the year ended June 30, 1894, we learn that, "during the year



1,823 railway employes were killed and 23,422 were injured, as compared with 2,727 killed and 31,729 injured in 1893. This marked decrease in casualty is in part due to the decrease in the number of men employed, and the decrease in the volume of business handled. The increased use of automatic appliances on railway equipment also may have rendered railway employment less dangerous and it may be that the grade of efficiency of employes has been raised.

"The number of passengers killed was 324, an increase of 25, and the number injured was 3,304, a decrease of 195. Of the total number of fatal casualties to railway employes, 251 were due to coupling and uncoupling cars, 439 to falling from trains and engines, 50 to overhead obstructions, 145 to collisions, 108 to derailments, and the balance to various other causes not easily classified. To show the ratio of casualty, it may be stated that 1 employe was killed out of every 428 in service, and 1 injured out of every 33 employed. The trainmen perform the most dangerous service, 1 out of every 156 employed having been killed, and 1 out of every 12 having been injured.

"The ratio of casualty to passengers is in striking contrast to that of railway employes, 1 passenger having been killed out of each 1,912,618 carried, or for each 44,103,228 miles traveled, and 1 injured out of each 204,248 carried, or for each 4,709,771 miles traveled. A distribution of accidents to the territorial groups exhibits the diversity in the relative safety of railway employment and of railway travel in the different sections of the country."

## CORRESPONDENCE.

### Utah State Medical Society.

SALT LAKE CITY, UTAH, June 18, 1895.

To the Editor:—In February of the present year, a Utah State Medical Society was organized, its members comprising almost all of the best known physicians in the Territory. The Code of Ethics of the AMERICAN MEDICAL ASSOCIATION was adopted. The first annual meeting will be held Oct. 1 and 2, 1895. The following is a list of officers elected: President, F. S. Bascom, M.D.; First Vice-President, Walter R. Pike, M.D.; Second Vice-President, G. M. Perkins, M.D.; Secretary, J. N. Harrison, M.D.; Treasurer, G. M. Wilson, M.D.

J. N. HARRISON, M.D., Sec'y.

### A Question of Translation.

WHEELING, W. VA., June 19, 1895.

To the Editor:—In the Correspondence column of the JOURNAL, I notice a letter by Dr. Chas. G. Kuhlman with the heading, "*Audi Alteram Partem*." I note a very serious mistake. At the close of his letter the Doctor correctly quotes Binz, as stating in 1883 at the Buda-Pesth Congress for Internal Medicine: "Our future therapeutic efforts in infectious diseases must be toward '*Denlebenden organismus zu entgiften*.'" This he translates, however, in parenthesis: "To poison the organism, as it were." But, *entgiften* means just the opposite, viz., to remove or eliminate poison. Therefore Dr. Kuhlman has no reason to take issue with Binz on this doctrine, as they are both of the same opinion as the majority of the American medical profession, who will "continue in the future as they have done in the past—to eliminate the contagium at the bedside." It is sometimes dangerous to make a translation when not perfectly familiar with the respective languages.

Respectfully, G. A. ASCHMAN, M.D.

## BOOK NOTICES.

**On the Symptoms which Simulate Diseases of the Pelvic Organs in Women, and Their Treatment by *Allo-piosto-Myo-Kinetics* (Massage), and by *Auto-Piosto-Myo-Kinetics* (self-movements of muscles under pressure).** By A. RABAGLIATI, M.A., F.R.C.S., Ed., Honorary Gynecologist, late Senior Honorary Surgeon, Bradford Infirmary. Octavo, illustrated by six full-page heliogravure plates, extra muslin, pp. 77. Price \$1.50. New York: William Wood and Company. 1895.

Those who have in *propria persona* experienced the full benefits of massage, as demonstrated on a debilitated and plethoric body, will, we feel sure, yield to the enthusiastic masseur and masseuse the meed of praise to which they are entitled. But there must be some limit even to the uses of massage. We may concede that massage is the very best form of administering concentrated exercise, and that wherever and whenever exercise may be beneficial, massage, its "concentrated extract," is indicated, and yet we must deny that massage can prevent microbic invasion, arrest malignant disease, or restore lost parts.

We, however, freely concede that adhesions may be broken up, that circulation may be improved, and neuritis relieved by proper use of massage. And there is little question but many cases treated in the past few years by oöphorectomy would have been better treated by rational massage, and self-movements of muscles, as advocated by our author. The book is interesting and valuable.

**Transactions of the American Association of Obstetricians and Gynecologists.** For the Year 1894. Vol. VII. Octavo, cl., pp. 520. Philadelphia. 1895.

We have already published in this JOURNAL a full account of the last meeting in Toronto of this flourishing society, and given abstracts of the papers. It only remains, therefore, to chronicle the appearance of this handsome volume, which makes the seventh of an interesting series, and adds to the current literature very much that is of permanent value. The volume is larger than its predecessor, and its typography is excellent.

**The Care of the Baby.** A Manual for Mothers and Nurses, containing Practical Directions for the Management of Infancy and Childhood in Health and Disease. By J. P. CROZER GRIFFITH, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania. Octavo, cl., pp. 392. Price \$1.50. Philadelphia: W. B. Saunders. 1895.

To the already large number of guides to mothers and nurses, this treatise has been added. There are eleven chapters written in popular style, and fairly illustrated. The physician may find it convenient to recommend a book to his patients, and this of Dr. Griffith seems to meet the want. Many a baby will be better cared for when the mother becomes familiar with the contents of this book. We commend it.

**The History of Prostitution, ITS EXTENT, CAUSES AND EFFECTS THROUGHOUT THE WORLD.** By WILLIAM W. SANGER, M.D., Resident Physician, Blackwell's Island. With numerous editorial notes and an appendix. 8vo, cl., pp. 709. New York: The American Medical Press. 1895.

The investigation of which this book is the outcome was begun in 1855, and completed in 1858. An appendix brings the results down to date. The author arrives at the only conclusion to which an unprejudiced mind can come after careful investigation, namely, that the evil, which has existed in all ages, can not be totally suppressed by any legislative measures whatever, that its calamitous results may be diminished by proper regulation, and that the number engaged in prostitution may be measurably diminished by increasing the opportunities for respectable employment, and that so far from discouraging the employment of women in the

shops and lighter trades, that every encouragement should be given to dependent young women to engage in such pursuits.

The usefulness of this book is most apparent to those engaged in the work of public charities and corrections, and the civic legislator may here find many precedents to guide him in his search for a remedy for the present rather depressing state of things as shown by municipal statistics.

**Atlas of Clinical Medicine.** By BYRON BRAMWELL, M.D., Assistant Physician to the Edinburgh Royal Infirmary. Vol. III, Part 2. Edinburgh: F. and A. Constable, University Press. 1895.

The second part of the third volume of this excellent work in clinical medicine has just appeared. Like its predecessors, it is a very interesting number, dealing with congenital syphilis, progressive muscular atrophy, the progressive muscular dystrophies, points to be observed in the clinical examination of cases of pseudo-hypertrophic paralysis and other forms of progressive muscular dystrophy, and notes of cases of pseudo-hypertrophic paralysis and other forms of progressive muscular dystrophy.

There are ten plates, with numerous illustrations of the text. Two of ichthyosis, one of multiple cancer of the breasts and other organs, four of congenital syphilis, two of progressive muscular atrophy, and one of cyanosis. In addition, there are numerous illustrations scattered through the text.

It is one of the best numbers issued in this useful work.

## PUBLIC HEALTH.

**Leprosy in Norway.**—According to the most recent statistics, furnished by Dr. E. Kaurin of Molde, leprosy is disappearing more and more in Norway. In 1856 there were about three thousand lepers in that country; at the end of 1892, there were not over eight hundred or nine hundred, half of whom were inmates of the leper asylums. Since then the number has so much decreased that it is proposed very soon to close two of the five asylums in the country. The author's opinion is that leprosy is an exclusively contagious affection and that heredity is not to be regarded as a predisposing cause. Strict segregation of lepers is, he believes, absolutely necessary in order to stamp out disease.<sup>1</sup>

**Prophylaxis of Paludism.**—Noel, after passing in review the successes and failures of quinin and certain of its salts in the prophylactic treatment of malaria, reaches the following conclusions: 1, the prophylaxis of paludism by quinin is a demonstrated fact; 2, there are no inconveniences attending the treatment in health, and quinin loses none of its efficacious properties in cases of intermittents; 3, the hydrochlorate of quinin is the best salt to use; 4, the drug should be taken each morning after arrival in the dangerous zone and during its passage; 5, the minimum daily dose is 0.30 grams. For troops on the march the pill form is preferable, but for those in camp it is better to use the medicament form an ingredient of a tonic. Notwithstanding the efficacy of quinin, in the light of recent knowledge that malaria is waterborne, the true prophylactic is pure water.<sup>2</sup>

**Cholera and Life Insurance.**—Dr. Oertel, the German bacteriologist, who died in Hamburg in September, 1894, from "laboratory cholera" had his life insured in favor of his mother. It will be remembered that the Doctor contracted the disease in the course of his experiments, but it was never possible to exactly determine the manner of infection either before or after death. The policy read that the amount was to be payable in case of "violent and sudden accident, inde-

pendent of the will of the assured, and determined by an external mechanical cause." After the Doctor's death the company refused to pay the policy and the matter was referred to the Hamburg Court of Appeals, which has decided that "the multiplication of the bacilli and the effects which these produce on the stomach and intestines are to be regarded as a chemical and not a 'mechanical' action."<sup>1</sup>

**Vaccinal Dermatoses.**—The dermatoses of vaccinia, no matter what their morphologic differences—erythematous, papular, vesicular, pemphigoid—agree in appearing from the ninth to the eleventh day, according to Hervieux, or on the eighth day according to Dauchey. In certain cases the eruption may appear earlier or, on the contrary, it may be later. The eruption appears without any modification of temperature; it is ephemeral, never contagious and rarely itches. These vaccinal eruptions are rare, they are nearly always observed in children, exceptionally in adults, and are more frequent in summer than in cold weather. Hervieux thinks they are due to the virus, and Behrend ascribes them to individual idiosyncrasy. While this question is still disputed, the influence of individual predisposition is undeniable. The pathogeny of these dermatoses is not yet well established. Some authors, as Morris, attribute them to reflex nervous action; others, as Behrend, claim they arise from the passage into blood, either of the vaccine virus itself, or from pus microbes from the pustules or their soluble products. The most frequent eruptions are a rash, of which Conget distinguishes four varieties—erythematous, morbilliform, papular and nettle-rash. Vaccinal malaria is equally frequent. Pemphigus is rare as is also purpura. It is interesting to note that while some skin lesions, like eczema and psoriasis, are favored by the development of vaccinia, the latter does not produce them but only encourages their development.<sup>2</sup>

**A State Vaccine Farm.**—The Illinois Legislature at its last session passed the following:

An Act to establish a Vaccine Laboratory and making an appropriation therefor.

SECTION 1.—*Be it enacted by the People of the State of Illinois, represented in the General Assembly, That the sum of three thousand (\$3,000) dollars be hereby appropriated, out of funds not otherwise appropriated, for the purpose of establishing, equipping and maintaining a laboratory in connection with the State University at Champaign, for the propagation of pure vaccine virus.*

SEC. 2.—*That the Trustees of said University shall have the management of said institution, Provided, however, that the State Board of Health shall exercise supervision of the methods of propagation and shall certify to the purity of all products.*

SEC. 3.—*That the product of the vaccine laboratory shall be furnished all physicians and Health Officers, within the State at the cost of propagation.*

SEC. 4.—*That a report of the management, together with a statement of the receipts and disbursements, be made and included in the annual report.*

The passage of this Act is one of the measures which the Legislative Committee of the Illinois State Medical Society advocated and pushed. The State Board of Health also commended the bill, but the active efforts of Drs. John L. White, of the Legislature, Graham of Chicago, and Maxwell of Mt. Carmel, alone secured its passage.

**Health Reports.**—The following health reports have been received by the Supervising Surgeon-General M.-H. S.:

### SMALLPOX—UNITED STATES.

Arizona: Nogales, June 17, 4 cases, 1 death.

Michigan: Detroit and Olivet, smallpox reported present June 8 to 15.

Missouri: St. Louis, June 8 to 15, 3 cases, 1 death.

Tennessee: Memphis, June 8 to 15, 2 cases.

<sup>1</sup> Le Semaine Medicale, June 5, 1895.

<sup>2</sup> Le Bulletin Medical, No. 29, 1895.

<sup>1</sup> Le Semaine Medicale June 5, 1895.

<sup>2</sup> Patovi in Presse Medicale de Leige, No. 15, 1895.

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